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Abstract

Keywords: Artificial Intelligence – marketing – data economy – personalisation – EU consumer law – fairness – unfair commercial practices

This thesis studies how commercial practice is developing with artificial intelligence technologies and discusses some normative concepts of EU law on fair trading. The author argues that the mainstream normative debate concerning artificial intelligence has underestimated the importance of understanding the socio-technical context behind its adoption, and therefore aims at amending this gap by studying artificial intelligence in the context of business-consumer marketing relationships. The "algorithmic business" phenomenon refers to the increased deployment of artificial intelligence tools in marketing organisations which - based on large quantities of consumer data - allow companies to optimise a number of tasks related to consumer relationships. The phenomenon is orienting relations with consumers towards some general observable trends that are critically affecting the power relations between business and consumers. These developments do not take place in a legal vacuum but in the background of a system of norms and rules aimed at maintaining fairness and balance in market transactions. Thus, the author assesses current developments in business practice in the context of EU consumer law specifically aimed at regulating business practice. The analysis is critical by design and without neglecting concrete practices attempts to look at the general picture.

The thesis consists of nine chapters divided in three thematic parts. The first part discusses the integration of artificial intelligence technologies in marketing organisations, a brief history, the technical foundations, and their modes of integration in business organisations. In the second part, a selected number of socio-technological developments in commercial practice are analysed and the main implications from the perspective of consumers discussed. In particular, the following are addressed: the monitoring and analysis of consumer behaviour based on data; the personalisation of offers and customer experience; the capture of information on consumers' psychology and emotions, the mediation through algorithmic assistants. The third part assesses these socio-technical transformations in the context of EU fair trading law and of the broader policy debate concerning consumer protection in the algorithmic society. In particular, two normative concepts underlying the EU fairness standard are critically analysed: manipulation, as a substantive regulatory concept that limits commercial behaviours in order to protect consumers' informed and free choices and vulnerability, as a concept of social policy that portrays people who are more exposed to marketing practices.

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List of Abbreviations

AI	Artificial Intelligence
API	Application Programming Interface
B2C	Business 2(To) Consumer
CTR	Click-Through Rate
DSM	Digital Single Market
EAI	Emotional Artificial Intelligence
EASA	European Advertising Strategy Alliance
ECHR	European Convention on Human Rights
EU	European Union
FACS	Facial Action Coding System
CJEU	Court of Justice of the European Union
GDPR	General Data Protection Regulation
HLEG	High Level Expert Group
IAB	Interactive Advertising Burea
ICT	Information and Communication Technologies
IoT	Internet of Things
NLP	Natural Language Processing
NLG	Natural Language Generation
OBA	Online Behavioural Advertising
RS	Recommendation System
RTB	Real-Time Bidding
SDK	Software Development Kit
SHA	Smart Home Assistant
SRO	Self-Regulatory Organisation
TFEU	Treaty on the Functioning of the European Union
UCPD	Unfair Commercial Practices Directive

Chapter 1

Introduction

1.1 The era of smart machines

The context of this research is provided by the increased deployment of artificial intelligence (henceforth, AI) technologies in society. While research and development in AI dates back to the first half of the twentieth century, in the last ten years powerful new applications based on machine learning and cognitive computing have emerged. Instead of requiring logical programming and explicit representation of knowledge, in machine learning the construction of information and computer systems is based on large amounts of data and specific statistical algorithms which allow to extract independently the rules for the performance of a certain task. The program can automatically learn to perform their tasks by deducing knowledge directly from the data and then inductively determine the rules that guide them through the execution of their assigned task. The intellectual ability of machine learning is largely based on the ability to make predictions about decisions that maximise the achievement of the goal: based on the statistical correlation found in the data, machine learning systems make probabilistic determinations about the decision that most likely leads to achieve their goals. With the advent of cognitive computing, machine learning becomes capable of more complex tasks associated with human intelligence, such as processing and understanding natural language texts, image recognition and understanding human speech.

The success of these new applications has been primarily caused by, and at the same time stimulated, an increased availability of data. A process of momentous digitisation has in fact accompanied the uptake of artificial intelligence in many sectors of social and economic life: data flows have been produced in all domains wherein digital technologies were adopted, such as in computer-mediated economic transactions (in e-commerce), in online social relations (e.g., social networking), in surveillance devices and sensor monitoring technologies (e.g., mobile technologies, street cameras, cars, digital devices), in governmental workflows (e.g., banks, transportation, taxes), from surveillance devices (e.g., road cameras). These data flows have been integrated into a global interconnected data processing infrastructure centred on the Internet. The infrastructure provides a universal means to communicate, to access data and to provide any kind of public and private service.

It allows consumers to make purchases, businesses to carry out their economic activities, citizens to use banking and other administrative services, to pay taxes and obtain benefits, access information and knowledge and build social relations and networks. The algorithms mediate citizens' access to content and services, selecting information and opportunities for them.

Thanks to the convergence between AI and the Internet data-generating infrastructure, much good can be provided to society: distribution of knowledge and innovative solutions, wealth creation, enhanced access to public services, ecological management of public utilities and logistics, support for transparency, discovery and correction of prejudice and discrimination. Data-driven AI enables society to discover unexpected correlations in data and develop fact-based evidence. If the potential is unlocked, AI technologies will allow businesses to provide consumers with a higher quality service, States to develop more effective public policies, health services to provide personalised medical advice, public authorities to identify risks, prevent harm and better coordinate citizens' activities to improve the management of goods and common spaces.

However, the convergence between smart machines and data has also unlocked serious risks for individuals and society. Private and public organisations may exploit the power of AI applied to vast masses of data to pursue legitimate economic objectives, yet in ways that are harmful to individuals and public interests. Citizens can be subjected to pervasive monitoring by corporations and governments leading to extensive intrusion of privacy and potential breach of data protection rights. The use of data-driven applications in governments and services of general economic interest can facilitate discrimination on grounds not protected by current law and lead to undue restriction of options. They can provide access to biased information and facilitate the proliferation of sensations and fake news. The exploitation of AI can also result in consumers' distortion of economic behaviours in e-commerce environments and prevention of free choices. In fact, many Internet companies (such as the main platforms for user-generated content) operate in two-faced markets: their main services (e.g., search engines, social networks) are offered to individual consumers, but the revenues come from advertisers and persuaders (e.g., in political campaigns). This means not only that all the information that can be useful for targeted advertising will be collected and used for this purpose, but also that the platforms will use any means to capture users, so that they can be exposed to ads and attempts to persuade them. As mentioned above, users can be captured by providing them with information that they like or that matches their preferences, thus exploiting their confirmation prejudices, which can lead to the polarisation and fragmentation of the public, and the proliferation of sensational and fake news.

Many countries and international organisations have started to adopt governance strategies aimed at seizing the potential benefits of the technology, and at the same time, containing ethical and legal risks deriving from its uses. On the latter front, the European Union has been one of the front-runners.

In the 2018, the European Commission published its Communication Artificial Intelligence for Europe.¹ The document outlines three pillars as the core of the proposed strategy (i) boosting the EU's technological and industrial capacity and AI uptake across the economy, (ii) preparing for socio-economic changes brought by AI, and (iii) ensuring an appropriate ethical and legal framework based on the Union's values and in line with the Charter of Fundamental Rights of the EU. To support the implementation thereof, the Commission established the "High-Level Expert Group on Artificial Intelligence" (AI HLEG) and mandated it with the drafting of two documents in particular: (i) AI Ethics Guidelines that build on the work of the European Group on Ethics in Science and New Technologies and of the European Union Agency for Fundamental Rights, and (ii) Policy and Investment Recommendations.

At the end of 2018, the AI HLEG presented its first draft, "Ethics Guidelines for Trustworthy AI"² After an open consultation which generated feedback from more than 500 contributors, the AI HLEG published the final version at the beginning of April 2019. The guidelines are neither an official document from the European Commission nor legally binding. They are also not intended as a substitute for any form of policy-making or regulation, nor to deter from the creation thereof. One of the main goals of the guidelines is to ensure that the development and use of AI follows a human-centric approach, according to which AI is not seen as a means in itself but as a tool to enhance human welfare and freedom. To this end, the AI HLEG propagates "trustworthy AI" which is (i) lawful, complying with all applicable laws and regulations; (ii) ethical, ensuring adherence to ethical principles and values; and (iii) robust, both from a technical and social perspective.

On 26 June the AI HLEG published the second document Policy and investment recommendations for trustworthy Artificial Intelligence.³ Among other things, the document recommends to establish an appropriate governance framework to confront the new challenges raised by AI which should bring the EU to review the adequacy of the current regulatory regime, pursuant to a comprehensive mapping of relevant EU regulations and potential legal gaps to both maximise AI's benefits and prevent and minimise its risks. Among other things, the AI HLEG suggests to "consider the extent to which existing laws have the capacity to safeguard against illegal, unfair, deceptive, exploitative and manipulative practices made possible by AI applications (for instance in the context of chatbots, include misleading individuals on

¹ Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions Artificial Intelligence for Europe COM/2018/237 final.

² High-Level Expert Group on Artificial Intelligence. *Ethics Guidelines for Trustworthy AI*. European Commission. Dec. 2019.

³ High-Level Expert Group on Artificial Intelligence. *Policy and Investment Recommendations for Trustworthy AI*. European Commission. June 2019

the objective, purpose and capacity of an AI system) and whether a mandatory consumer protection impact assessment is necessary or desirable"⁴

As a further step, and with the aim of promoting the uptake of artificial intelligence while at the same time addressing the risks associated with its use, in February 2020, the European Commission has proposed a White Paper with policy and regulatory options in order to establish "an ecosystem for excellence and trust" for the development of AI.⁵ Building on policy recommendations, the documents addresses different regulatory options for AI, including specific actions for the revision of existing regulatory laws applicable to AI or the adoption of a new regulatory framework to address the main risks of the technology.

1.2 AI in context: the algorithmic business

Regulation requires definitions. On the one hand, definitions clarify the meaning of words (what are we referring to when employing the terms "artificial intelligence", "robotics" and "algorithmic techniques"?). On the other hand, they increase our understanding of the entities that the words refer to and the law strives to regulate.

Regarding the first, while legal scholarships tend to regard "artificial intelligence" as one technology, it is arguably not the case. Autonomous weapons or AI systems as in high frequency trading are not the same thing, as AI systems in targeted advertising is different from self-driving cars. These "technologies" pose different problems depending on who uses it, in what way, and for what purpose. As a consequence, there will be no Artificial Intelligence Act, regulating the whole phenomenon top-down, administered by the Artificial Intelligence Agency (just like there is no Internet Act, or Internet Agency). Hence, there is no need for one, all-encompassing definition, at least for the purpose of legal research and regulation. And even sector-wise, as long as we know what we are talking about, definitions are not necessary. Ever wondered how it is possible that the legal system manages to regulate the behaviour of human beings, even though no commonly accepted definition of a "human being" exists?

With regard to AI understanding, part of the problem with the law and artificial intelligence scholarship is that our understanding of AI is often influenced by linguistic intuitions and sci-fi movies and books, rather than by the socio-technical reality itself. Yet, when speaking about the "challenges of AI", or essentially regulations or challenges of any technology, one has to

⁴ High-Level Expert Group on Artificial Intelligence, *Policy and Investment Recommendations for Trustworthy AI*, p. 38.

⁵ White Paper on Artificial Intelligence – A European approach to excellence and trust, COM/2020/65 final.

bear in mind that by "technology" one actually should understand a socio-technological practice, i.e., what different actors do with it, what the technology enables them to do, and what the consequences of these technologically enabled actions are. In the words of American lawyer Jack Balkin:

"When we consider how a new technology affects law, our focus should not be on what is essential about the technology but on what features of social life the technology makes newly salient. What problems does a new technology place in the foreground that were previously underemphasised or deemed less important?"⁶

And further:

"What lawyers call "technology" is usually a shorthand for something far more complex. When we talk about "technology," we are really talking about (1) how people interact with new inventions and (2) how people interact with other people using those new inventions or presupposing those new inventions. What we call the effects of technology are not so much features of things as they are features of social relations that employ those things (...) Innovation in technology is not just innovation of tools and techniques; it may also involve innovation of economic, social, and legal relations."⁷

In this sense, studying artificial intelligence and its normative challenges means studying how the technology impacts on the social/legal relationships in which the technology is adopted. As a result of this understanding, the present work studies artificial intelligence in context, and probably in one of the most intricate and well-developed: marketing.

The convergence and self-reinforcing effect between the Internet, digitisation and AI technologies is in fact giving marketers a host of new technological tools to better understand, predict and engage with consumers. Companies employ AI technologies primarily to analyse market dynamics, competing brand strategies and consumers' behaviours. These systems are used to gather knowledge of micro-environmental factors that specifically affect marketing performance, including market-share trends, products purchases, customer behaviours and characteristics. Algorithmic systems perform different transformations of available data into actionable knowledge by classifying users in ever-increasing small segments and predicting consumer profitability with regard to their marketing initiatives. Besides constantly generating new knowledge, AI-powered software applications are used to make real-time decisions regarding many aspects of brand-consumer interactions. Product recommendation systems, website design applications, and creative advertising engines are only some of the applications enabling

⁶ Jack M. Balkin. "The Path of Robotics Law". In: *California Law Review* 6 (2015), pp. 45–60, p. 46.

⁷ *Ibid.*, p. 48.

personalised interactions by ranking products, generating, testing and tailoring commercial information, and morphing online interfaces considering available information of customers. Natural language processing, computer vision and speech recognition techniques are adopted to learn about customers' verbal and visual signals, both in online and offline channels. Natural language understanding and speech generation are applied in chatbot interfaces and speech recognition software are increasingly embedded in web services, phone and smart home devices allowing new kind of seamless interactions with consumers.

The use of algorithmic technologies in marketing is producing some significant transformations in the relationship between business and consumers. Companies collect consumer data from various offline and online sources and use algorithmic systems to derive new knowledge about their past, present and future behaviours. Consumers find themselves under the constant gaze of data collecting and trading companies, knowing very little about how marketers actually work with their data, what knowledge is extracted and with whom it is shared. Marketers use algorithmic systems to generate, test and distribute commercial content, products and website layouts to optimise business measures. While perhaps contributing to a more pleasant customer experience and facilitating choice, these developments radically change the relationship between businesses and consumers as, by adopting a radical behaviourist approach, they subject consumer decision-making to an opaque, subtle and potentially exploitable modulation of choice architecture. Algorithmic systems enable marketing organisations to create new in-depth profiles of consumer psychology, measure sentiment in the digital marketplace and decipher affective cues during the online-offline customer journey. Empathetic algorithmic practices suggest an unprecedented ability to study the consumer's mind, implant personalized affective cues into marketing materials and target emotions in real time. Finally, a new kind of interaction between firms and consumers through new algorithmic interfaces is materialising in the algorithmic context. Businesses are interfacing in their relationships with the new consumer digital assistant which, based on increasingly human characteristics, auctions off the most intimate spaces of the consumer's life. These products are increasingly modelled with human-like characteristics: they enable conversation with consumers, are instilled with the ability to recognise emotions and generate a sense of social attachment in consumers.

To accompany a debate on the ethical framework of artificial intelligence and its potential regulation, it is also necessary to understand how their use affect the relationships between business and consumers. This thesis aims to fulfil this gap by integrating a careful look at practice and a critical perspective on the effects and implications for consumers. In the future, business-consumer relationships will increasingly be data-driven, more personalised, more empathetic, and increasingly mediated by smart objects programmed to instil a sense of familiarity between in market transactions. The benefits

may be immense, but so may the dangers.

1.3 EU law on fair trading: regulatory disconnection

This is not the first time that technology disrupts business-consumer relationships. We live in a technology-driven commercial world, whether it was pre-industrial print, the electronic machinery of mass communication, or the creation of the Internet, technological upheaval is inevitable and so is its immediate appropriation by companies. Sometimes technological innovation in business practice can prove socially beneficial. Print and mass newspapers have helped spread the word about new products, like refrigerators and dishwashers, that gave people more opportunities for leisure. Radio and especially TV advertising have enabled interested buyers to know about products without waiting to go to the supermarket to read the directions for use. Similarly, e-commerce has allowed tremendous benefit for citizens in terms of expanded access to product, commercial information, convenient services, and instantaneous access to digital goods. Artificial intelligence applications in business practices can also bring enormous benefits: they allow consumers to have access to more precise information and reduce time search for goods, to benefit for customized services and improve consumers' rights. Yet, business innovations need to be questioned before new patterns are established and it becomes too late to evaluate their costs against a historical benchmark. As the philosopher Helen Nissenbaum notes, different social arenas have different norms that should be investigated to determine the potential toll from a loss of privacy.⁸ Similarly, in assessing the consequences of the new business practices different norms need to be studied so we get a sense of their contextual integrity and what might be lost by allowing today's AI-powered businesses to proceed unabated. And if the consequences appear too grave, law needs to be used to restrain opportunistic and invasive practices.

With the rise of markets of mass consumption, consumers protection law has indeed been attributed with the role to compare what should be possible with what should not when it comes to modern marketing practices. In particular, it has formed a backdrop for setting the lines between a scam and a sale contract, between fraud and commercial diligence, between legitimate persuasion and unfair influence. Sometimes citizens can protest against overzealous selling tactics by voting with their wallets. Sometimes, the invisible hand is sufficient to give consumers the means to evaluate different choices and look elsewhere in case of sub-optimal deals. Markets are not a cure-all, however. History shows that with the increasing pervasiveness of commerce in consumer society, legislators have begun to set limits to commercial conducts. TV advertising has enabled marketers to reach consumers

⁸ Helen Nissenbaum. *Privacy in context: Technology, policy, and the integrity of social life*. Stanford University Press, 2009.

in their leisure time when marketing defences can be more easily wiped out and has prompted legislators to ban subliminal advertising. Door-to-door sales and billboards reach consumers everywhere, distracting attention and possibly disturbing while driving and has causes legislators to set bans on private/public spaces that should be left untouched by the market. Electronic marketing and distance contracting on the Internet have increased the possibility of data collection, unsolicited communication, and new commercial fraud by anonymous traders, and the legislators acted with e-commerce bills and legislation.

Consumer protection law in EU was indeed born to keep economic relations between business and consumers balanced. While businesses possess the relevant information about products and markets, consumers are regarded as the weaker parties that need information to make informed decisions. Without clear and sufficient information, they cannot properly confront and assess offers and prices in the market, and cannot pursue their interests, thus making efficient choices. At EU level, the importance of information in consumer transactions is translated into a series of legislative instruments that require traders that carry out their profession in one of the Member States to provide consumers with certain information the stages prior to the conclusion of a contract. These range from the first approach of the business to the consumer (advertising and marketing, sales, and promotions), to the targeted offers (invitation to purchase), up to the moments immediately before the conclusion of the contract (the so-called pre-contractual stage).

With regard to the first two in particular, as of the 1980s, the EU has triggered a process of positive harmonization of national laws that resulted in a directive of maximum harmonization: the Directive on unfair commercial practice.⁹ This is one of the few consumer protection directives with horizontal application, i.e., it does not concern a specific consumer contract (e.g., the sale, consumer credit, guarantees), but regulates in general all commercial practices, not only the stages before the conclusion of the contract, but the whole relationship between business and consumer, including post-purchase. In addition, together with the Unfair Contract Terms Directive,¹⁰ it represents an area where the EU goes slightly beyond formal requirements (information, guarantees and right of withdrawal), but allows courts and enforcement bodies to review the substance of commercial behaviour. The Unfair Commercial Practices Directive fits perfectly with the idea of market society sought by the EU. The rules allow traders to market and sell their products in the internal market without needing to comply with different national

⁹ Directive 2005/29/EC of the European Parliament and of the Council of 11 May 2005 concerning unfair business-to-consumer commercial practices in the internal market and amending Council Directive 84/450/EEC, Directives 97/7/EC, 98/27/EC and 2002/65/EC of the European Parliament and of the Council and Regulation EC No 2006/2004 of the European Parliament and of the Council, OJ L 149, 11.6.2005, p. 22–39 (also the Unfair Commercial Practice Directive).

¹⁰ Council Directive 93/13/EEC of 5 April 1993 on unfair terms in consumer contracts, OJ L 95, 21.4.1993, p. 29–34 (also the Unfair Contract Terms Directive).

consumer protection regimes. At the same time, it requires traders to abide by a standard of fairness by prohibiting practices that against professional diligence distort the economic behaviours of consumers, preventing the consumers to make informed and free choices. Traders cannot use marketing materials to mislead consumers by providing false information and or retain information that is material to the consumers in order to make an informed choice. Traders must also refrain from engaging in commercial practices that restrict consumers' freedom of choice through aggressive behaviours that may alter consumers' autonomous decision-making. The Directive, dating back to 2005, has been the subject to extensive judicial interpretation by the European Court of Justice, to an official non-binding interpretation by the European Commission, and has recently been amended in the context of the New Deal for Consumers programme. A complex framework of laws, rules and principles has emerged, which regulate fair trading in the EU.

It is in this context that the objective of this thesis is to analyse the complex relationship between developments in algorithmic marketing practices and EU fair trading law that protect consumers.

1.4 Methodological notes and relevance

The research is carried out through an interdisciplinary methodology with reference to artificial intelligence, business practice, and EU law on fair trading. The research is based on three main methodological notes that will be here briefly detailed and contextualised.¹¹

1.4.1 Artificial Intelligence in socio-technical systems

In the past few years, numerous publications and books have treated AI as one technology with certain characteristics, posing a uniform set of problems across different sectors and consequently calling for a uniform set of solutions. Questions about liability of AI systems, personality for artificial agents, transparency and the black-box problem, accountability, bias and potential for discrimination are on the lips of academia and have reached regulatory institutions. This approach generally attributes a dynamic to technology that is independent of its human inventors or at least determines its own impact on human society. In this approach, AI runs the show, whatever its incarnations instantiate and wherever the technology is employed. This approach is characterized by high excitement, a sense of urgency, initial familiarization with the technical and social knowledge, testing initial

¹¹ The work takes inspiration from the methodological guidelines of the ARTSY project, see Agnieszka Jabłowska et al. *Consumer Law and Artificial Intelligence: Challenges to the EU Consumer Law and Policy Stemming from the Business' Use of Artificial Intelligence*. Final report of the ARTSY project. European University Institute (EUI), 2018. URL: <https://cadmus.eui.eu/handle/1814/57484>. The author has been invited at the workshop held at EUI in Florence on 28-29 June 2018.

intuitions and hypotheses. Yet, it is considered as insufficient for a comprehensive understanding of the challenges of AI for at least three reasons. First, it overlooks the fact that the term "artificial intelligence" is used as an umbrella category, capturing extremely diverse technologies, techniques and methods. From the analysis, it emerges that how lawyers discuss over AI is often something different than what is occurring in practice. Second, it deals with issues such as transparency or fairness independently from their context. One context is different from another, especially if separate normative systems exist that already attempt to instantiate such principles in regulations. Third, most relevantly, it suffers from a limited understanding of the transformation that are currently taking place in society. Big data and AI are not merely new technologies but represent a new technical, economic, social, cultural paradigm which is already revolutionizing many aspects of our life. It is firmly believed that there will be no one-size-fits-all, top-down solution to the "AI challenge", because there is no one "AI challenge". Different technologies, used by different types of actors for different purposes, penetrating in society with different degrees of rapidity, pose different risks and might need very different solutions. And for that, time is needed to think hard about what changes the technology transition is bringing to society, what are the best tools and regulatory frameworks to implement. This thesis is therefore concerned with studying AI in one of its contexts of adoption, perhaps one of the most advanced: commercial practice. In this domain, artificial intelligence represents the most recent evolution of information technologies adopted within business organizations. A socio-technical approach to AI allows a flexible understanding of the relationship between technology and its social fabric of adoption, whereby technology is neither neutral instrument that can be separated from its objectives, nor an autonomous entity separated from its context. This perspective, however, does not relieve us analysing the technical specifications of the new technology. For this reason, we propose a technical review of the main AI technology used in marketing.

1.4.2 Technology as a practice

Following the socio-technical approach, the existence and effects of AI in society will much depend on its actual affordances, which are always relative to its environments and to the enactive capabilities of those who use it. The idea of affordance, while encompassing specific adoption and specific usage, also stresses the aspects of how technology shapes technological practice. This underlying approach is a soft technological determinism, which allows to overcome the simplicity of hard technological determinism which merely proposes a simple cause-effect relationship between technological change and changes in social, economic, or managerial practices. In essence, this view of technology states that by adopting a particular technology an individual or an organization (in this case, marketing organization)

may be opting for a lot more in terms of social, political, economic, and cultural implications than a straightforward assessment of the technology's "objective" capabilities would suggest.¹² This understanding of the technology requires, before skipping to legal analysis, to dwell on the important transformations in business-consumer relations: only by recognizing the mutual constitution of the technological process and commercial practices, and by looking to the dialectical shaping of algorithmic technologies and strategies of data commodification, one can confront more productively the challenges of what scholars correctly describe as a "weaponized" digital machines.¹³ This is why this thesis studies 'technology in practice'. The business uses of AI are manifold and not all of them necessarily pose social, ethical and legal issues. The 'uses' have therefore been grouped around four developments that constitute some relevant trends in the way business-consumer relationships are developing with AI. The aim is to provide a cold socio-technological analysis on these developments following a bottom-up approach, starting from actual practice and developing some critical understanding of the resulting transformation. For this aim, various insights will be considered coming from different disciplines such as critical data and surveillance studies, critical marketing and consumer research, as well as human-computer interaction research. All together these disciplines reflect on the penetration in marketing organizations of what media professor Ted Striphas calls an "algorithmic culture", that is, the delegation of "the work of culture – the sorting, classifying and hierarchising of people, places, objects and ideas – to data-intensive computational processes"¹⁴. A caveat: the four developments described that will be addressed shall not be regarded as a clear-cut taxonomy. On the contrary, there might be some overlap in the analysis, given that the issues analysed relate to the same technical affordances of AI systems, which is essentially to analyse different kinds of data and possibly make determinations thereon in the form of assessment, predictions, recommendations, decisions, design configuration, voice utterances. The selection of the four developments analysed was based on a number of cross-cutting recurrent topics in reports and statements of marketing practitioners, marketing and advertising journals on information systems, and also in an increased interest in legal and ethical literature on AI. Hence, one could imagine speaking about different perspectives on how business practice is developing with artificial intelligence. The four perspectives entail varying considerations when it comes to assessing their implication on consumers and reinforce the urge to carry on a review of legal framework on fairness in commercial practices.

¹² The idea of soft technological determinism is probably best represented by sociologist Langdon Winner with the idea of "political technology". See Langdon Winner. *The whale and the reactor: A search for limits in an age of high technology*. University of Chicago Press, 2010

¹³ Anthony Nadler, Matthew Crain, and Joan Donovan. *Weaponizing the digital influence machine – The Political Perils of Online Ad Tech*. Report. Data & Society Research Institute, 2018. URL: <https://datasociety.net/library/weaponizing-the-digital-influence-machine/>.

¹⁴ Ted Striphas. "Algorithmic Culture". In: *European Journal of Cultural Studies* 18.4-5 (2015), pp. 395–412.

1.4.3 Normative concepts of consumer law

The developments of algorithmic practices will be assessed against concrete normative thresholds of EU consumers law, and specifically fair trading law. This is not to say that EU consumer law provides the only or the best normative context when evaluating the evolution of algorithmic business practice. On the contrary, many other perspectives – human rights, privacy, antitrust law – may fit a study on current development in business practice. What is important is that in order to move forward in the analysis of how AI impacts on legal relations, it is necessary to specify these perspectives and make them as clear as possible. Besides the material scope, it has been chosen to focus on EU fair trading law for many reasons. In recent years, many authors have more or less extensively referred to this area of consumer protection in order to develop a discourse on commercial fairness in the age of data and algorithms.¹⁵ The Unfair Commercial Practices Directive is often cited for its alleged openness to new evolving rules and interpretations, due to the wide concept of fairness and general clauses contained in it. The underlying thread is to understand the extent to which this area of consumer protection law accommodates new forms of influence exercised by or with autonomous systems. The analysis is generally limited to an acknowledgement of the main legislative provisions (such as, for example, the generalised fairness clause), without, however, investigating more generally the concept of fairness in B2C relations sought by EU law and testing it with the general developments in commercial practices. Therefore, this thesis aims to remedy this gap by providing a comprehensive analysis of this area of law within the broader debate of consumer protection policy and analyse its complex relationships with the new algorithmic business practices. The thesis will refer in particular to two normative categories underlying the fairness standard: manipulation and vulnerability. Manipulation broadly refers to the substantive norms that express consumers' entitlements not to be misled or

¹⁵ Eliza Mik. "The erosion of autonomy in online consumer transactions". In: *Law, Innovation and Technology* 8.1 (2016), pp. 1–38; Natali Helberger. "Profiling and targeting consumers in the Internet of Things – A new challenge for consumer law". en. In: *Digital Revolution: Challenges for Contract Law in Practice*. Ed. by Reiner Schulze and Dirk Staudenmayer. Baden-Baden: Nomos, 2016, pp. 135–161; Alexandre de Streel and Anne-Lise Sibony. *Towards Smarter Consumer Protection Rules for Digital Services*. Publication. Centre on Regulation in Europe (CERRE), Oct. 2017. URL: <https://cerre.eu/publications/towards-smarter-consumer-protection-rules-digital-society/>; Natali Helberger, Frederik Zuiderveen Borgesius, and Agustin Reyna. "The perfect match? A closer look at the relationship between EU consumer law and data protection law". In: *Common Market Law Review* 54.5 (2017), pp. 1427–1456; Marijn Sax, Natali Helberger, and Nadine Bol. "Health as a Means Towards Profitable Ends: mHealth Apps, User Autonomy, and Unfair Commercial Practices". In: *Journal of Consumer Policy* 41.2 (2018), pp. 103–134; Catalina Goanta and Gerasimos Spanakis. *Influencers and Social Media Recommender Systems: Unfair Commercial Practices in EU and US Law*. TTLF Working Paper. 2020; Federico Galli. "Online behavioural advertising and unfair manipulation between GDPR and UCPD". in: *Algorithmic Governance and Governance of Algorithms: Legal and Ethical Challenges*. Ed. by Martin Ebers and Marta Cantero Gamito. Springer International Publishing, 2021, pp. 109–135.

unduly influenced by commercial practices to make choices that do not reflect reasoned and deliberate decisions. Vulnerability is a concept related to the image of the consumer that EU law protects which forms the benchmark against which EU law measures market fairness. The analysis will take place considering recurring elements in the debate of consumer protection regulations, especially in the field of digital economy, with the ultimate aim to assess the normative fit of EU consumer law for the era of the algorithmic business.

1.5 Methods and relevance

The method of research relies on a desktop research analysis. With regard to marketing practice, to the extent possible, an effort has been made to ground the analysis on marketers' own words. The author is aware that the extreme hype surrounding AI¹⁶ and its definitional ambiguity¹⁷ sometimes do not allow to build a clear picture of the actual usage and capabilities of AI in practice. For this reason, various materials including newspaper articles, business and industry reports, and relevant blogs on marketing and technology (s.c. MarTech) were compared and polished from possible redundancies through the use of secondary sources, in particular scientific contributions in artificial intelligence and business information systems, marketing and advertising journals, and consumer research journals.

The research provides some important insights on current business developments with AI and related challenges to EU consumers protection law associated with surveillance, personalization, empathetic marketing, and digital assistants. The research is therefore expected to provide a valuable contribution to deepening the knowledge on business uses of data-driven algorithmic systems, critical reflections, and consumer protection legislation in the field of marketing. However, the research also allows us to draw some conclusions about the nature of AI technologies and its integration into business organisations, which is an issue at the heart of the structure of algorithmic business and its specific methodology in implementing marketing practices. Given that this research will offer a transversal analysis across the artificial intelligence technologies, socio-technological developments in marketing, and

¹⁶ Privacy Choice. *Credibility Gap: What does Ghostery really see?* Post by Jim Brock. Mar. 2010. URL: <http://blog.privacychoice.org/2010/03/04/credibility-gap-what-does-ghostery-really-see/> (visited on 12/12/2020); Andrew Burgess. "Don't Believe the Hype". In: *The Executive Guide to Artificial Intelligence: How to identify and implement applications for AI in your organization*. Ed. by Andrew Burgess. Springer International Publishing, 2018, pp. 1–9, The authors explain that practitioners call AI simple learning algorithms trivializing the original project of building "artificial intelligence"). Also, the hyper-competitive logic, often, brings practitioners to call AI what simply AI is not. For this reason, it is believed that an introduction on the actual characteristic of the technologies can indeed help understand the phenomenon under analysis.

¹⁷ On the problem of ambiguity of the AI label, see Pamela McCorduck. *Machines who think: A personal inquiry into the history and prospects of artificial intelligence*. CRC Press, 2004.

EU law on commercial fairness, it will provide a unique angle on the discussion on business-consumer relationship transformations and the law, which so far has not been analysed in a systematic manner in the research context of law and technology debate. The starting point (AI) and the end point (consumer protection enforcement rules) are conceptually distant, especially for the reader skilled in the former or the latter. An attempt will therefore be made to introduce the sectorial disciplines, especially AI technologies and consumer protection law enforcement, in the least technical way possible, in order to facilitate a comfortable comprehension of the different subjects.

This research was initiated in 2017 and finalised in 2020. During this time frame, the EU legislator has been very active in issuing policy documents and guidelines on topics very relevant to this thesis.¹⁸ Indeed, since 2017, the EU has put putting in place a number of initiatives aimed at governing the emergence of AI in society, along with new rules aimed at making consumer protection rules fit for the digital economy. In particular, 2020 has been particularly prolific. In February, the Commission issues the white paper on AI governance which contains a series of policy and regulatory options aimed at promoting the uptake of AI while addressing the risks associated with its use.¹⁹ It promotes the development of an ecosystem of excellence for AI and an ecosystem of trust and take into consideration rules for the protection of fundamental rights and consumer rights. Also of paramount significance is the New Consumer Agenda published in November 2020.²⁰ This document replaces the 2016-2020 Agenda and sets out the blueprint for consumer protection policy for 2020-2024. Among the pillars of the initiative is a promising commitment to tackle unfair digital commercial practices harming consumers interests. Consumers' rights will have also to be taken into account with regard to the technical requirement for artificial intelligence systems. Finally, the Digital Services Act package is a comprehensive legislative initiative devised to review current norms on e-commerce to ensure fairer and more transparent transactions, to increase transparency into commercial

¹⁸ The "New Deal for Consumers" initiative aimed at strengthening enforcement of EU consumer law in light of a growing risk of EU-wide infringements and at modernising EU consumer protection rules in view of market developments. The package has resulted in two new Directive being adopted: Directive of the European Parliament and of the Council amending Council Directive 93/13/EEC of 5 April 1993, Directive 98/6/EC of the European Parliament and of the Council, Directive 2005/29/EC of the European Parliament and of the Council and Directive 2011/83/EU of the European Parliament and of the Council as regards better enforcement and modernisation of EU consumer protection rules COM/2018/0185 final - 2018/090 (COD) (also Omnibus Directive); Directive (EU) 2020/1828 of the European Parliament and of the Council of 25 November 2020 on representative actions for the protection of the collective interests of consumers and repealing Directive 2009/22/EC (Text with EEA relevance) OJ L 409, 4.12.2020, p. 1–27.

¹⁹

²⁰ Communication from the Commission to the European Parliament and the Council – New Consumer Agenda, Strengthening consumer resilience for sustainable recovery, COM/2020/696 final.

practices, and to update the rules on intermediary liability.²¹ The attention is largely on information gate-keepers and online intermediary platforms, which today represent a fundamental place for the marketing practices and consumption choices of EU citizens.

All these documents do not fail to refer to the normative system of unfair commercial practices, as a point of departure for developing fairer digital transactions also considering the deployment of AI systems in market transactions. The attention on towards this legislative field is therefore more punctual than ever. In this context, this thesis intends to contribute to a further and deeper reflection on the role of consumer protection rules, seeking not only to look at specific digital practices, but more broadly at the transformations of market relations increasingly mediated by connected data-driven AI technologies.

1.6 Outline

The thesis is divided into ten chapters grouped in three thematic parts.

The next chapter (*Algorithmic business*) is an introduction to the algorithmic business. The phenomenon broadly refers to the increased integration of data-driven AI technologies in marketing. Traditional activities linked to the promotion and selling of products and services are increasingly performed through automated software that learn from large dataset to make predictions and take decisions to optimize different tasks. The phenomenon represents the last stage of an evolution of marketing technologies caused mainly by the increase in consumer data production and gathering (Big data) and powerful new applications based on machine learning and cognitive computing to analyse such data and make automated decisions in real-time. Big tech platforms lead the pack and offer various solutions directly embedded in multi-sided markets and online social media platforms. Given the networks effect and their information gate-keeping role, they can profit from a data deluge about potential customers and develop in-house applications. However, more dispersed developments should not be neglected.

As artificial intelligence technologies are increasingly integrated into day-to-day business operations, a burgeoning academic debate from the research field of business and technology has emerged to reflect how business practice is developing with the increased deployment of algorithmic technologies. It has been decided to draw from this debate to lay the foundations of the second part. The aim is to reflect critically on some general trends that characterise marketing environments and that most probably will characterise business-consumer relations in the years to come. First, Chapter 3

²¹ Proposal for a Regulation of the European Parliament and of the Council on contestable and fair markets in the digital sector (Digital Markets Act), COM/2020/842 final; Proposal for a Regulation of the European Parliament and of the Council on a Single Market For Digital Services (Digital Services Act) and amending Directive 2000/31/EC, COM/2020/825 final.

(*Data-driven surveillance*) explores the evolution of information and research practice in the algorithmic business. More or less covertly, marketers collect, aggregate and analyse consumers data from different offline and online sources and use algorithmic systems to derive new descriptive and predictive knowledge. Consumers are in a position where little is known on how marketers actually operate with their data, what knowledge is extracted, and with whom this is shared. A new asymmetry emerges where knowledge divide is no longer and not only related to market and contract, but also and above all to consumers' personal life.

Next, Chapter 4 (*Predictive personalization*) discusses the new modes of interaction with the consumers through personalization. Marketers use algorithmic systems to generate, test and distribute commercial content, products and website layouts for optimising business measures. While possibly contributing to a more pleasant customer experience and easier choice, these developments fundamentally change business-to-consumer relations in that by adopting a radical behaviourist approach, they subject consumers' decision-making into an opaque, subtle and potentially exploitative modulation of choice architecture.

Then, Chapter 5 (*Empathic connection*) looks into the increased interest of the algorithmic business in the consumer's psychological and emotional life. Algorithmic systems allow marketing organizations to create new in-depth profiles of consumers' psychology, measure sentiment in the digital marketplace, and decipher affective cues during the offline-online customer journey. Empathic algorithmic practices suggest an unprecedented ability to study the consumer's mind, to implant affective arousals in marketing materials, and target emotions in real-time.

Finally, in Chapter 6 (*Human-like interactions*), the focus is on a novel kind of interaction between businesses and consumers through new algorithmic interfaces. Businesses interpose in their relations with consumers' new digital assistant that based on increased human-like features auction-off the most intimate spaces of consumer life. These products are increasingly shaped with human-like features: they allow conversation with consumers, are instilled with the capacity to recognise emotions, and generate a sense of social attachment in consumers.

The third part critically analyses the EU law on fair trading in light of the development in algorithmic practices. This is a complex system of rules that regulate marketing practices in order to protect consumers' economic interests and ensure fair competition in the marketplace. The overall aim of this part is to retrace some general concepts as they are enshrined in the current regulation, analyse their entanglements with EU consumer protection goals, and consider their actual or potential limitations in the context of new business practices and the broader discussion of fairness in algorithmic marketplace. Chapter 7 (*EU law on fair trading*) offers an introductory overview to the legal field under analysis. The focus, in particular, will be on the Directive on unfair commercial practices, which represents a general framework

aiming to protect consumers' informed decisions and freedom of choice in the market. The most relevant features of this legal instruments will be explained.

In Chapter 8 (*Manipulation*) analyses the substantive norms that regulate commercial practices in order to allow consumers to make informed and free decisions. Information, as the main legal instruments with which the law counteracts unfair practices, will be analysed and its limits discussed in the context of the new business practice outlined.

Finally, in Chapter 9 (*Digital vulnerability*), the notion of consumer vulnerability will be explored. This is a normative concept which aims at protecting individuals who for their characteristics are particularly susceptible to marketing practices. The analysis will review the notion that is enshrined in current EU laws as an alternative standard to the one of the average consumers and points out its limits and some of the possible interpretation in dealing with algorithmic business.

In the conclusion, the findings of the analysis of the previous chapters will be reviewed and tentative prescriptions for change recollected. The underlying approach is to think creatively about potential responses to ensure fairness in algorithmic business practice. The aim is not to present a complete framework for resolving all of the problems posed by algorithmic marketing. There are no simple solutions to the problems raised by current practice. The normative background detailed is relevant because it reveals that normative concepts are there to provide the legal tools for resistance to the challenges of algorithmic marketing. No exact blueprint exists for determining where commercial freedom ends, and consumer protection begins. Deciding when commercial freedom can be restricted is not easy. But the social costs accompanying the new practices argue for doing more than standing still.

Part I

ALGORITHMIC BUSINESS

Chapter 2

Algorithmic business

2.1 Introduction

One of the broadest definitions of Artificial Intelligence attempts it to define it as the "art of creating machines that perform functions that require intelligence when performed by people"¹. This definition, popularised by the famed futurist Ray Kurzweil, echoes the original thinking that inspired the first theoretical attempts in the research on artificial intelligence. In a well-known 1950 article, Alan Turing, universally considered the father of artificial intelligence, proposed the famous "imitation game" as elegant and today still valuable definition of intelligence: a computer is intelligent if it is able to imitate a human being, thereby deceiving human interlocutor over its artificial nature. This conception of intelligence would require a computer to be able to understand and communicate using natural language, to have a representation of knowledge, to be able to make different logical inferences to reach new conclusions, and to be able to adapt in unknown situations. To act in the world as human do, the computer should also be able to view objects and the surrounding environment and manipulate them.

Today, it is almost unanimous that we are still far from the idea of reaching an artificial general intelligence system that act like human in the idea of Alan Turing. The kind of AI covers a wide range of computer programs that show high cognitive abilities to handle specific tasks (s.c., narrow AI). Examples are spam mail systems, music recommendation systems, customer relationships management, advertising optimisation systems, search engine optimisations, smart home devices, healthcare devices, autonomous vehicles. Many of these applications today works thanks to large quantities of data: by extracting/inferring patterns form data, they are able to make assessment, prediction, or directly take decision that maximise a certain outcome.

In business, the company that deploy and integrates artificial intelligence technologies in its operational processes has been called by Peter Sondergaard, senior vice president at the analyst firm Gartner, the "Algorithmic Business". The analyst firm Gartner has highlighted the importance of AI in business in a symposium conducted in 2015. He mentioned that the in future the "value of business will be in algorithms and not in data as data

¹ Ray Kurzweil et al. *The age of intelligent machines*. Vol. 579. MIT press Cambridge, 1990.

itself has no meaning". Intelligent algorithms are required to "generate patterns and insights from the data to make decisions and perform actions". This digital transformation of organisations combined with intelligent algorithms brings a revolution in the way business was being done before. The entire transformation revolves around technological changes, customers' response behaviour to the change and new business opportunities opened as a result of this revolution. In particular, the concept of "algorithmic business" has been defined as follows

"Commercial use of complex mathematical algorithms based on AI techniques pivotal to driving improved business decisions or process automation for competitive differentiation among customers".²

For this chapter and for the purposes of the rest of the work, this definition will be adopted as the scope of the analysis and as a starting point for describing the relationship between the marketing organisation and artificial intelligence technologies.

2.2 Algorithmic business: a brief history

The algorithmic business is not a new phenomenon. From the first development in AI research, there has always been a strict partnership between IT industry and marketing organisations. Though, speaking about the history of algorithmic business is not easy. The task would require an attentive research, possibly grounded in business organisation and management research, which for a matter of expertise and space cannot be carried out in this work. What we want to do here is just highlight how the concept of AI has evolved from its origins, giving rise to different applications in business context. Indeed, compared to its origins, AI research and applications have not remained identical but undergone a considerable change in methods and goals. This idea was superbly expressed by Nello Cristianini, who referring to Robert Kuhn's notion of "paradigm shift"³, interprets current developments and impact of intelligent algorithmic systems on social organisations as the product of major changes in the theoretical underpinnings of AI research. If one thinks about it, from its early stage to the present days the evolution of AI is truly noticeable. From a purely academic experiment confined to academic laboratories inspired by futuristic visions, AI has evolved to one of the most influential technologies in today's information capitalistic society. This evolution was not merely a matter of scientific discoveries.

² Peter Sondergaard. *The Arrival of Algorithmic Business*. en-US. 2015. URL: [//www.gartner.com/smarterwithgartner/the-arrival-of-algorithmic-business/](http://www.gartner.com/smarterwithgartner/the-arrival-of-algorithmic-business/).

³ Thomas S. Kuhn. *The structure of scientific revolutions*. 4th ed. University of Chicago Press, 2012.

This aspect too is also considered in Cristianini's pages.⁴ As it happens often with technology, scientific and technical changes do not occur in isolation but influence and are influenced by the societal developments that take place outside academic halls. It is thus believed that looking at the history of AI while also taking into account business has its point.⁵ Commercial actors have contributed enormously to the technical evolution of algorithmic systems, especially in the last two decades. During this period of time, AI has co-evolved with the great socio-technical transformations brought by the World Wide Web and with new powerful economic actors who have greatly contributed to shape its development and commercial distribution.

2.2.1 Expert systems, expert business

The first applications of Artificial Intelligence in business date back at the end of 1970s. Leading IT corporations started to produce and distribute expert systems.⁶ These are computer programs that attempt to emulate human experts' decision-making capabilities based on knowledge and rules. They include a knowledge base, which is a formal representation of knowledge in a specific domain (meaning the empirical mixture of heuristics rules, fact and model of the real world), and an inference engine consisting of various logical procedures to be applied on the basis of the knowledge to solve problems in a concrete case. The system is completed by a user interface, which is the architecture through which the expert system interacts with the human user.

Expert systems represent the most prominent application of the so-called 'symbolic paradigm' of AI. This approach to artificial intelligence research emerged in the early years (from the mid-1950s to the late 1970s) and assumed that any universal machine could, in principle, display intelligence, once equipped with appropriate programming modules and sufficient memory and computing capacity. The computer would be able to manipulate symbols and derive conclusions from certain premises, thus showing intelligence. According to the symbolic system hypothesis, expert systems were therefore considered intelligent, since they could 'reason' and solve problems by applying knowledge, albeit limited to a restricted domain, thus deducing new knowledge.

In marketing and consumer relations, many experts systems were developed in the industry to support different activities of marketing, such sales promotions and decisions, advertising and recommendations, data analysis,

⁴ Nello Cristianini. "Shortcuts to Artificial Intelligence". In: *Machines We Trust Machines We Trust – Perspectives on Dependable AI*. ed. by Marcello Pelillo and Teresa Scantamburlo. MIT Press, forthcoming.

⁵ For the history of artificial intelligence technologies, two of the leading manuals have been used: Stuart J Russell and Peter Norvig. *Artificial intelligence: A Modern Approach*. Third Edition. Pearson, 2010; Nils J Nilsson. *The quest for artificial intelligence*. Cambridge University Press, 2009.

⁶ Daniel Schutzer. "Business expert systems: The competitive edge". In: *Expert Systems with Applications 1.1* (1990), pp. 17–21.

predictions.⁷ For examples, the ADDUCE system used PROLOG, a logic programming language often associated to expert system developments, that inferred how consumers will react to new ads by searching for relevant past advertising experiments and then generalising research results across similar contexts.⁸ Another examples is ADCAD (ADvertising Communication Approach Design), a system designed to assist advertisers with the selection of communicative approaches and design of ads based.⁹ In the area of promotion, another example was the Promotion Advisor system developed to give advice with respect to the types of promotion, also considering given the strategy and situation characteristics.¹⁰ Regardless the objective, all these systems functioned thanks to different and combines knowledge bases (e.g. characteristics of the brand item, the types of advertising, performance of the brand within the market, characteristics of the market) and one or more reasoning mechanisms that tried to encode different logical approaches (deductive, analogical etc.).

The experience of expert systems had great success during all the 1980s and resisted up until the mid 1990s. Nevertheless, it soon become clear that for many marketing tasks expert systems were not able to mimic and replace the intellectual performance of human expert, thus satisfying performance. In relations to this, Wierenga observes that expert systems in marketing can perform only relatively small number of tasks, which are relatively structured and primarily oriented to analysis and control, while the activity of marketing experts requires additional activities, such analysing previous cases, search for new information, make hypothesis, test; all kinds of activities that expert systems were unable to cope with. But even as only support systems, expert systems proved rather disappointing. First, they were able to deal only with tasks that had been designed in advance in the programme: the engineer, assisted by a domain expert, was required to represent the knowledge of the domain in such a way that it could be processed automatically by the machine. Every possible problem (and its solution) had to be foreseen in advance in order to transfer them to the system through appropriate reasoning models. A further factor is the lack or the disagreement about rules of marketing decision-making that were to be designed in the system.¹¹ Moreover, the act of gathering information and other costs of

⁷ For a detail overview, see e.g., Berend Wierenga. "The first generation of marketing expert systems". In: (1990).

⁸ Raymond R. Burke et al. "A Knowledge-Based System for Advertising Design". In: *Marketing Science* 9.3 (1990), pp. 212–229.

⁹ Raymond R Burke. "Reasoning with empirical marketing knowledge". In: *International Journal of Research in Marketing* 8.1 (1991), pp. 75–90.

¹⁰ John McCann, Ali Tadlaoui, and John Gallagher. "Knowledge systems in merchandising: Advertising design". In: *Journal of Retailing* 66.3 (1990), p. 257.

¹¹ As noted by Wierenga, this is mainly due to an underdeveloped discussion on behavioural approaches to marketers decision-making and metrics to evaluate its performance. See Berend Wierenga, Gerrit Van Bruggen, and Gerrit Harm van Bruggen. *Marketing management support systems: Principles, tools, and implementation*. Springer US, 2000.

implementation (s.c., "knowledge bottleneck problem"),¹² the lack of flexibility and absence of learning ability,¹³ all contributed to soon dispel illusions about expert systems in marketing industry. Research on expert systems in marketing has sensitively decreased in the last decades and if extant, is integrated with methods of case-based reasoning and learning modules.¹⁴

2.2.2 Data mining and database marketing

The sub-symbolic paradigm in AI was flanked from the very beginning by the idea that intelligence does not only and necessarily result from human-like reasoning but can also originate from the reproduction of a computer structure similar to the human brain. In this case, intelligence, understood as the ability to behave effectively and flexibly in complex contexts, would rather emerge from the adaptation of brain-like computer structures to external data.¹⁵ The first application of the s.c. "connectionist approach" were Artificial Neural Network (ANN), computing system vaguely inspired by human brains composed by artificial neurons, which adapts its structure in response to different input-output and adapt the structure of the network according to the experience.

Neural networks proved particularly valuable, at least from a theoretical point of view, because they formalise a way for the machine to learn: on the basis of the input and the feedback given by the instructor, the computer would change the structure of the network until the desired performance was

¹² Thomas H Stevenson, D Anthony Plath, and Chandler M Bush. "Using expert systems in industrial marketing". In: *Industrial Marketing Management* 19.3 (1990), pp. 243–249 The authors observe that the principal drawback of developing a marketing expert system is money and time, with an estimated cost of \$15 million, and time of 3 to 5 years to produce results. On the problem of gathering marketing data, see Andrew A. Mitchell, J. Edward Russo, and Dick R. Wittink. "Issues in the development and use of expert systems for marketing decisions". In: *International Journal of Research in Marketing* 8.1 (1991), pp. 41–50.

¹³ Peter J Denning. "The Science of Computing: Blindness in Designing Intelligent Systems". In: *American Scientist* 76.2 (1988), pp. 118–120.

¹⁴ William P Wagner. "Trends in expert system development: A longitudinal content analysis of over thirty years of expert system case studies". In: *Expert systems with applications* 76 (2017), pp. 85–96.

¹⁵ As noted by Paul Smolensky, compared to symbolic AI, neural networks imply a completely different approach towards realising computer intelligence. He used the term of "sub-symbolic AI" to express the idea of an intelligent activity perform at an intermediate level that lies between the symbolic level and pure neural level of human brain. In sub-symbolic AI, knowledge (concepts and rules) is not explicitly represented by use of symbols – which in turn represent concepts – but implicitly learned from data through operations expressed in mathematical operations. Unlike in symbolic AI, the sub-symbolic hypothesis holds that it is not possible to give a complete representation of mental processes at the level of symbols. Rather, it assumes that such processes should be represented beneath the conceptual level, at the level of neuron-like nodes and synapses-like edges. The intelligent behaviour of the sub-symbolic computer systems cannot be broken down into single logical operations but is the inseparable product of the operations performed by the neuronal units within the network. Paul Smolensky. "On the proper treatment of connectionism". In: *Behavioral and brain sciences* 11.1 (1988), pp. 1–23.

reached. Neural networks thus became the first example of machine learning. From a practical point of view, however, the neural learning was pretty unsatisfactory.¹⁶ The main problem was linked to the fact that computers back in the 1950s did not have enough computational power to allow neural networks to learn effectively. In fact, in order to solve a problem, a neural network would need to process a great number of mathematical calculations in order to compute different inputs-examples and to adjust the network according to provide the solution.

Therefore, between the 1960s and the 1980s, the study on neural networks and machine learning reorganised outside mainstream AI research and advanced in the fields of pattern recognition and data mining.¹⁷ These fields were not concerned in building intelligent systems, but with the more modest and practical task of extracting knowledge from a dataset through the use of statistical models, i.e., mathematical models that assume a certain statistical representation in the data. Here, machine learning gradually gained momentum based on statistical and probabilistic methods, and neural networks were one of the most accurate models for knowledge extraction. The successes in the field of data mining, backed by the refinement of neural architectures and a growth in computational power, determined the success of machine learning and draw towards a reintegration of neural network in mainstream AI research.¹⁸

Following this evolution, the second phase of development of the algorithmic business took place. The applications of data mining and neural networks, started to be employed also in commercial activities, in the context of database marketing. In the 1980s, the deployment of personal computers in business organisations allowed marketing activities to be recorded and customer response to be recorded (e.g., response to direct response telemarketing and phone calls, subscription to catalogues etc.).¹⁹ Databases allowed marketers to keep track of customer basic information, such as name, address, and the details of transaction history. They were equipped with data mining software which, based on statistical analysis of data, allowed to inductively extract knowledge of consumers behaviours, which were then selected for communications.²⁰ Some of these models were already predictive in their capability, i.e., they allowed to make different forecasts on the propensity of advertising to be successful.²¹ Commonly employed statistical techniques for such models include logistic regression and neural networks.

¹⁶ Russell and Norvig, *Artificial intelligence: A Modern Approach*, p. 19.

¹⁷ Aaron Plasek. "On the Cruelty of Really Writing a History of Machine Learning". In: *IEEE Annals of the History of Computing* 38.4 (2016), pp. 6–8.

¹⁸ Russell and Norvig, *Artificial intelligence: A Modern Approach*, p. 18.

¹⁹ Lisa A. Petrisson, Robert C. Blattberg, and Paul Wang. "Database marketing: Past, present, and future". In: *Journal of Direct Marketing* 11.4 (1997), pp. 109–125.

²⁰ Venu Venugopal and W Baets. "Neural networks and statistical techniques in marketing research". In: *Marketing intelligence & planning* (1994).

²¹ Bruce Curry and Luiz Moutinho. "Neural networks in marketing: modelling consumer responses to advertising stimuli". In: *European Journal of Marketing* 27.7 (1993), pp. 5–20.

Neural networks, in particular, were able to find statistical relationship in data, such as between the characteristics of the prospects (e.g. gender, family, income, lifestyle, past purchasing behaviour etc.) and their probable response. Due to their learning ability, flexibility, adaption, and knowledge discovery, neural networks would offer many advantages over traditional models.

In the 1990s, application of neural networks in marketing software have constantly evolved and its methods refined.²² At the end of 1990 and the beginning of the 2000s, neural networks for data mining are the basis of the most developed analytical customer relationship management (CRM) software. The use of neural networks in database marketing and consumer relations is the ancestor of current tools based on data and probabilistic computational models (see below).

2.2.3 Software agents in e-commerce

At the beginning of the 1990s, encouraged by the prospects of integrating the symbolic and the sub-symbolic approaches, AI researchers started to look at the "whole agent" problem again. The aim was to move beyond specific tasks of intelligence (e.g., knowledge representation, searching, and reasoning etc.) and try to build entities that could actually operate autonomously.²³ The challenge, however, was now entered a whole new reality: the World Wide Web.

The WWW was born in the late 1980s thanks to the invention of Tim Berners Lee who proposed to build "a large hypertext database with typed links"²⁴. By the early 1990s, the WWW was already available to almost any computer that had a connection to the Internet and was populated by already over five hundred online servers of which half were commercial enterprises (e-commerce). The WWW soon established a synergetic relationship with AI research that still persists today: on the one hand, the users of the web required smart applications able to handle the growing amount of website and information. On the other hand, the Internet offered a huge amount of user information in a digital format that AI systems could use to accomplish different tasks.

All the 1990s and early 2000s were a very fertile period for the development of software agents. These are software systems that unlike "traditional" programmes act in a virtual environment and continuously perform tasks. Software agents have been developed to perform different tasks, such as filtering e-mails, retrieving articles, collecting customer product reviews,

²² Michal Tkáč and Robert Verner. "Artificial neural networks in business: Two decades of research". In: *Applied Soft Computing* 38 (2016), pp. 788–804.

²³ Russell and Norvig, *Artificial intelligence: A Modern Approach*, p. 36.

²⁴ Timothy J. Berners-Lee and Robert Cailliau. *WorldWideWeb: Proposal for a HyperText project*. 1990. URL: <http://www.w3.org/Proposal.html>.

fill out forms, make bidding in auctions, providing recommendations etc.²⁵ Generally, their main characteristics are: autonomy (i.e., self-starting and goal-directedness behaviours), social ability (i.e., the ability to communicate with human and other agents), and adaptivity (i.e., being able to learn new knowledge from the interaction with the environment).²⁶ Software agents can be built following different architecture. One possibility is to express them in the form of a logic-based architecture. Here, the agent possesses a symbolic representation of its environment and rules on how it should behave. Thus, the programmer must define in advance all possible stages of the environment and usually determine with deduction rules the kind of action the agent must take for each possible state of the interaction. Learning is here expressed through symbolic approaches such as explanation-based learning or inductive logic programming.²⁷ A distinct approach is to adopt a responsive behaviour-based architecture. Here, smart behaviour is strictly linked to the environment and can be generated by simply responding to the environment and changes that occur in it. In such a case, however, the agent must need sufficient information about their current state in order to determine future action.

The underlying assumption of software agents is that intelligence can be achieved through a procedure of rational decision-making that can lead to achieving the best outcome, or in case of uncertainty, the best expected outcome (s.c. rational agent approach).²⁸ Under this assumption, researchers were no longer interested in abstract models of rational thinking but started to focus on rationality as a goal-directed behaviour resulting from the interaction with a specific environment. This development led AI research to draw into much closer contact with other fields also dealing with rational agent, such as control theory and economics.

As an increasing number of AI applications contributed to solve many real-world problems, the natural beneficiaries of many of its achievements in this period were companies operating on the Web. Between the 1990s and the 2000s, many researchers with major in AI studies went to work for companies or established commercial start-ups.²⁹ This has led the industry to play a leading role in the in the development of new AI applications. Software agents were in particular deployed in web-search and e-commerce to exploit the variety of possibilities offered by the dynamic virtual cyberspace. DEC, Amazon, Ebay, Microsoft, DoubleClick, Oracle were the most successful. In

²⁵ Robert H Guttman, Alexandros G Moukas, and Pattie Maes. "Agent-mediated electronic commerce: A survey". In: *The Knowledge Engineering Review* 13.2 (1998), pp. 147–159.

²⁶ Nick Jennings and Michael Wooldridge. "Software agents". In: *IEE Review* 42.1 (1996), pp. 17–20.

²⁷ Eduardo Alonso. "AI and Agents: State of the Art". In: *AI Magazine* 23.3 (2002), pp. 25–25.

²⁸ Russell and Norvig, *Artificial intelligence: A Modern Approach*, pp. 46–58.

²⁹ Nils J. Nilsson. *Principles of artificial intelligence*. Morgan Kaufmann, 2014.

e-commerce, software agents would act on behalf of sellers or buyers and facilitate different aspects of their interaction.³⁰ Different kinds of agents were developed: need identification agents, which keep tracks of user's past purchase and provided recommendations based on their interests (such as Amazon's recommender system); comparison shopping agents, which help consumer navigate through available products and make better decision-making by comparing products and vendors according to user-defined criteria (such as BargainFinder developed by Accenture or Google shopping agent); negotiation agents are able to determine the terms of the transactions (e.g., AuctionBot, Tete-a-tete).

2.2.4 The uptake of machine learning: data-driven advertising

Already in the early 1990s, inspired by the success of data mining and pattern recognition, some researchers in AI noticed that it was possible to solve classical problems, such as natural language processing or image recognition, without the need to explicitly represent knowledge and rules in computer programmes.³¹ What they did was simply let the computer program analyse large amounts of data, extract knowledge in the form of statistical correlations and apply that knowledge to solve new tasks, until the desired behaviour was achieved. For example, in the field of natural language processing, many of the tasks that were previously performed by hand-coding linguistic rules in the system, started to be performed by directly extracting pattern in large corpora of real-world textual data so to inductively obtain the rule of language.³² Backed with greater datasets directly available on the Internet and increased power of computers, this new approach resulted in new generation of data-driven AI systems prominently based on statistics. These systems were not based on explicit representations of knowledge such as in expert systems or complex algorithms such as in neural networks, but just focused on using statistical models to analyse data and infer probabilistic knowledge to implicitly learn the task at hand. Focusing on data, this new approach provided an effective way to solve the original "knowledge bottleneck" problem, especially for those tasks in which knowledge was difficult to be formalised, such as speech recognition, natural language understanding, image recognition. From this moment on, AI prominently focused on machine learning algorithms. As we shall see in the next section, these comprise different techniques that enable computer system to automatically learn from data the rules needed to perform a certain task.

³⁰ For a thorough analysis of software agents in e-commerce, see Pattie Maes. "Smart commerce: The future of intelligent agents in cyberspace". In: *Journal of Interactive Marketing* 13.3 (1999), p. 66.

³¹ Russell and Norvig, *Artificial intelligence: A Modern Approach*, p. 27.

³² David Yarowsky. "Word-sense disambiguation using statistical models of Roget's categories trained on large corpora". In: *COLING 1992 Volume 2: The 15th International Conference on Computational Linguistics*. 1992.

In 2000, Internet service providers and e-commerce companies were hit by the dotcom bubble. Due to the great speculation of venture capitalists on technology companies, which failed to deliver the expected returns, this event forced the remaining providers to reorganise towards data-intensive business models. It was understood that data about Internet users were not simply a means for improving navigability on the web (optimise user searches, providing recommendations), but a means (the source) for developing new commercial services. Google epitomised this change very well. From 2002, data about users' queries were not only used to refine Google search engine, but also to provide business users with consumer information and the digital infrastructure to advertise their products and reach potential buyers.³³ This major change fostered and at the same time was made possible by a new socio-technical infrastructure in which online companies such as Google, Microsoft, then Facebook and Amazon started to employ data-driven systems to manage and boost the advertising marketplace. These systems allowed their operators to collect and analyse information about consumers, categorise consumers into different segments, build predictive models for ads responsiveness, and automatically target personalised communication. With the years, as the advertising space got populated by an increasing number of actors, intelligent agents were also employed to coordinate demand and supply (such as in real-time bidding). On the one hand, web-site owners interested in selling advertising inventories on their pages; on the other hand, businesses which were interested in promoting their products through online channel, possibly reaching those consumers who would have the higher chance to be interested in their products.

It is important to observe that the seat of intelligence of data-driven AI systems is not on the single algorithm. Actually, as we will explain later, machine learning applications often require the algorithms to change during the data processing phase. The intelligence is showed at the level of the overall system, which is robust enough to change according to consumers data.³⁴ For example, an ad delivering systems owes its intelligent behaviour to its current users (advertisers and publisher), its historical data (information about consumers, such as age, IP location, past purchases etc.), the interaction with the consumer (such as clicks and conversion), and a (set of) learning algorithms. It follows that these systems are all the more intelligent the more

³³ The change can be seen in one of the many patent issued by the corporation in those years, e.g. Krishna Bharat, Stephen Lawrence, and Mehran Sahami. "Generating user information for use in targeted advertising". Google Patents. June 2005. The computer scientists working for Google invented "a computer-implemented method for determining user profile information for a user, the computer-implemented method comprising: determining, by a computer system including at least one computer on a network, initial user profile information for the user; obtaining, by the computer system, inferred user profile information for the user; determining, by the computer system, user profile information for the user using both the initial user profile information and the inferred user profile information; serving, by the computer system, an advertisement to the user using the user profile information" (emphasis mine).

³⁴ Nello Cristianini. "Intelligence reinvented". In: *New Scientist* 232.3097 (2016), pp. 37–41.

data they can analyse.

The role of advertising and other digital services is a key to understand the subsequent evolution of data-driven AI. New types of data generated by web 2.0 users (social networks, collaborative consumption platforms, video broadcasting) and the typical economic effects of ICTs (e.g., direct and indirect network effects, small marginal costs) contributed to trigger a snowball effect: the more users engaged with the company's platform or benefit from company's services, the more data was collected, the more information could be extracted by means of automated inference. Hence, more efficient delivery of advertising could be provided to benefit of sellers, who were attracted to the advertising market, and to the benefit of company, which thanks to the rising profit could offer new services to its users.

2.2.5 Deep learning and AI-powered marketing

In the last decade, this ability to acquire data and fabricate ever smarter intelligence applications has led the same advertising-corporation to be at the forefront in state-of-the-art of AI. These companies had in fact come into possession of large amounts of data that concealed mines of information which allowed training computers with new skills making momentous achievements. In 2011, IBM's Watson won the first place on US popular \$1M prize television quiz show Jeopardy.³⁵ The system was trained on millions of web documents, including dictionaries, encyclopaedias and other reference material that it could use to build its knowledge and play the game. In 2012, Google's X Lab used its video data on YouTube to develop a machine learning algorithm able to autonomously identify videos containing cats.³⁶ Facebook has been able to collect millions of images about its users and use them to develop in 2013 DeepFace, the first software algorithm able to recognise individuals on photos to the same level as humans can.³⁷ In 2014, Amazon started to use deep learning methods to train its recommendation systems increasing its personalised features.³⁸ The same year Microsoft re-launched its Azure cloud AI service platform, formed Windows Azure, where it offers customer data analytics services etc. As we will see shortly below, at the centre of this transformation, there is the uptake of neural networks, and in parallel the development of cognitive computing. The most innovative machine

³⁵ John Markoff. *On 'Jeopardy!' Watson Win Is All but Trivial - The New York Times*. The New York Times. Feb. 2011. URL: <https://www.nytimes.com/2011/02/17/science/17jeopardy-watson.html>.

³⁶ Liat Clark. *Google's Artificial Brain Learns to Find Cat Videos*. Wired. June 2012. URL: <https://www.wired.com/2012/06/google-x-neural-network/>.

³⁷ TechCrunch. *Facebook's DeepFace Project Nears Human Accuracy In Identifying Faces | TechCrunch*. Post by Darrell Etherington. 2014. URL: <https://techcrunch.com/2014/03/18/facebook-deepface-facial-recognition/> (visited on 08/11/2020).

³⁸ Brent Smith and Greg Linden. "Two Decades of Recommender Systems at Amazon.com". In: *IEEE Internet Computing* 21.3 (2017), pp. 12–18.

learning approaches are based on deep neural networks, based on multi-layer architectures and particularly complex learning algorithms. Thanks to deep learning, machine learning applications can process in a very short time a greater number of variables and thus give more accurate predictions. This has allowed incredible advances in cognitive computing research fields, such as natural language processing and image recognition. The strengthening of AI applications has consequently allowed commercial companies to increase their role as intermediaries, allowing business partners to have a more incisive knowledge of users based on a greater number of variables and allowing more precise forecasts, on the one hand, and more efficient and personalised services for users on the other hand.

With the multiplication of direct channels (e.g., social media, cell phones, e-mail, etc.), the last decade has also been characterised by an acceleration of the marketing automation industry.³⁹ Unlike intermediary platforms, marketing automation refers to IT products that are integrated into the company organisations and used to automate certain tasks in marketing management. These products are the descendants of early data-base marketing and customer relationship management software, which now rely exclusively on cloud-based products. Companies like Oracle, Salesforce, Microsoft, Adobe, and more recently Evergage, are considered the big players in this market. Marketing automation software have been employed to perform repetitive marketing activities in process of generating potential customers. This software made it possible to track visitors to the website, create mailing lists, record responses to content, calculate customer scores, and perform reporting activities. Today, many of these tasks can be performed by relying on different sources of data.

The different models of integration of AI in marketing activities will be illustrated below. Before, however, it is important to analyse more in detail the main technologies generally represented under the label "Artificial Intelligence" (2.1). It is considered that some technical knowledge, although limited to essential characteristics, is a fundamental prerequisite for correctly interpreting the socio-technical development underlying algorithmic business practices.

2.3 Algorithmic business: main technologies

2.3.1 Big data

Although formally outside the field of AI and not exactly defined as a technology, Big data is a conceptual and operational precondition for the development and deployment of artificial intelligence technologies today. On the one hand, with machine learning and cognitive computing paradigm, the

³⁹ Trefis Team. *Microsoft's Azure Cloud Platform Explained*. en. Section: Investing. 2014. URL: <https://www.forbes.com/sites/greatspeculations/2014/12/19/microsofts-azure-cloud-platform-explained-part-1/> (visited on 12/20/2020).

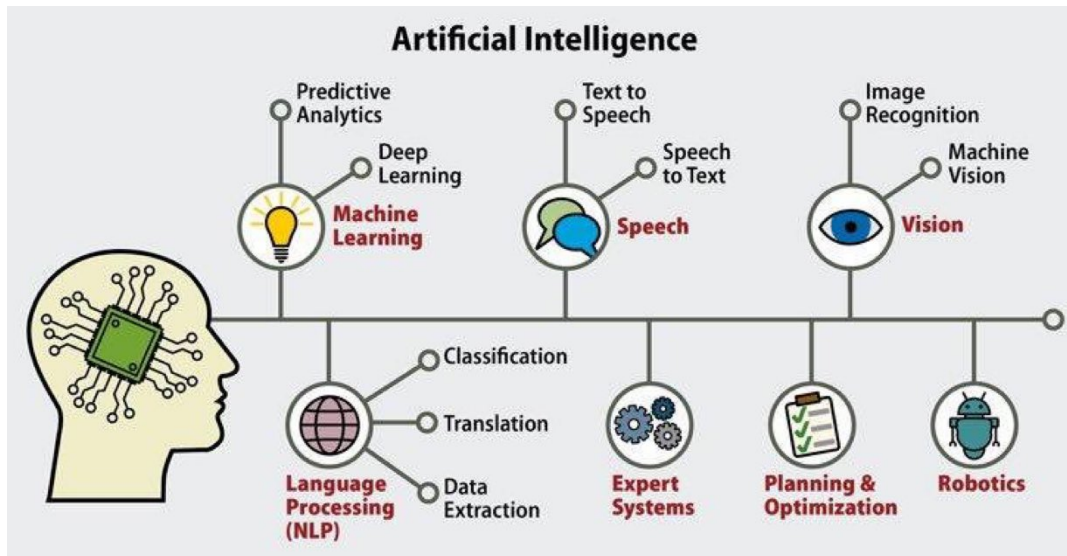


FIGURE 2.1: AI technologies in business

Source: Magora Systems. *Hype technology: artificial intelligence vs machine learning vs deep learning*. URL: <https://magora-systems.com/artificial-intelligence-vs-machine-learning-vs-deep-learning/>.

development of artificial intelligence applications requires great quantities of data from which computers can learn how to learn task indicatively without being programmed in advance. Machine learning use experience directly contained in the data. At the same time, Big data and its methods of analysis often employ algorithmic techniques developed in sub-field of AI, such as machine learning and natural language processing, to extract knowledge hidden in the data.⁴⁰

Big data generally refers to large datasets that include heterogeneous formats. Data scientists usually characterise big along three measures (s.c. the "3Vs")⁴¹:

- *Volume*: Large volumes of digital data are continuously generated by millions of devices and applications, such as computers, smartphones, product codes, social networking platforms, sensors within industrial plants, logs, etc.). In 2020, an IDC's report pointed out that by the end

⁴⁰ Daniel E. O'Leary. "Artificial intelligence and big data". In: *IEEE Intelligent Systems* 28.2 (2013), pp. 96–99 ("AI has been used in several different ways to facilitate capturing and structuring Big data, and it has been used to analyse Big data for key insights"). The author holds that the scale of Big data of today is likely to be little or small data in 10 years, and most probably the terms is going to splinter, just like the concept of "artificial intelligence". Different approaches and new subdomains will emerge.

⁴¹ For thorough review of Big data definition, refer to Andrea De Mauro, Marco Greco, and Michele Grimaldi. "What is big data? A consensual definition and a review of key research topics". In: *AIP conference proceedings*. Vol. 1644. American Institute of Physics, 2015, pp. 97–104. The authors themselves offer the following definition of "Big data": "Big data represents the Information assets characterized by such a High Volume, Velocity and Variety to require specific Technology and Analytical Methods for its transformation into Value." (p. 103).

of 2023 the amount of data created will be more than the data created over the past 30 years, and the world will create more than three times the data over the next five years than it did in the previous five.⁴² If this represents a trend, by the end of the next decade society will have surpassed one yottabyte.

- *Velocity*: Today's data is generated in millisecond and are characterised by inherent obsolescence. For example, it has been reported that in the last three years the number of emails sent in 60 seconds has increased from 150 to 200 million, the number of Google searches from 3.8 million to 4.2 million, tweets from 448 to 480 thousand.⁴³ Data velocity requires real-time processing in order to extract useful information and up-to-date insights.
- *Variety* Data are generated from various distributed sources and in different formats (e.g., videos, documents, comments, records). Large data sets are structured and unstructured data, public or private, local or distant, shared or confidential, complete or incomplete, etc. CIO reports that 80-90% that are generated today are unstructured.⁴⁴

Alternative to the 3Vs definition, Big data is also very commonly characterised for the technological apparatus needed for managing and extracting value from Big data. In particular, the reference is to the data capture technologies, storage technologies, analytics, and management. Often the deluge of information and distributed streams of data surpass the traditional data management systems to harness.

As far as the data analysis is concerned, Big data require alternative technologies and processes. These techniques are called "Big data analytics"⁴⁵ and include various processes including Big data mining, visualisation, statistical analysis, many of which make use of machine learning algorithms, especially deep learning (see below). Many studies address this area both by improving the techniques used, proposing new ones, and by testing the combination of various algorithms and technologies. A common distinction in Big data analytics is between:⁴⁶

⁴² IDC. *IDC's Global DataSphere Forecast Shows Continued Steady Growth in the Creation and Consumption of Data*. en. URL: <https://www.idc.com/getdoc.jsp?containerId=prUS46286020> (visited on 12/20/2020).

⁴³ StackScale. *What happens on the Internet in one minute?* May 2020. URL: <https://www.stackoverflow.com/blog/internet-one-minute/>.

⁴⁴ CIO. *AI Unleashes the Power of Unstructured Data*. Post by Dwight Davis. July 2019. URL: <https://www.cio.com/article/3406806/ai-unleashes-the-power-of-unstructured-data.html>.

⁴⁵ Amy Shi-Nash and David R. Hardoon. "Data analytics and predictive analytics in the era of big data". In: *Internet of things and data analytics handbook*. Ed. by Hwaiyu Geng. John Wiley & Sons, 2017, pp. 329–345.

⁴⁶ Gah-Yi Vahn. "Business analytics in the age of Big Data". In: *Business Strategy Review* 25.3 (2014), pp. 8–9.

- *Descriptive analytics*: used data to understand what happened in the past. Descriptive analysis prepares and analyses historical data and identifies patterns from samples for trend reporting. Techniques such as data modelling and pattern visualisation reside largely in this space.
- *Predictive analytics*: uses the data to find out what might happen in the future. It includes a more refined use of algorithmic models than descriptive analytics. Predictive analytics predicts future probabilities and trends and finds the relationships in the data that are not detectable with classic statistical analysis. Techniques such as data mining and predictive modelling reside in this space. Predictive analytics uses the understanding of the past to make "predictions" about the future. Predictive analytics is applied both in real time to affect the operational process (real-time retention actions via chat messages or real-time identification of suspicious transactions) and in batch (target new customers on website or direct mail to drive cross-sell/up-sell, predict churn, etc.).
- *Prescriptive analytics*: uses the data to prescribe the best course of action to increase the chances of achieving the best result. Prescriptive analytics evaluates and discourages new ways of operating, targets business objectives and balances all constraints. Techniques such as optimisation and simulation reside in this space.

2.3.2 Machine learning

If different data analytics methodologies attempt to extract knowledge hidden in the data, the purpose of machine learning field is to create computer that learning from data can autonomously perform task that are generally connected to human intelligence.⁴⁷

From its early beginning, AI research has been interested in finding ways to make computer learn from experience. Learning was indeed considered a fundamental step in the original quest of realizing AI.⁴⁸ It was not possible

⁴⁷ The following books were used to study and introduce machine learning in the context of the present work: Ethem Alpaydin. *Introduction to machine learning*. MIT press, 2020; Tom M Mitchell. *Machine Learning*. McGraw-Hill Science, 1997; Pedro Domingos. *The master algorithm: How the quest for the ultimate learning machine will remake our world*. Basic Books, 2015.

⁴⁸ The problem of learning was indeed anticipated by the father of AI, Alan Turing. In its 1950 seminal paper, he proposed a thought experiment, where human-like intelligence could be derived from pre-defined knowledge installed in computers, but from an activity of learning from a teacher, similarly to the case of a children ("Instead of trying to produce a programme to simulate the adult mind, why not rather try to produce one which simulates the child's? If this were then subjected to an appropriate course of education one would obtain the adult brain. Presumably the child brain is something like a notebook as one buys it from the stationer's. Rather little mechanism, and lots of blank sheets) learning from punishments and reward ("We normally associate punishments and rewards with the teaching process. Some simple child machines can be constructed or programmed on this sort of principle. The machine has to be so constructed that events which shortly preceded the occurrence of a punishment signal are unlikely to be repeated, whereas a reward signal

to imagine an intelligence machine capable of acting as humans do as this would have implied the presence of an omniscient human programmer who would transfer all possible knowledge into the machine. The experience of knowledge-based systems had made it clear that the exclusive use of knowledge and logic rules is not sufficient to perform many activities that humans do. This realisation was connected mainly to two reasons. On the one hand, for many intelligent tasks that we human beings perform routinely, our introspection concerning how we do them is not sufficiently elaborate to extract explicit and well-defined rules. Classical example is how we recognise faces. We do this effortlessly; we can recognise family and friends by looking at their faces or photographs, despite the many differences in appearance, pose, lighting etc. We do this unconsciously, as a result of the evolution process; today, we are unable to explain how. As a result, it is impossible to write down a program that enables computers to recognise faces. A second issue lies in the fact that many activities connected to human intelligence require the ability to adapt to changes and to deal with unforeseen situations. Think, for example, the task of recognising spam emails. First, spam emails are often not identical from one receiver to another. Moreover, it can be that with time the kinds of spam change. We can imagine a rule-based system that detects spams which can yet be easily cheated by a malevolent sender manipulating email characters that have not been transferred in the computer in advance. The problem with pre-programmed systems was their rigidity: once the program was written down and installed, it stayed unchanged and cannot adapt to new, unforeseen situations. Today machine learning reverses the traditional paradigm of computer programming and AI:⁴⁹ instead of writing the rules in the computer program on how to perform a certain task, the human programmer feeds the learning system a lot of data, and the system itself learns how to extract the rules needed to perform its task.

The special thing in machine learning lies in learning algorithms. Unlike traditional algorithms, which represent an unambiguously pre-defined procedure (set of instructions) needed to solve a task, learning algorithms (also called learner) extract a mathematical model (or learned algorithm) from data input and apply such models to new, unforeseen data to solve a problem or a class of problems. The learner acts as a general template applicable for different tasks which modify its learning parameters on the basis of data available. The mathematical model extracted by the learner, which can be a linear function, a set of rules, a decision tree, a neural network etc., is supposed to represent the relevant relationships between data and is applied to new data to optimise a performance criterion. The relationships in the model are expressed in the form of statistical correlation, which implies that the model extracted

increased the probability of repetition of the events which led up to it."). See Alan M Turing. "Computing machinery and intelligence". In: *Mind* 59 (1950), pp. 433–460.

⁴⁹ Domingos, *The master algorithm: How the quest for the ultimate learning machine will remake our world*, p. 35.

is inherently probabilistic. There are many learning algorithms available today and more are being developed. They can be grouped into five groups:⁵⁰ symbolists, that regard learning as a logic-based process expressed as the inverse of deduction (sc. inductive logic programming); connectionists, which work replicating how human brain functions (neural networks are the classic example); evolutionaries, which drawing on genetic see learning as a process similar to human evolution; Bayesians, believe learning as a form of probabilistic inference and apply statistics; analogizers learn by extrapolating from similarity judgements and focus more on mathematical optimisations (e.g., Nearest Neighbour, Support Vector Machines).

Many of the learning algorithms applied today in ML of these methods existed already in the 1980s (such as Bayesian methods) or in the 1990s (such as Support Vector Machines and kernel methods). Only recently, however, has their power been unleashed. This was possible for at least two main reasons. First, learning systems have been set to work so effectively thanks to the momentous explosion of data, coming from the most various sources (e.g., online transaction, sensors embedded in physical objects, workflow of economic and governmental activities, surveillance devices, social media etc.). The size of the data is, in fact, a critical element for machine learning. If the data sample is too small, the degree of variance, i.e., the randomness with which the model represents a generalisation of the relationships between the data, increases, with the effect of making the machine's response faulty (this is also known as "overfitting"). Furthermore, the data must be somehow representative of reality and must not be fabricated on purpose for machine learning task, which make it very helpful to collect data as by-product of real-work activities. A dataset that does not represent reality, i.e., is biased, leads to the generalisation of an unfaithful model that would miss relevant relationships between the data (this is also known as "underfitting"). The other driver of ML success is the exponential growth in computational power and computer memory that has taken place in the last twenty years. The number of data to be processed requires, on the one hand, the ability to perform a considerable number of mathematical calculations, often in parallel, on the other hand, a large amount of computer memory available in the machine learning system to storage the result, or the intermediate steps, of those calculations.⁵¹

Traditionally, three general distinctive approaches in machine learning are accounted in the literature.

Supervised learning

⁵⁰ *ibid.*, pp. 51–55. He calls them "the five tribes" and in its book devotes a chapter to explain their historical evolutions, their philosophical roots and, their applications and risks in different domains.

⁵¹ Alpaydin, *Introduction to machine learning*, pp. 22–45.

Supervised learning represents currently the most popular approach in machine learning and reflects the idea of learning with a teacher that provides example of correct answers.

In supervised learning, the learning system is provided in advance with a training set and a test set. The training set contains a set of pairs, each linking an input to the desired output. Say, for example, a marketer wants it computer system to establish which consumers profiles might be more responsive to its campaign. The training set will contain as input some customers' attributes (e.g., gender, IP location, number of visits etc.) and as related output the information on whether or not the customer purchased the product. In this example, creating a training set requires very low efforts as it is a side-effect of the record-keeping activities of the company. Sometimes, however, training of the system requires human transferring its expert knowledge into the data. From a technical perspective, this typically involve attaching an informative tag to the raw data (labelling).⁵²

Once the training set contains a sufficient number of examples, the learning algorithms uses the training set to build a model that is assumed to represent the relevant knowledge originally embedded in the training set, namely the correlations between input and output. In our example, the model should represent the meaningful relation between the input and the output, i.e., the customers' attributes that led to a purchase. To measure the accuracy of the model, the learning system uses the test set, which contains pairs of input-output that were not represented in the training set. The model extracted will be a good representation of the knowledge hidden in the data, if the system, given a certain input in the test set (e.g., certain consumers' attributes), is able to correctly predict the related output. If the system has learned a good model, it can now predict whether a new customer, not represented in the training set or in the test set, will respond to marketing strategy.

The above example is a classic case of binary classification, where the aim is to assign a newly presented item (in our example customer) to one of the two class (buy/not-buy). Classification may also involve multiple classes. For example, classification may require the system to classify a customer into different segments describing his or her purchasing habits, or it can classify different offerings according to product marketed. Besides classification, another common category of task is regression. In this case, the output of the learning process is not a class, but a discrete number. The system learns the relationship between a dependent variable and one (linear regression) or more independent variable (multiple regression). For example, a ML system for dynamic pricing may infer a function that represents the price a consumer

⁵² In some cases, labelled data can be found ready-made on the web. Often, however, labelling requires human work, which can be low-skilled (such as in the case of training the system to recognise images of cats and dogs) or high-skilled (such as in the case of training the system to recognise specialistic texts). Sometimes the acquisition of labelled data can be facilitated with semi-supervised learning techniques. Semi-supervised learning is a halfway between supervised and unsupervised learning, where a small amount of labelled data is combined with a large amount of unlabelled data.

intends to pay for purchasing the products of a company. In such a case, the function may correlate consumers' characteristics or behaviour (e.g., demographics, location, social media activities etc.) to the past spending. In doing so, faced with a new consumer who exhibits the same characteristics or behaviour, the system will be able to predict the price that presumably can lead to a purchase.

Unsupervised learning

If in supervised learning methods, the aim is to learn a model correlating a known input with a known output whose values are provided by a supervisor, in unsupervised learning there is no such supervisor and the system learn only on the basis of input data and there is no known target output. The purpose of the system is therefore to find an algorithmic model that gives a generalised description of the data space. In such a space, in fact, it might be the case that certain patterns occur more often than others, so that it might be useful to see whether some general information can be learned.

One of the traditional tasks of unsupervised learning is clustering. This is the task of grouping a set of objects in such a way that the objects in the same group (called a cluster) are more similar (in some sense or another) to each other than to those in other groups (clusters).⁵³ Clustering is an essential technique in commercial activities. It is based on divide-and-conquer strategy that enable customer segmentation and selection for offerings. Consider, for example, a large company database containing demographic information as well as past customer transactions with the company. The company may want to see whether there is some statistical distribution between demographic information and past purchase. In such a case, a clustering model allocates customers similar in their attributes to the same group, providing the company with natural groups of its customers. Once such groups are found, the company may decide strategies, for example, services and products, specific to different groups. Such a grouping also allows identifying those who are outliers, namely, those who are different from other customers, which may imply a niche in the market that can be further exploited by the company in ways that differ from the main groups. Clustering tasks can be achieved through different algorithms that generally differ in their notion of what constitutes a cluster and how to efficiently find them. Partitioning clusters are clustering techniques that subdivide the data sets into a set of k groups, where k is the number of groups pre-specified by the human programmer. Hierarchical clustering functions very similar to decision tree and tries to build relationship between clusters according to which objects that belong to a child cluster also belong to the parent cluster. Bayesian clustering where the partition of items into subsets becomes a parameter of a probability model for the data.

⁵³ Alpaydin, *Introduction to machine learning*, p. 143.

Another frequent task in unsupervised learning is learning association rules. In association, the learner has to find a rule that expresses a conditional probability between two events. This technique is very often employed in recommender systems (such as the ones employed by Amazon or Expedia). The system may infer from a customer dataset some set of rules defining a correlation between items bought (this is often done with Hidden Markov Model algorithms). For example, if a consumer buys Beethoven music scores, there is a probability of 0.8% that he or she also buys Mozart's. For our mind, this kind of association seems very easy to explain: if you buy Beethoven score, he or she might play classical piano and therefore he or she might be also like Mozart. However, it could also happen that a system learns an unexpectedly high probabilistic correlation between Beethoven's scoring purchases and, for example, yellow flowerpot purchases. These types of correlations are very unintuitive and, in most cases, would go completely unnoticed even by a human expert. A learning system can detect these unexpected patterns and, even in this case, use the rule extracted to suggest to Beethoven's fan pianist a lovely set of plant dishes.

Reinforcement learning

Reinforcement learning is generally considered the area of learning that mostly connects to artificial agents.⁵⁴ In reinforcement learning, the system is programmed to act as an agent that takes actions and learns to autonomously solve the task on the basis of the feedback coming directly from the environment. Differently from supervised learning, in which the human tells in advance to the system what to learn, in reinforcement learning the human teacher only tells the system how well it has been doing in the past with regard to course of actions taken to achieve the goal. If the systems succeed in solving the problem, it receives a reward, if it fails, it receives a punishment. This sets a problem of credit assignment, meaning that the system receives a feedback by the human teacher only when it succeeded in solving the problem. Thus, to achieve its goal, the system learns directly from the outcome of its actions by self-administering intermediate rewards and punishments depending on how good and bad its decision was to achieve the goal and solve the problem. In reinforcement learning too, we can distinguish the learner and the model learned. The learner is algorithms that take the decision, the model is the course of action (sc. "policy") that maximise the total amount of rewards (or minimise total amount of punishment) and lead to solving the problem.

A reinforcement learning system can learn how to combine a suitable offer in terms of price and product for a specific consumer in order to maximise sales. This means that the system has to find a successful policy so

⁵⁴ Alpaydin, *Introduction to machine learning*, p. 447. Specifically on reinforcement learning, a viable introduction can be found in Richard S Sutton and Andrew G Barto. "Reinforcement learning: An introduction". In: *Cambridge, MA* (1998).

as that the consumers, who is here acting as a critic, purchase the product. Once consumer lands on the company's webpage, the system recommend a product and the consumer does not click. In such a case, the algorithm learns that the product chosen does not constitute a good action to obtain a reward and self-administers a punishment. After refreshing the webpage, the system suggests a different product. The consumer clicks and the system self-administer a reward. The consumer is now on the product's page, but when scrolling down to see price, she goes back to the main page. The system self-administers a punishment because the price it has chosen proved to be a bad action in order for the consumer to purchase that product. After two hours, the same consumer is again advised to buy the same product. This time the price is five percent lower. The consumer does not click. After a set of trial-and-error runs (perhaps, recombining price, possible feature of the product marketed etc.), the systems should learn the best policy, which is the sequence of actions that lead consumer to purchase the product and extent the same policy should it decide what offering to propose faced with similar consumers.

2.3.3 Deep learning

A subcategory of machine learning that allows for an effective and powerful way of learning is deep learning. It represents the state of the art in machine learning research and applications and the technology most commonly associated with Artificial Intelligence today.⁵⁵

In deep learning, programmers develop computer systems that learn from data using complex neural networks. Neural networks are software structure vaguely inspired to human brain composed by a set of nodes called neurons arranged in layers and connected links called edges.⁵⁶ Each neuron has an activation weight and when receives a signal from a connected neuron (or from the outside, in the case of input neurons), it applies some mathematical calculations defined in a non-linear function to the signal it receives. If the output of such calculation reaches the weight of that specific neuron, the neuron activates and engage with the connected neuron or with the outside of the network (in the case of an output neurons).

In a neural network too, we can distinguish between the learner, which adjusts the connection weights between neurons, and the learned algorithmic, which is the network in its final configuration. In supervised learning methods, for example, the network is trained on a set of input-desired output. For a given input, the system determines its own response: if the response differs from the output in the test set, the error is calculated by taking the difference between the two value and the error is fed back through the networks (sc. back-propagation). The network will change its configuration, adjusting connections or the weights associated with neurons, in such a way

⁵⁵ Ian Goodfellow et al. *Deep learning*. MIT press Cambridge, 2016.

⁵⁶ Mitchell, *Machine Learning*, pp. 81–197.

as to minimise the error of its prediction with regard to the training set. After a sufficient training, the network will hopefully be able to correctly predict the output and apply the resulting model in new cases where the output is not known in advance. In unsupervised learning, the input data of similar type are combined in order to form clusters. When a new input pattern is applied, then the neural network gives an output response indicating the class to which input pattern belongs. In this, there would be no feedback from the environment as to what should be the desired output and whether it is correct or incorrect. Hence, in this type of learning the network itself must discover the patterns, features from the input data and the relation for the input data over the output. Under a reinforcement learning approach, the network will adopt the behaviour that maximises its score (e.g., the reward points linked to gains in investments or to victories in games).

In the previous section, we observed that, after some initial interest and limited success, neural networks had to wait until the 1980s to represent an effective model for learning. The first models of neural networks were, in fact, too simple and too weak to transform composite data input into actionable knowledge. This resulted in very simple architecture (s.c. "shallow neural networks"), generally based on a three-layered architecture, of which one layer contained the various data input in the network and one layer the final output. All data transformations needed to happen within the one hidden layer. As of the 1980s, the stimulus provided by statistic-based disciplines (such as pattern recognition and data mining) and the growth in computational power led to the development of new and more complex types of neural networks based on multi-layered architecture. Such architectures are today the basis of deep learning.

In deep learning, signals travel from the input layer to the output layer through the many connection between hidden layers arranged hierarchically. The complexity of these models is attributed to elaborated patterns of how information can flow throughout the model. Each layer may perform different kinds of learning on their input (s.c. representation learning). For example, in the task of recognising human faces, the first layer may detect specific details of a face (e.g., the public in an eye, the iris, the eyelashes etc.) and their output is fed forward to deeper layers, which perform more abstract generalising (e.g., eyes, mouth, nose) and so on, until the final layers perform the complex facial recognition task and provide the output of the model.

The most prevalent deep learning neural networks are so-called feed-forward neural networks (FNN).⁵⁷ In this type of architecture, the information moves only in one direction, forward, with respect to input nodes, through hidden nodes to output nodes. A specific example of feed-forward neural networks is Convolutional Neural Networks (CNN), which are mostly used in recommender systems, image classification and video recognition. Feed-forward neural networks are usually distinguished from Recurrent Neural

⁵⁷ Shuai Zhang et al. "Deep learning based recommender system: A survey and new perspectives". In: *ACM Computing Surveys (CSUR)* 52.1 (2019), pp. 1–38.

Networks (RNN). Recurrent Neural Networks, and specifically a variant with Long Short-Term Memory (LSTM), allow data to travel forward and backward, with the network constantly changing. The multiple interconnections between layers allows the use of one of the layers as a memory, and allows, by providing an input time sequence of values, to model a dynamic temporal behaviour dependent on the information received at previous time instants. This makes them applicable to predictive analysis tasks on data sequences, such as for natural language processing tasks, handwriting recognition, speech recognition, image processing, and video analysis.

2.3.4 Natural language processing

Natural language processing (NLP) is a sub-field of AI focused on the understanding of human language.⁵⁸ It comprises a series of techniques that attempt to equip computers with the ability to analyse, process, and generate words and sentences in natural language, thereby allowing human-computer conversational interactions. It represents one of the most advanced areas of cognitive computing, that is the series of technologies that allow computers to simulate human cognitive processes.

For long time, NLP research focused on language hand-written instructions created by the programmer. In fact, language is not a series of random word put together but follows a complex set of rules that can be expressed at level of morphology (i.e., the formation of words and the relationships with other words), syntax (i.e., the arrangement of words in a sentence) and semantics (i.e., the meaning of a sentence as conveyed by the meaning of words), discourse (i.e., the meaning of a text composed of multiple sentences).⁵⁹ As of the 1990s, natural language processing progressively started to employ machine learning techniques. In machine learning, based on large corpora of real-world textual data, learning algorithms are trained to detect statistical correlations found in the texts and automatically extract the different rules of language.⁶⁰ For example, machine learning-based NLP allow a computer to distinguish the different words in a sentence. This technique is called "tokenisation": a human teacher creates a training dataset with lots of textual data in which the different words are labelled between angle brackets to form "tokens". After a proper amount of example are given, the system

⁵⁸ Dan Jurafsky. *Speech & language processing*. Pearson Education, 2000.

⁵⁹ For a comparison of the different paradigms in NLP research, see Stefan Wermter, Ellen Riloff, and Gabriele Scheler. *Connectionist, statistical and symbolic approaches to learning for natural language processing*. Springer Science & Business Media, 1996. The authors highlight how the symbolic approach had many limitations. The human programmer was required to express all these rules in machine language with the help of language experts and, though numerous, rules were often insufficient to provide a real understanding of natural language. The latter often depends on extensive background knowledge about the domain of discourse and the idioms used in that domain as well as an ability to apply general contextual knowledge to resolve the omissions and ambiguities that are a normal part of human speech.

⁶⁰ Alon Halevy, Peter Norvig, and Fernando Pereira. "The Unreasonable Effectiveness of Data". In: *IEEE Intelligent Systems* 24.2 (2009), pp. 8–12.

can model itself the rules of syntax of a sentence by looking directly into the training set and apply them in order to process new textual sources. Another example, which often follows tokenisation, is "part of the speech tagging" (PoS) task. Here, the teacher does not only determine the token, but also the token's part of the speech (e.g., a noun, adverb, adjective etc.). In the last decade, natural language processing based on machine learning has developed dramatically mainly due to deep neural networks generating new powerful applications.⁶¹

NLP deep learning techniques are today commonly used for natural language understanding (NLU). This is a sub-task of natural language processing in AI, which is concerned with enabling computer not merely to process, but also to capture the meaning of textual input, extract knowledge and detect the intent of the user. NLU can be applied in many different activities, such as text analysis, news gathering, question-answering, content analysis and categorisation etc. It is today finding many applicative solutions, especially in the business area, where is employed to analyse users' textual data from different sources to extract useful information (e.g., customer reviews, feedback, customer and sentiment analysis).⁶² Together with natural language understanding, deep learning also apply in the field of natural language generation (NLG).⁶³ Here, the system takes texts in a language as input and automatically generate another text in the other language as output (s.c. text-to-text generation). The activity of natural language generation, however, often requires the ability to produce texts that are not grounded in existing ones. NLG also comprise methods to generate text from data (data-to-text generation). In these latter domains, today many applications are being developed: automatic generation of reports (e.g., business or financial reports, weather forecast reports), summary generation of patient health-related data, automated message creation (e.g., advertising messages, product description etc.).

Natural language understanding and generation applications find their most popular real-world application in chatbots.⁶⁴ These are text-based conversational software applications that enable a human user to communicate with a computer system using natural language. They have been widely

⁶¹ Julia Hirschberg and Christopher D. Manning. "Advances in natural language processing". In: *Science* 349.6245 (2015), pp. 261–266.

⁶² Marian Garcia Martinez and Bryn Walton. "The wisdom of crowds: The potential of online communities as a tool for data analysis". In: *Technovation* 34.4 (2014), pp. 203–214.

⁶³ Albert Gatt and Emiel Krahmer. "Survey of the state of the art in natural language generation: Core tasks, applications and evaluation". In: *Journal of Artificial Intelligence Research* 61 (2018), pp. 65–170.

⁶⁴ Eleni Adamopoulou and Lefteris Moussiades. "An Overview of Chatbot Technology". In: *Artificial Intelligence Applications and Innovations*. Ed. by Ilias Maglogiannis, Lazaros Iliadis, and Elias Pimenidis. Springer International Publishing, 2020, pp. 373–383.

applied in the course of the last decade and are increasingly gaining success across many the industries: from messaging apps, e-commerce and customer service, banking and financial services, healthcare, public administration etc.⁶⁵ There can be many different types of chatbots. They can deal with any kind of topic or may have conversational abilities on a specific domain. They can be companion of the users and remember conversations (e.g., such as chat apps in Messenger, Slack, and WhatsApp) or can simply provide information and other service one-at-a-time. They may only inform and provide suggestion – either with on-the-spot information retrieval or through conversation – or can also perform specific task, such booking flights and purchasing items. The deployment of chatbot commercial applications as a way to interact with consumers deserves a more in-depth analysis and will be further address in the next chapter.

A sub-field of NLP is speech recognition.⁶⁶ Differently form NLP, in which the input is written text, speech recognition the input is a series of acoustic signals captured by the computer through some speech capture devices (generally, a microphone with associated analog-to-digital converter). The goal of speech recognition is transforming the signal into a series of data that can be processed by the computer in order to carry out an action (s.c. command and control) or to reproduce a written sequence of words (s.c. dictation). The latter is now commonly diffused in operative systems (e.g., iOS, Android, Windows speech recognition) or as a stand-alone software (e.g., Google docs, e-Speaking, Voice Finger). The former – which often first translate speech into a text sequence (e.g., iOS) – finds wide applications in voice-based virtual assistant systems in mobile operating systems (e.g., Apple's Siri, Google Assistant, Amazon's Alexa, Microsoft's Cortana, Samsung's Bixby, Huawei's Celia) and in embodied smart speaker devices (e.g., Amazon's Echo, Google's Home, now Nest). These systems are often activated when a specific word is uttered (e.g., "Hey Siri", "Alexa", "OK Google" etc.), respond to a variety of commands and perform distinctive activities with or on behalf of the user (e.g., conversating, playing music, making to-do lists, setting alarms, streaming podcasts, playing audiobooks, providing general information, weather, traffic, and sports news). In embedded into smart home environments, smart speakers can also respond to commands to others smart home objects, such as TV, thermostats, routers, security systems and smart locks.

⁶⁵ Mohammad Nuruzzaman and Omar Khadeer Hussain. "A survey on chatbot implementation in customer service industry through deep neural networks". In: *2018 IEEE 15th International Conference on e-Business Engineering (ICEBE)*. 2018, pp. 54–61.

⁶⁶ Dong Yu and Li Deng. *Automatic Speech Recognition - A deep learning approach*. Springer, 2016.

2.3.5 Computer vision

Another important area of AI and cognitive computing is computer vision. Similar to speech recognition, the challenge of computer vision can be described in terms of building a signal-to-symbol converter. Since the external world presents itself as physical signals on sensory surfaces (e.g., video-camera, retina), which explicitly express very little information required for a computer to see the environment, computer vision attempts to find methods and techniques in order for computers to process, analyse, recognise visual signals (images, video sequences, real-time actions) and understand them in order to act in the environment.⁶⁷

Currently, image recognition is the flagship of computer vision and one of the most prominent fields of application. It makes extensive use of machine learning algorithms, notably deep neural networks.⁶⁸ Thanks to image processing algorithms, the image that we want the computer to recognise is transformed into a grid of small pixels. Each pixel can contain different features, such as colour, texture, shape, position in the image, etc., and each characteristic is assigned a number or a set of numbers in binary system. This process is called feature extraction. At this point, it is possible to apply supervised learning to teach the model to recognise the image. Let's say, for example, that we want a computer system to recognise dogs. We have several (potentially varied) examples of dogs represented in a large collection of images. Each image is divided into thousands of small pixels in which all the different features have been extracted and represented in series of numbers. Each image of the dog will be labelled "dog". After adequate training, a learning algorithm (usually a neural network) finds a general configuration (model) that correlates the different numbers that represent the characteristics (input) and the label assigned to the image (desired output). The model is applied in the test set to verify the accuracy of the response. If the response to a certain input contained in the test set is the corresponding output, it means that the system has been able to correctly recognise the image of the dog and that the extracted model can be applied to new images of the dog with the expectation that the system will be able to recognise them all.

Different machine learning approaches can facilitate other tasks connected to image recognition.⁶⁹ An example of supervised learning can be employed to classify different images according to different classes (image classification), while unsupervised learning can be used, for instance, to classify images according to similarities (image clustering). Semi-supervised learning techniques are often employed in supervised learning to facilitate system's training. Image recognition techniques can be applied to recognise different

⁶⁷ Richard Szeliski. *Computer vision: algorithms and applications*. Springer Science & Business Media, 2010.

⁶⁸ Ren Wu et al. "Deep image: Scaling up image recognition". In: *arXiv preprint arXiv:1501.02876* (2015).

⁶⁹ Szeliski, *Computer vision*, pp. 575–637.

entities: objects (object recognition), handwritten characters (optical character recognition), codes (reading 2D codes) and human faces (facial recognition). In particular, facial recognition is the process of identifying or verifying a persons' identity through the visible physical structure of their face.⁷⁰ The extracted features generally represent the different landmarks of the face (e.g., eye details, space between the eyes, bridge of the nose, lip counter, ears, chin, etc.). These features are then used to search for other images with corresponding characteristics where the identity related to the face is known. Facial recognition can use two-dimensional or three-dimensional images. In the latter case, the systems also capture information about the shape of the face, thus avoiding possible pitfalls in 2D images, such as lighting and different facial expressions.

The challenge of replicating the human visual system in computers, however, is more than methods for image processing and recognition. Human vision often has to deal with 3D objects or persons, often in movement. Motion analysis studies methods and applications in which two or more consecutive images of a sequence of images are processed to produce certain information. It can treat objects or people (body and faces). Motion analysis techniques are at the heart of advanced facial recognition systems (s.c. facial expression recognition). They can detect and measure facial movements, such as eye-brows, pupil, nose, lips and mouth corner movements. Body motion analysis, on the other hand, integrates the most advanced biometric systems, such as those that measure body temperature and breathing. As we will see in the next part, these systems are currently a matter of public concern, due to their ability to record, analyse, measure facial expression and make accurate predictions about the individuals' emotions and future behaviour.

Finally, an important application of computer vision is image generation (or synthesis of images) and augmented reality. Image generation (or image synthesis) is the task of generating new digital images conditioned by a series of image features (such as the reference points of a public person's face) or by text sequence (such as in the case of image textual description). Image-to-image techniques are notoriously employed in deep fakes, a synthesis of images or videos in which a person is replaced with some else's likeness. Text-to-images techniques are finding application in cultural and commercial industry domain, for example, to stimulate works of creativity and to automate the generation of commercial messages.

⁷⁰ Guodong Guo and Na Zhang. "A survey on deep learning based face recognition". In: *Computer Vision and Image Understanding* 189 (2019), p. 102805.

2.4 Algorithmic business: models

The implementation of AI technologies in marketing organisation is happening at a fast pace in virtually all industries.⁷¹ When it comes to assess in particular business-to-consumer marketing, however, for some years now we have begun to see AI integrating organisation in different modalities. A recent contribution has provided the following categorisation, which can be useful to understand the degree of integration and control in the organisation.⁷²

2.4.1 In-house AI

Few companies have their own in-house AI applications fully deployed. These are digital native companies such as Google, Apple, Facebook, Amazon, Microsoft (s.c. GAFAM) and the like, which have dominated data markets in the last twenty years and have become able to develop powerful AI systems applications to create or enhance the provision of new data-driven services (e.g., Google and Baidu with their search engine, Facebook with its news feed, and Amazon, YouTube and Netflix's recommendation systems). These are the business that are using AI most aggressively.

2.4.2 AI as a platform

In addition to offering their own products, many in-house AI companies are also leaders in the market of AI services. The paradigm of AI-as-Platform involves computational framework and hardware infrastructure to develop customised AI applications, including for marketing usage. Services such as Amazon Web Service, Google Cloud Platform, Microsoft Azure, Apple, IBM Cloud, and Intel Corporation, offer cloud-based application programming interfaces (APIs) that enable business users to import data, perform data transformation, train models, perform model validation, and incorporate the final code into private-owned applications systems without the expense of developing in-house computational infrastructure. Microsoft Azure AI Platform, for example, offers to develop machine learning, object recognition, speech recognition, machine translation. AI platforms are available to develop any kind of AI project, whether academic, private, or marketing related. Marketers users can log in and develop, test and employ their customised AI solutions. Other start-ups have emerged in the industry, such as Fuzzy.ai, Absolutedata, BigML, Centurysoft.

⁷¹ Erik Brynjolfsson and Andrew McAfee. *The Business of Artificial Intelligence*. Harvard Business Review. July 2017. URL: <https://hbr.org/2017/07/the-business-of-artificial-intelligence>.

⁷² Iuliia Metelskaia et al. "A business model template for AI solutions". In: *Proceedings of the International Conference on Intelligent Science and Technology*. 2018, pp. 35–41.

2.4.3 AI in marketing and advertising services

Besides employing AI to offer their own services and providing the infrastructure to develop new applications, companies such as Google, Facebook and Amazon also provide AI-powered services to third-party business entities. These allow virtually any marketing actor to benefit from underlying AI technologies by focusing only on the specific business need (e.g., data analysis, advertising optimisation, brand marketing, automated creation of content) and with limited worry about the software components. For example, Google is one of the leading platforms for analytics API.⁷³ Google Analytics platform, allow any website owner to analyse visitors' data on their website data and gather comprehensive information on what action has users taken after visiting the website (s.c. bounce-rates) by using different AI technologies (e.g., machine learning and text analytics). The website owner includes a small piece of Google code and every time a user access the website Google provide aggregate statistics on his or her account. Similar to Google, also Facebook provides its analytics API, with whom it virtually shares the market.

The added value that makes the use of these services particularly profitable for marketers is that they are provided on multi-sided platforms that channel a large part of consumer demand on the Internet. Services such as Google Advertising, Facebook Marketing or Amazon Marketing Services connect brands to their platforms' users by providing the technical infrastructure and environment in which to carry out the various brand activities directly on the platform. In these cases too, APIs are offered to marketing organisations to manage audiences, purchase advertising space and create analytics tools from one single stack. For example, Google Ads (the former Google AdWords) offers its client to create different types of advertising campaigns (e.g., display ads, search ads, video ads, etc.), target specific audience segments based on many different features and monitor the success of each campaign live. Similarly, Facebook Marketing API allows any brand to create and manage customised advertising campaigns and participate in the auction for targeted advertising.

2.4.4 AI as a service

Compared to AI services, AI-powered cloud services show a higher degree of integration in business operations and can be employed to solve a particular marketing problem or set of problems. In this sense, AI as a product paradigm allows business users to directly benefit from the technology without needing to build or maintain in-house models yet enabling higher

⁷³ A W3Techs survey shows that, to December 2020, Google Analytics is used by 54.6% of all world websites, that is a traffic analysis market share of 83.9% with respect to its competitors. W3Techs. *Usage statistics of traffic analysis tools for websites*. 2020. URL: https://w3techs.com/technologies/overview/traffic_analysis

degree of control on underlying operations than relying on third-party services. These products are usually supplied by companies operating in the field of marketing automation (e.g., Oracle, Salesforce, Microsoft, Adobe, IBM, Evergage etc.).⁷⁴ Over the past twenty years, these companies have come into possession of large amounts of data obtained from their clients or their clients' clients and have begun to incorporate AI stacks into their products to improve the performance of their products. The types of available tools that feature AI is remarkably vast. Among the most widespread:⁷⁵

- *Data analytics and reporting.* These software are connected with company data warehouse and allow to transform and analyse customer data using different analytics techniques. They allow trends and pattern to be visualized, and different information to be retrieved. Predictive analytics tools, in particular, allow to use past data to make decision model to orient future options.
- *Content and website management software.* They allow to generate and curate creative elements for digital advertising and digital content or design parts of or the whole layout of the shopping website. Based on data analytics and previous performance data, they allow to run tests on different possible outcomes, such as for different headlines, layouts, and colours.
- *Advertising campaign management.* These products allow to manage and optimise advertising campaign in advertising network ecosystems, such as in Google Ads and Facebook Ads. They include tool facilities to generate advertising campaign, test different versions and predict success based on different metrics, and track result in real-time.
- *Social media management software.* They allow business to automatically handle marketers' different profiles in social media such as in Facebook, Pinterest, Instagram, Twitter. They include, among other things, data analysis of social media posts, sentiment analysis, content generation and curation. Most advanced software also integrates image analytics and recognition functionalities.
- *Email and mobile marketing software.* They help marketers handle email and mobile message marketing campaign by providing different tools, such as writing subject lines, personalise copy at individual level, and optimise send times.

⁷⁴ Mordor Intelligence. *Europe Marketing Automation Software Market – Growth, Trends and Forecast (2020-2025)*. 2020. URL: <https://www.mordorintelligence.com/industry-reports/europe-marketing-automation-software-market>.

⁷⁵ MarTech Series. *5+ Types of AI Tools to Enhance Mobile Marketing Campaigns*. Post by Dimity Harmashev. Sept. 2019. URL: <https://martechseries.com/mts-insights/guest-authors/5-types-of-ai-tools-to-enhance-mobile-marketing-campaigns/> (visited on 08/11/2020).

- *Customer services software.* These software products allow marketers to develop seamless interaction and communication with customers for the purpose of directing customers demand and complain issues. They allow to develop chatbot applications and integrating its script into the shopping website architecture.

For each category, there is an impressive number of options already available in the market. For example, Salesforce Einstein utilizes predictive analytics, intelligent customer management, image recognition, and sentiment analysis; Albert AI that uses in-depth customer segmentation, highly automated media buying, high-level customer personalisation, profound insights into consumer behaviour; Adobe Experience Cloud, which offers a set of tools such as analytics, social media management, advertising media optimisation, Web experience and content management.

2.5 Conclusions

In this chapter, a general introduction to the algorithmic business has been proposed in order to pave the ground for future analysis. Given the focus of the thesis, it has been chosen to address some essential aspect of the technology to understand the role artificial intelligence technologies play in commercial practices. After having reviewed the historical processed that led to current adoption of AI technologies in the marketing organisation, the chapter has provided an overview of the main technologies that are currently referred under the label of "Artificial intelligence". Finally, a brief description of the different modes of integration in business organisation has been proposed.

Part II

ALGORITHMIC BUSINESS PRACTICES

Chapter 3

Data-driven surveillance

3.1 The new market research

In the last twenty years, e-commerce platforms, social networks and mobile devices have turned the average Internet user into an incessant generator of data.¹ Data trails left by users now cover an increasing array of information about their private lives that directly or indirectly may affect their activities as consumers: from simple socio-demographic information and purchase choices, to networks of social connections, information on life events, and real-time location. Clearly, marketers have incentives to collect this information in order to better understand how users behave and enhance communication and positioning of their brand in the market.

To this aim, marketing organisations must implement organisational and technological processes to translate data into actionable knowledge.² This set of processes is known as "marketing analytics" or "customer analytics", and when specifically handling large quantities of data, is generally known as "Big data analytics"³. As seen in the previous chapter, businesses have spent the past forty years to refine their analytics information systems in order to analyse data and provide actionable knowledge for their marketing strategies/decisions. After a first era of "artisanal analytics" mostly based on

¹ See in general, Viktor Mayer-Schönberger and Kenneth Cukier. *Big data: A revolution that will transform how we live, work, and think*. Houghton Mifflin Harcourt, 2013.

² Andrew McAfee and Erik Brynjolfsson. *Big Data: The Management Revolution*. Harvard Business Review. Oct. 2012. URL: <https://hbr.org/2012/10/big-data-the-management-revolution>. The authors describes five leading management challenges: i) leaderships, companies that succeed in big data analysis need to have leaderships teams that set clear goals and ask the right question; ii) talent management, companies must employ IT skilled workers experts in computer science and data management, iii) technology, the company must develop the adequate analytics and software tools to manage volume, velocity and variety of big data; iv) decision-making, an effective big data organization should widely use information extracted from data and re-used to maximise cross-functional cooperation between business departments; v) company culture, the rights question in a data-driven company is no longer "what do we think?" but "what do we know?", which requires move away from acting solely on instinct and make use of data to build strategy and decisions-making.

³ Sunil Erevelles, Nobuyuki Fukawa, and Linda Swayne. "Big Data consumer analytics and the transformation of marketing". In: *Journal of Business Research* 69.2 (2016), pp. 897–904; Pablo Moscato and Natalie Jane de Vries. "Marketing Meets Data Science: Bridging the Gap". In: *Business and Consumer Analytics: New Ideas*. Ed. by Pablo Moscato and Natalie Jane de Vries. Springer, 2019, pp. 3–117.

descriptive statistical methods applied to internal static database (not connected to the Internet), the rise of Internet data infrastructure has progressively caused business organisations to incorporate techniques and algorithms developed in data mining and machine learning.⁴ Machine learning, in fact, differ from traditional statistics in that they aim to circumvent the requirement to explicitly set modelling assumptions prior to drawing meaningful inferences. With machine learning methods, the data analyst does not need to rely on hypotheses regarding the relationship between the variables in the model, but based on inductive learning, the system itself build a model that represents which meaningful variables in the data should be retained and which should be dropped. Especially when considering deep learning applications, Big data analytics allow to consider and accommodate a virtually infinite number of variables to provide generalised knowledge model for decision-making. Consumer data variables may include not simply structured data about consumer, but the whole variety textual, visual, aural data, which do not have a pre-define structure.⁵ To deal with this new variety of data, business information systems are progressively incorporating algorithms and techniques developed in subfields of AI, such as natural language processing and image recognition. Once a machine learning model is in place, the system is devised in a way that based on new data generated, it can automatically be retrained – or possibly self-adapt – to respond to modification of data input or to a different statistical distribution in the data set. This renders machine learning and AI techniques perfect methodology to cover the rapidity at which today new consumer data are produced and old data become outdated.

The increasing uptake of analytics software operating with Big data and machine learning has led business management scholars to regard the new technologies as the engine of a new strategy to information and research in

⁴ Thomas H. Davenport. "From analytics to artificial intelligence". In: *Journal of Business Analytics* 1.2 (2018), pp. 73–80. According to Davenport, companies are today transitioning from analytics 3.0, which he describes as the data economy analytics in which companies in traditional industries also embrace big data and analytics recurring to machine learning models, to analytics 4.0. The latter represents the highest degree of sophistication in analytics thanks to AI (deep learning) and cognitive technologies (NLP, speech recognition, computer vision). Analytics 4.0 enhance the previous stages and form a backdrop that merge analytics and automation. More generally from the same author on this transition, Thomas Davenport and Jeanne Harris. *Competing on analytics: Updated, with a new introduction: The new science of winning*. Harvard Business Press, 2017.

⁵ Bitty Balducci and Detelina Marinova. "Unstructured data in marketing". In: *Journal of the Academy of Marketing Science* 46.4 (2018), pp. 557–590. Unstructured data are defined "information that either does not have a pre-defined data model or is not organised in a pre-defined manner" and comprise verbal, such as spoken and written data, and non-verbal both human (e.g., facial cues) and inanimate (e.g. radio frequency identification, location data).

companies.⁶ This idea originates from the view that data analytics applications should not merely be regarded as the technical tools to gain more granular information about customers, but also as a new organisational setting through which information becomes available to the enterprise and decision are taken. The overall scheme, which these methods epitomise, is roughly summarised as "first data then search for any possible uses of what is already available as data"⁷. Continuous flows of data are stored in corporate database and routinely processed to update analytical models that make up the engine of real-time decisions.⁸ This new approach is reflected in the s.c. "data-driven orientation", where the word "driven" does not only mean that marketing decisions are taken looking into the data, but that data forms the organisational context in which strategy is formed and decisions are subsequently taken.⁹

Against this backdrop, if we aim to investigate the developments in the relationships between algorithmic business and the consumers, the first thing is to pay attention to the practices that shape algorithmic business information and research strategy.¹⁰

3.1.1 Data gathering in corporate databases

Today, marketing organisations can gather data about consumers from a variety of sources.¹¹ Some data is acquired by corporations through direct digital transactions with consumers in which the consumers are conscious of a transaction taking place, and to some extent at least of the fact that data have been acquired as part of the transaction. Sometimes, consumers themselves are required to disclose personal information (e.g., email, credit card, billing address etc.) when registering for a service, purchasing items or sign-in in social media. Otherwise, they may volunteer personal information, for instance

⁶ On the impact of Big data on strategy formation, see Ioanna D Constantiou and Jannis Kallinikos. "New games, new rules: big data and the changing context of strategy". In: *Journal of Information Technology* 30.1 (2015), pp. 44–57. On the impact of machine learning on Big data strategy, see Samer Faraj, Stella Pachidi, and Karla Sayegh. "Working and organizing in the age of the learning algorithm". In: *Information and Organization* 28.1 (2018), pp. 62–70

⁷ Chris Anderson. *The end of theory: The data deluge makes the scientific method obsolete*. Wired. 2008. URL: <https://www.wired.com/2008/06/pb-theory/>. On the obsolescence of traditional scientific methods: "the new availability of huge amounts of data, along with the statistical tools to crunch these numbers, offers a whole new way of understanding the world. Correlation supersedes causation, and science can advance even without coherent models, unified theories, or really any mechanistic explanation at all."

⁸ Constantiou and Kallinikos, "New games, new rules: big data and the changing context of strategy", p. 52.

⁹ Rupert Morrison. *Data-driven organization design: Sustaining the competitive edge through organizational analytics*. Kogan Page Publishers, 2015.

¹⁰ Romain Cadario and Pierre Chandon. "Which healthy eating nudges work best? A meta-analysis of field experiments". In: *Marketing Science* 39.3 (2020), pp. 465–486.

¹¹ To account for different data collection, the distinction provided between overt and covert data collection has been followed, provided in Roger Clarke. "Risks inherent in the digital surveillance economy: A research agenda". In: *Journal of Information Technology* 34.1 (2019), pp. 59–80.

when posting a review on the website or update their social media profile.¹² Consumer are generally assumed to read privacy notice and therefore to be conscious of which data items service provider or e-commerce website acquire, and for what purposes, for which they given express or implied consent. As is often noted, however, consumers are, at best, very confused about the information given by data collectors about the acquisition and processing of data,¹³ and even when they express consent to data collection, doubts remain as to whether they have an actual understanding of how much data they are providing to the collecting entity.¹⁴

A crucial data asset of marketers is acquired from consumers through various activities of which the consumer can realise even when disclosed in privacy documents. Such data are typically a by-product of the transaction mediated by computer protocols, such as the consumer's IP, the type of software used and, possibly, even their physical location. The term "clickstream data" has been used to refer to this category of data acquisition.¹⁵ Consumers seldom appreciate how much information they gift to their marketer counterpart in this category: from macro-measures such as site visited, number of pages or screen viewed, time spent on-site or in-app, average time spent per page, time elapsed since the last visit, to deep behavioural data, such as time spent in-page specific context, mouse movement, scrolling path and speed, mouse hovering on certain content, and time of inactivity.¹⁶

Similarly, covert modes of data collection may occur not only when the consumer is navigating on the website of the collecting entity itself but also when they are interacting with other websites. This may be achieved utilising surreptitious tracking techniques such as cookies, web-bugs, web-beacons, tracking pixels and browser fingerprints, and adware. All these techniques cause an automatic transfer of customer data to a party other than the one

¹² Alan Mitchell. "The rise of volunteered personal information". In: *Journal of Direct, Data and Digital Marketing Practice* 12.2 (2010), pp. 154–164. The author dwells on reflecting on the revolutionary nature of volunteered personal information. Before e-commerce, marketing had only had two forms of information to deal with: market research aggregate information, which is primarily qualitative and or statistical, and transaction/interaction data, which are granular and personally identifiable.

¹³ See, e.g., Yong Jin Park. "Digital literacy and privacy behavior online". In: *Communication Research* 40.2 (2013), pp. 215–236, ("evidence suggests the presence of a digital literacy divide that may function as an impediment to systematic information control, further reinforcing the socioeconomic and demographic divisions in an increasingly digital world", p.232) Miriam Bartsch and Tobias Dienlin. "Control your Facebook: An analysis of online privacy literacy". In: *Computers in Human Behavior* 56 (2016), pp. 147–154.

¹⁴ Thomas Ridley-Siebert. "Data privacy: What the consumer really thinks". In: *Journal of Direct, Data and Digital Marketing Practice* 17.1 (2015), pp. 30–35; Kristen L. Walker. "Surrendering information through the looking glass: Transparency, trust, and protection". In: *Journal of Public Policy & Marketing* 35.1 (2016), pp. 144–158.

¹⁵ Tom Breur. "Data analysis across various media: Data fusion, direct marketing, clickstream data and social media". In: *Journal of Direct, Data and Digital Marketing Practice* 13.2 (2011), pp. 95–105.

¹⁶ Gang Wang et al. "Clickstream user behavior models". In: *ACM Transactions on the Web (TWEB)* 11.4 (2017), pp. 1–37.

who own the website.¹⁷ Surreptitiously acquired data can be exchanged via each marketer's networks of strategic partners, and or with data brokers with advertising-service providers, resulting in the data being further exploited by many more organisations.¹⁸ Advertising service providers such as DoubleClick (owned by Google) and Quantcast are key players in this space. Consumer tools such as Ghostery and Adblock Plus, and their associated lists, can be used to identify many hundreds of organisations that are privy to individuals' web traffic through such means,¹⁹ even though their reliability has been questioned.²⁰

A great deal of data is also acquired from sources asserted to be "public domain" and free for use for virtually any purpose. The most relevant source is notoriously social media, which includes, not only public profile data, but also shared postings and other multimedia content. Users photos, texts, video data are example of unstructured consumer data which can be collected by the average company that has a profile and has followers/connection with its customers. Other web 2.0 public environments, such as blogs and content sharing platform, can be used to gather data about consumers. Social media platforms are also relevant for data gathering service their provide to business partners. The level of access to user data is generally dependant on how much user data the platform already knows and collects, and company policy.²¹ For example, Pandora, Google and Facebook offer quire refined tools to gather consumers data, while Amazon's limit to key-word search.

Consumer personal data can be acquired by marketing organisations from

¹⁷ Janice C. Sipior, Burke T. Ward, and Ruben A. Mendoza. "Online privacy concerns associated with cookies, flash cookies, and web beacons". In: *Journal of Internet Commerce* 10.1 (2011), pp. 1–16.

¹⁸ Wolfie Christl and Sarah Spiekermann. *Networks of Control – A Report on Corporate Surveillance, Digital Tracking, Big Data & Privacy*. Report. 2016. URL: <https://crackedlabs.org/en/networksofcontrol>, p. 40 ("the marketing data industry is arguably the main driving force behind ubiquitous consumer surveillance. It consists of a wide range of different types of companies, including marketing and advertising agencies, list brokers, database management providers, online and mobile advertisers, and firms engaged in direct mail, telephone sales services, and data-driven commerce, as well as companies offering loyalty programs. Marketing data companies, which are often called "data brokers", mostly offer a smaller or bigger selection of these services").

¹⁹ Florian Schaub et al. "Watching them watching me: Browser extensions impact on user privacy awareness and concern". In: *NDSS workshop on usable security*. 2016, pp. 1–10.

²⁰ Privacy Choice, *Credibility Gap*.

²¹ For an account of methods of users' data collection and disclosure, see Stine Lomborg and Anja Bechmann. "Using APIs for data collection on social media". In: *The Information Society* 30.4 (2014), pp. 256–265.

other second-party organisations through adoption of collaborative or pay-per-data schemes.²² This may be by purchase, barter or other sharing, commonly represented in privacy policy in vague terms such as "strategic partnership" or "business affiliated"²³. It is rare for the general public to be aware of such data transfers. Many such exchanges are conducted surreptitiously, variously because of their dubious legality and the risks of media coverage, public outrage. Data privacy reports increasingly point out to the systematic over-collection and oversharing of consumer data among service providers with little if not absent, compliance with data protection regulations and operations outside the public consciousness. Hundreds or thousands of different companies participate in the networks of collection, sharing and selling information. For example, in a 2020 report, the Norwegian Consumer Council reviews ten privacy policies of common app-provider and observed that consumer data are transmitted to at least 135 different third parties involved in advertising and marketing services.²⁴ Some of these data transmissions may be necessary for the apps to function. However, there were many instances of personal data being sent to AdTech companies that appear to use this information for purposes that consumers cannot reasonably expect, such as tracking and profiling.

Marketers, which might also have physical presence, can also merge online consumers' data with data about consumers' actions in the store.²⁵ The increased displacement of CCTV, RFID and tracking devices (e.g., digital POS, in-store tables surveys, touchscreen kiosks) in brick-and-mortar stores might allow traders to collect visual data about shopper and individual products and items as they move through the store. Thanks to image processing and recognition technologies, multimedia data can be converted into actionable insights about behaviours.

Obviously, the many streams that allow algorithmic business to collect and acquire to consumers add to the plethora of data collection methods that pre-date the emergence of e-commerce. Among them are mailing lists, database marketing operators, and loyalty programs, telephone directory database operators and electoral lists.²⁶

²² Paul Matthyssens. "Reconceptualizing value innovation for Industry 4.0 and the Industrial Internet of Things". In: *Journal of Business & Industrial Marketing* 34.6 (2019), pp. 1203–1209.

²³ Hanna Schneider et al. "Your data, your vis: Personalizing personal data visualizations". In: *IFIP Conference on Human-Computer Interaction*. Springer, 2017, pp. 374–392.

²⁴ Forbrukerrådet. *Out of Control. How consumers are exploited by the adtech industry - and what we are doing to make it stop*. Report. 2020.

²⁵ Erik Brynjolfsson, Yu Jeffrey Hu, and Mohammad S Rahman. *Competing in the age of omnichannel retailing*. MIT Cambridge, 2013. Omnichannel is the strategy that merge physical and online to provide a seamless customer journey across e-commerce websites and brick-and-mortar shops.

²⁶ Christl and Spiekermann, *Networks of Control – A Report on Corporate Surveillance, Digital Tracking, Big Data & Privacy*, p. 65 These may also include publicly available data, voter records, name and address changes, marital status, newspaper and magazine subscribers, purchases from retailer, loyalty programs, credit histories data from banks, credit card networks and healthcare.

3.1.2 Segments and audiences

Marketers generally collect different types of data in anonymised or pseudo-anonymous form through identified (e.g. IP address, cookies, device IDs) that do not contain information about personal information about names. For example, the consumers' repeated interactions with an e-commerce website can be collected and compiled into a digital record of the consumer, which may possibly contain data on personal attributes filled in the personal account, item purchased, click stream data etc. A commonly used terms in the industry is "customer profile" to refer to the consolidated record of first-, second-, or third-party data referring to a particular consumer.

Profiling has yet another meaning that refers to the different analytical interventions that can be performed on collected data.²⁷ Except from declared data, which may directly represent certain personal information about the customer (e.g., age, sex, marital status, certain preference), data stored in customer profiles must be analysed to infer new information. In Big data settings, such analytical activities take place through automated means based on statistical models, including machine learning. From a machine learning perspective, automated profiling is "the activity of building statistical models from large amounts of data from many individuals, after which the profiles themselves can be exploited to derive novel information about particular individuals"²⁸. In abstract, the process follows two phases: first, using a learning algorithm, a model is built from the dataset containing aggregate knowledge contained in the data. Here, businesses can use the totality of customers' data to infer a general distribution of patterns found in the data. For example, the model could include a correlation between two attributes declared by consumers, e.g., the fact that 18-year-old young girls living in a certain suburb of Milan like punk music. Second, the model resulting from the application of the statistical algorithm will be applied to a particular consumer or group of consumers to uncover new knowledge about them which was not previously present or observable in the data. For example, if consumer Eve has explicitly declared in her profile that she a woman, she is 18, and she lives in suburbs of Milan, but did not make any reference to interests in music, applying the statistical model, the marketers may be able to infer that Eve may like rock music. In this case, it can be said that consumer Eve has been profiled as possessing the attribute of "like rock music".

²⁷ The term "profile" derives from the Italian *profilo* from *profilare* originally meaning "to draw a line", especially the contour of an object. That is precisely the idea behind profiling through data processing, which means to expand the available data of individuals of groups, so as to describe their traits and propensities.

²⁸ Martijn Van Otterlo. "A machine learning view on profiling". In: *Privacy, Due Process and the Computational Turn-Philosophers of Law Meet Philosophers of Technology*. Abingdon: Routledge (2013), pp. 41–64.

Using profiling techniques, marketers can carry out different kinds of analytics practices. One of the most important is audience segmentation. Segmentation is premised on the understanding that customers vary substantially in terms of behaviour, needs, wants and characteristics. So, the main goal is to divide the existing or potential customer into groups of similar consumers in order to select the segment to be considered for marketing initiatives. As seen in the previous chapter, today this form of automated profiling is typically performed through unsupervised machine learning methods, such as cluster analysis. Clustering allows marketers to iteratively divide consumers available into a certain number of non-predefined segments without the need to make assumptions on similar categories. This provides a great advantage as it broadens the spectrum of audience segments from socio-demographics (e.g., age, sex) to groups based on shared behavioural traits. For example, instead of grouping consumers along the category "age of 18-25", data clustering would rather consider as a relevant audience "mothers born in August, with two children and listen to Iron Maiden music". This would enable the marketers to understand that among its customer there might a high probability the mothers with two children born in August are more likely to buy an Iron Maiden's CD – some kind of correlation that would be totally unexpected. Moreover, clustering algorithms are designed to learn directly from data distribution and its changes, which means that so long as new data about consumers are available and the model is retrained on those data, the distribution of clusters and partition of customer may evolve over time ensuring that resulting segments always reflect the current state of behaviours.

Each marketing organisation equipped with enough consumers data and proper analytical software can perform cluster analysis in order to enhance its understanding of customers' similarities and dissimilarities.²⁹ Customer clustering tools are generally included in many AI-powered data analytics software products and are one of the basic analytics processes that can be performed in analytics API served by Google and alike.³⁰ Alternatively, audiences can be selected marketing API service in social media environments. Providers such as Facebook and Google apply their in-house AI analytics tools to segment their users in a varied number of groups based on different categories, which can then be offered to marketers in programmatic advertising. Table 1 provide an overview of the different attributes that Facebook appears to infer from users' data.³¹

²⁹ Carlos A. Diaz Ruiz and Hans Kjellberg. "Feral segmentation: How cultural intermediaries perform market segmentation in the wild". In: *Marketing Theory* 20.4 (2020), pp. 429–457.

³⁰ Google Ad Manager Help, Create first-party audience segments, 2020, <https://support.google.com/admanager/answer/2423498?hl=en>. See more generally, Rob Procter, Alexander Voss, and Ilia Lvov. "Audience research and social media data: Opportunities and challenges". In: *Participations: Journal of Audience Reception Studies* 12.1 (2015), pp. 470–493

³¹ Facebook For Business, Audience Targeting Options, 2020 <https://www.facebook.com/business/help/633474486707199>.

Style	Category	Groups (examples)
Demographics	Age	A range between 13-65+ can be customised
	Education	High school, in college, doctorate degree, professional degree
	Ethnic affinity	Hispanic, Afro-American, Asian-American
	Financial	A range between 30K and 500K can be selected
	Gender	All, men, women
	Generation	Baby boomers, generation X, millennial
	Home	Apartments, single, renters, young and hip
	Language	Select one language
	Life events	Anniversary within 30days, away from hometown, new relationships, recently moved, newly engaged
	Location	Marketers can enter one or more countries, regions, cities, ZIP/postal codes and select "everyone in the location", "people recently in the location" "people travelling in the location"
	Parents	New parents, parents with teenagers, green mums, stay-at-home mums etc.
Politics	Marketers can select the political orientation of users (e.g., liberal, very liberal, conservative, very conservative)	
Relationship	Interest (men, women, men and women) relation (e.g., engaged, married, widowed, divorced)	
Work	Marketers can type-in a job title, select an industry, select office type	
Interest	Business and Industry	e.g., healthcare, design, real estate, retails, aviation etc.
	Entertainments	Games, movies, music, reading, TV

	Family and Relationships	Fatherhood, dating, wedding, parenting
	Fitness and Wellness	Dieting, physical fitness, yoga, rumba
	Food and Drinks	Alcoholic beverages, type of cousin, restaurants
	Hobbies and Activities	Politics and social issues, garden, home, arts and music
	Shopping and Fashion	Beauty, clothing, toys
	Sport and Outdoors	Outdoor recreation, sports (types)
	Technology	Computers (types), consumer electronics
Behaviours	Automotive	New vehicle buyers, used vehicles, types of vehicle
	Business-to-business	New vehicle buyers, used vehicles, types of vehicle
	Charitable donations	Cancer causes, political, health, religious, animal welfare
	Digital activities	Console gamers, photo uploaders, operating system used, internet browsers used
	Expats	Select country
	Financial	Spending methods (line of credits)
	Job Role	Professional, corporate executive
	Media	Radio, TV
	Mobile device user	Mobile by brand, mobile by OS, network connection, smartphone and tablets owners
	Purchase behaviours	Marketers can select categories of products or purchasing habits (e.g., clothing, kids' products, store types, technology)
	Residential	Like to move, recent home buyers, recent mortgage borrower
	Seasonal and events	Football match, rugby, etc.
	Travels	Frequent travellers, personal travellers, commuters, family vacations, returned from a trip
Connections	Page visitors	People who like your page, friend of people who like your page

App users	People who used your app, friends of people who used your app
Events	People going to your event, friend of people going to your event

TABLE 3.1: Facebook's customised audience

Beside understanding consumer similarities for selecting the audience, machine learning methods can be used by marketers to gain a better understanding of specific characteristics about new customers. Say, for example, that a shopping site has had 50 visits in the last week and only 5 have signed up for a service. These five customers form the target audience segment so that marketers may want to find similar customers in order to broaden the reach of successful campaign. Acquiring additional information about customers in marketing is often done through s.c. "buyer persona research". Developed in 1993 by marketing professor Angus Jenkinson, the idea of buyer personas responded to the mission of developing fictional characters showing typical and recurrent traits of the target buyers of a brand.³² Today, data-powered enterprises can build their buyer personas by directly looking in the data and by performing analytics to find similar customers that share the same traits.³³ Data driven persona is another case of automated profiling which allow to infer additional characteristics about a specific consumer based on the past data about similar individuals. Differently from segmentation, here the marketer does not attempt to group consumers according to similarities (s.c. "look-alike modelling")³⁴. Rather, it tries to identify "who the consumer is" in terms of a presumptive description that can be inferred

³² Angus Jenkinson. "Beyond segmentation". In: *Journal of Targeting, Measurement and Analysis for Marketing* 3.1 (1994), pp. 60–72. In the early days of marketing, the process of constructing buyer personas was generally investigated and created with interviews and survey with real consumers. From their use of their expressions and their thoughts, maybe their photos, their act etc., marketers would "step into the shoes" such real individuals and upon a process of imagination and creativity build some profile which described their hypothetical target consumer.

³³ Cheryl Burgess and Mark Burgess. *The New Marketing: How to Win in the Digital Age*. SAGE, 2020("a buyer personal is a semifictional representation of your ideal customer base don market research and real data about your existing customers"). The authors describe the seven steps to build a data-driven personal: in gather buyer data, assemble your team, get to know your buyer, evaluate pain points, craft your persona, continuously revisit and revise your persona, validate your persona. Taking the validated persona, the marketing team will be able to find look-alike audience in new coming data.

³⁴ Artem Popov and Daria Iakovleva. "Adaptive look-alike targeting in social networks advertising". In: *Procedia Computer Science* 136 (2018), pp. 255–264("a buyer personal is a semifictional representation of your ideal customer base don market research and real data about your existing customers"). The authors describe the seven steps to build a data-driven personal: in gather buyer data, assemble your team, get to know your buyer, evaluate pain points, craft your persona, continuously revisit and revise your persona, validate your persona. Taking the validated persona, the marketing team will be able to find look-alike audience in new coming data.

by considering and confronting its past behaviour with the behaviours of other customers. For example, imagine an online travel agency that offers its clients tourist packages for sports activities or romantic getaways. The romantic getaway is more suitable for a young couple searching for relax and quiet moments, while the sport weekend is aimed at an individual who is passionate about outdoor activities and who loves adrenaline. In such a case, the marketer, who does not have any clue about the identity behind the new website visitor, might use a machine learning system which make guess about their marital status. This might entail the creation of a large training dataset containing lots of data about previous consumer data as a descriptive variable and as a target variable the marital status of each customers, i.e., single, engaged, married (in online travel agencies such as Booking.com or Expedia, this kind of information is typically part of the information that one can fill in the personal). After training, a model is extracted which correlate consumers' characteristics or past behaviours to one of the class referring to the target variable. Once the model is run on the online travel platform and new visitors come in, the system might instantly profile the new customers as pertaining to one of the three categories.

Rao and colleagues, for example, have showed how technical data such as IP addresses can be used to deduce information about individual's names, postal address, purchase history and subsequently purchasing power, and how behavioural data and important "life event information" (e.g. marriages, pregnancy, purchasing of real estate property, marriage, divorce etc.) can provide important information on an individual's purchasing power or purchasing intentions.³⁵ Health data can be also collected for predictive health marketing purposes and to target consumers with mobiles adverts related to specific health conditions.³⁶ An often-cited case of digital persona research that caused a stir in the general public regarded the US supermarket chain Target's "Mom and Baby Acquisitions Mailer" program.³⁷ After collecting data about its customers, the company created a machine learning model on the basis of past item purchase by female customers (descriptive variable) and the fact of being pregnant (target variable). Pregnant mothers' data were derived from the "Baby" newsletter of Target gift registry, which enable Target's clients to customise their profile in order to receive specific categories of offers. In the model, a very high propensity of being pregnant resulted from a combination of 25 items being purchased. It is important to understand

³⁵ Ashwini Rao, Florian Schaub, and Norman Sadeh. "What do they know about me? Contents and concerns of online behavioral profiles". In: *arXiv preprint arXiv:1506.01675* (2015).

³⁶ Charles Duhigg. "How companies learn your secrets". In: *The New York Times* 16.2 (2012), pp. 1–16.

³⁷ Kashmir Hill. *How target figured out a teen girl was pregnant before her father did*. Forbes. 2012. URL: <https://www.forbes.com/sites/kashmirhill/2012/02/16/how-target-figured-out-a-teen-girl-was-pregnant-before-her-father-did/?sh=10fc78cf6668>; Hope B. Corrigan, Georgiana Craciun, and Allison M. Powell. "How does Target know so much about its customers? Utilizing customer analytics to make marketing decisions". In: *Marketing Education Review* 24.2 (2014), pp. 159–166.

that among the items purchased items, the model did not simply show baby clothes or buggies, which could be obvious, but also contained certain quantities of specific lotions, soaps, hand sanitizers, cotton balls, wash-cloths or nutritional supplements purchased at a precise point in time. When a young lady visited the web shop, she was sent targeted coupons with the offers of buying certain pregnancy items. It is reported that the father upon causally seeing the email reached out to Target and accused them of encouraging his daughter to get pregnant, because they sent coupons for baby clothes to her. To her father's surprise it turned out that the girl was indeed pregnant and did not tell him about it.

Provided that the marketing managers have enough data and machine learning skills, business can build customer personas as basic or complicate as it may like (Figure 3.1).³⁸ Different possible consumer data can be modelled as descriptors of disparate traits of consumers behaviour and personality. Similar to segmentation, advertising platform and social media can also serve the purpose to discover additional information about consumers. For example, aggregate data of Google Analytics may be able to fill in the missing information of the audience segments and provide information on different characteristics of targeted audience.³⁹ Facebook Marketing API provide marketers with the tool to synchronise their own buyer personas and find directly on the social media platform or in the ads network lookalike customers. Individual information about single consumers can also be traded in data brokers' markets help clients better understand their customers.⁴⁰ Clients provide their customers' identifying information, such as name and email address and the data broker can then add new information to the clients' data sets (s.c. "data append")⁴¹. The data management platform in offer a large array of actual and derived data elements, including age, religious affiliation, technology interest, gender, political affiliation, credit card usage, race, vacation habits, occupation, presence of children, real property attributes, investment habits, gambling etc. Such insights are easily exchanged and transmitted as they purport not to include any personal data.

3.1.3 Scores and other predictions

Instead of making an assessment on the characteristics of the individual, "customer scoring" practices assess consumers behaviours in terms of their

³⁸ AI Outlier. *How data driven companies build customer personas*. June 2017. URL: <https://towardsdatascience.com/how-data-driven-companies-build-customer-personas-c1559d82a1d4>.

³⁹ Ana Cruz and Stelios Karatzas. "Understanding your buyer persona". In: *Digital and Social Media Marketing: A Results-Driven Approach 3* (2017), pp. 69–93.

⁴⁰ Wolfie Christl, Katharina Kopp, and Patrick Urs Riechert. *How companies use personal data against people*. 2017. URL: https://crackedlabs.org/dl/CrackedLabs_Christl_DataAgainstPeople.pdf, p. 33.

⁴¹ Experian, Experian's data appending service for small businesses – now even better, <https://www.experian.com/small-business/data-appending-services>.



FIGURE 3.1: An example of data-driven persona

Source: *Buyer persona: che cosa sono e a cosa servono? Piccola guida con esempi.* Post by Stella Fumagalli. Mar. 2019. URL: <https://blog.axura.com/2019/03/buyer-persona-che-cosa-sono-e-a-cosa-servono-piccola-guida-con-esempi/>.

probability of carrying a particular benefit or loss to the firm.⁴² Not all customers are alike in terms of responsiveness of a certain advertising campaign, so the marketer may opt to predict what are the best customer profiles which are more likely to positively engage with the offers. These practices make use of machine learning techniques combine with predictive analytics methods, that is based on past data they allow to make predictions about future events. For example, a travel company who wants to understand whether their customers might positively respond to certain offer of ski resort holiday package might deploy a machine learning system on a dataset containing attributes and behaviours of all its consumers. Using, for instance, a regression model the system equipped with enough data can map a function which correlate the characteristics of the consumers with a score determining the probability of being responsive to offer in question.⁴³ After enough training and each time new customers data flows into the company database, the tool discovers and suggests customers which customers are more likely to respond, so that the company can direct its commercial offers to them and not to unprofitable consumers and maximise returns on marketing efforts.

Customer scoring is typically used in direct marketing to generate leads (s.c. lead scoring). The above example is itself a case of lead scoring, in which the model that is inductively derived from the data contain a list of "leads", i.e., consumers who will be potentially responsive to the marketing trigger based on certain attributes or past purchases.⁴⁴ Other times, customer scoring practices can be used to predict the long-term profitability of each consumers. This indicator is known as customer lifetime value (CLV) and measures (predicts) the profits that can be extracted by the relationship with a particular customer considering their attributes and purchasing behaviour. So, instead of predicting a particular action, CLV scores predict the value of the future net return from a particular consumers relationship.⁴⁵ Finally, another common type of score regards customer churns. Churns are consumers who show sign that are about to switch provider, so that it might be useful for the trader to detect those signs and anticipate the consumers with specific luring offers in order not to lose her.

Scoring practice can also be carried out to establish when and how to reach single consumers. Today, marketing "touchpoints" are multiplying. A marketer might reach a certain consumer through direct media (e.g., website, in-app marketing, email etc.) or through indirect media (e.g., web and mobile

⁴² In general on predictive analytics, see Eric Siegel. *Predictive analytics: The power to predict who will click, buy, lie, or die*. John Wiley & Sons, 2013.

⁴³ Consumer score can also be modelled as a classification tasks, which however allow less granularity. Consumers would be categorized, for example, in either the class of "possible buyer" or the class of "non-buyer".

⁴⁴ Towards Data Science. *A True End-to-End ML Example: Lead Scoring*. Post by Adam Barnhard. 2020. URL: <https://towardsdatascience.com/a-true-end-to-end-ml-example-lead-scoring-f5b52e9a3c80>.

⁴⁵ Chen, Siem. "Estimating Customer Lifetime Value Using Machine Learning Techniques." *Data Mining*. IntechOpen, 2018.

advertising). Managing all these channels together is becoming more and more complicated and it is increasingly difficult to understand which channel should prevail in interactions with consumers. Some consumers might be more prone to use their laptop to make purchases; other might prefer to use the iPhone; some may prefer to visit the local store and then purchasing on the web (s.c. showrooming) or vice versa (s.c. webrooming). Today, digital marketers increasingly strive to adopt s.c. omni-channel strategies, which require them to integrate the different methods of shopping available to consumers. Central to this strategy is attribution modelling, which allows marketers to make predictions with regard to the best "touchpoint" for each customer when strategy becomes more complex, accurately assessing the impact of each marketing channel becomes an even bigger challenge.⁴⁶

Using predictive analytics, a firm can also optimize the planning of the best marketing strategy.⁴⁷ This type of analytics reveals the implications of increasing or decreasing marketing expenditures to optimise the marketing mix, and to guide the spending allocation on particular media. The statistical models could shed light on the effect of advertising on the consumers' behaviours as they may reveal the relationships (if any) with the market conditions, other marketing communications, and competitive activities. Data on the consumers' response to the marketing activities must be fed into the analytics' systems to fine-tune the corporate spending through different media. Such optimisation software can generate realistic contexts along with relevant marketing recommendations to achieve them. For example, the analytics software may test specific what-if scenarios, measure outcomes, validate models, and make corrections before making corporate decisions. Today's marketers can readily adjust or re-allocate online advertising budgets in different markets in a fraction of a second. Analytics will help them understand which marketing activities are driving leads to websites, and intermediaries.

Consumer scoring and predictive analytics practices are becoming popular among all market players across industries.⁴⁸ Given the instant access to analytics software and the democratisation of knowledge and skills about applied machine learning, making predictions to optimize marketing actions is likely to turn out the bottom-line characteristic of data-driven marketing. Moreover, scores and predictions are becoming one of the most valuable asset consumer data markets, so any company can profit from third-party algorithmic scoring systems. Data analytics companies may convert customer data into a variety of different consumers scores for different marketing initiative. Some scores rank clients' customers on the basis of how likely they are to respond to particular marketing efforts. For example, clients may rely on

⁴⁶ See, e.g., Ole Nass et al. "Attribution modelling in an omni-channel environment—new requirements and specifications from a practical perspective". In: *International Journal of Electronic Marketing and Retailing* 11.1 (2020), pp. 81–111.

⁴⁷ Eric T. Bradlow et al. "The role of big data and predictive analytics in retailing". In: *Journal of Retailing* 93.1 (2017), pp. 79–95.

⁴⁸ Mark Anthony Camilleri. "The use of data-driven technologies for customer-centric marketing". In: *International Journal of Big Data Management* 1.1 (2020), pp. 50–63.

marketing scores to identify consumers or addresses on direct mail lists with a low response rate. Clients may also rely on marketing scores to identify addresses that have a high undeliverable mail rate or consumers with a low purchase rate. These types of scores could be used to determine the types of offers consumers may receive, the number of offers, or even the level of customer service provided to specific individuals. Other scoring products measure a consumer's presence on the Internet or a consumer's influence over others. These scores are based on, for example, the consumer's blogging practices, participation in social media sites such as Facebook and Twitter, the number of friends, followers, or readers the consumer has, the amount of content the consumer creates on the Internet, or the consumer's prominence in the news. Clients may use these social influence scores to ensure that they advertise their products to these particular consumers, with the expectation that these consumers will, in turn, tout these products to their friends and followers.

Undoubtedly, the main market of consumers score is programmatic advertising. In the last fifteen years, advertising companies and intermediaries have indeed been at the forefront in developing service solutions to provide their business clients the ability to direct consumers that are more likely to be influenced by marketing campaign. The use of AI systems for targeted advertising is based on the logic of consumers scoring here, predictive models are used to make an estimate on consumers relating their probability of a positive engagement with a particular advertising campaign in order to select them for bidding. We shall say more in the next section about targeted advertising, as they pertain to one of the different models with which algorithmic business can personalize interactions with their customers. However, it is first important to reflect on this set of algorithmic practices as they already bear a number of significant implications for consumers and – as one might have intuited – information privacy.

3.2 A new asymmetry

Among the most controversial attributes of new business research and information practices, the literature on critical data has dwelled upon the striking asymmetrical relationship between those who collect, store and extract large amounts of data and those for whom the data collection is intended.⁴⁹ On a societal note, Mark Andrejevic leads the way by recognising the new "Big data divide" characterised by forms of asymmetrical power associated with both the tremendous accumulation of data and new techniques for putting it to work provides. This asymmetry – he argues – runs deep insofar as "it

⁴⁹ See, e.g., Jathan Sadowski. "When data is capital: Datafication, accumulation, and extraction". In: *Big Data & Society* 6.1 (2019); Andrew Iliadis and Federica Russo. "Critical data studies: An introduction". In: *Big Data & Society* 3.2 (2016), p. 2053951716674238. In particular, the latter draw attentions towards the logic of perpetual data capital accumulation and circulation.

privileges a form of knowledge available only to those with access to costly resources and technologies over the types of knowledge and information access that underwrite the "empowering" and democratizing promise of the Internet"⁵⁰. To understand the contours of the new data divide in business-consumer relationships, in this section we shall highlight two socio-technical developments that are taking place in the algorithmic business, which provide possible explanation for concern and also the role of customers' personal information.

3.2.1 Big data surveillance

The study, analysis of consumer behaviours in corporate practices has been studied in the last thirty years under the field of commercial surveillance. According to its most neutral account, surveillance comprises all those activities implemented by public and private organisation, or even individual, which keep a close watch over someone or something.⁵¹

Since the emergence of database marketing and customer relationships management, information corporate practices have considerably caught the attention of surveillance scholars and critical marketing studies for their inherent effect of imposing an activity of constant monitoring of consumers behaviours.⁵² In one of the earliest pieces on corporate surveillance, Oscar Gandy relied on Foucault's use of the panopticon to describe technology-mediated corporate practices as "a kind of high-tech, cybernetic triage through which individuals and groups of people are being sorted according to their presumed economic value"⁵³. While "the panoptic sort" operates to increase the precision with which consumers can be classified according to their perceived value in the marketplace and their susceptibility to various appeals, consumer data is systematically commodified and increases the dependence

⁵⁰ Mark Andrejevic and Kelly Gates. "Big data surveillance: Introduction". In: *Surveillance & Society* 12.2 (2014), pp. 185–196.

⁵¹ David Lyon. *Surveillance studies: An overview*. Polity, 2007. Lyon, one of the most distinguished surveillance scholars, follows the Foucaultian tradition and defines surveillance (from French "surveiller", meaning "to watch over") as "the focused, systematic and routine attention to personal details for purposes of influence, management, protection or direction" (p. 14). The author warns that, despite common credo, the term "surveillance" does not bear any value connotation but it merely descriptive and include everything from face-to-face encounters to mediated arrangements dependent on a wide and ever-growing range of information technologies.

⁵² See, e.g., David Lyon. "From big brother to electronic panopticon". In: *The Electronic Eye: The Rise of Surveillance Society* (1994), pp. 57–80. Corporate surveillance, together with governmental surveillance, has been one of the recurrent topics on the last thirty years. Among the most notable scholars: Gilles Deleuze, David Lyon, Nicole Haggerty, Mark Andrejevic, Oscar H. Gandy Jr., David Murakami Wood. Some of their works are referred to in this and following section.

⁵³ Oscar H. Gandy Jr. *The Panoptic Sort: A Political Economy of Personal Information*. *Critical Studies in Communication and in the Cultural Industries*. ERIC, 1993, pp. 1–2.

of commercial interests on information that can be extracted therefrom. Similarly, when coining the concept of "dataveillance", Roger Clarke was concerned of the surveillant characters of new private organisations practices for the purpose of "systematically monitoring of people or groups, by means of personal data systems"⁵⁴. Dataveillance, a portmanteau of data and surveillance, explained how long-standing forms of visual and communication surveillance was progressively replaced by more economically viable and technically efficient computerized means.

Today, Big data and data analytics applications is represented as the latest evolution in a line of consumer-surveillant technologies.⁵⁵ By using these technologies, marketers seek to create value from an extensive array of new data-generating sources used by consumers with the aim is to produce new insights into consumer behaviours and preferences. Yet, when viewed from the perspective of corporate surveillance practice, Big data analytics is particularly problematic for various reasons.

Traditional surveillance practices have always relied on the purposeful collection of specific data to create models (s.c., sampling). According to traditional views of marketing, this information was assumed to be useful when deciding how to place products among consumers and device the best communication strategies. In this sense, early surveillance strategies were targeted to acquire specific informational assets that were functional to create and subsequently implement the marketing strategy, be that a promotional, discount or advertising campaign. As suggested by Andrejevic, current corporate surveillance is best characterised as "populational"⁵⁶: information extraction and decision-making rely on inductive logic whereby tracking the entire customer based is required. The more data are available, the more correlation and pattern can be detected with the purpose of creating a more effective context for decision-making. This new "omnivorous approach"⁵⁷ to data clearly facilitates, if not induce a culture of surveillance which expand beyond constrained informational assets (e.g. age, sex, gender, purchases) to any possible "data trail" left by consumers activities on the Internet. In fact, data in itself is less important than the information that can subsequently extracted: the single data point has value only in so far and to the extent it can be stored and aggregated with another myriad of data points, and analysed

⁵⁴ Roger Clarke. "Information technology and dataveillance". In: *Communications of the ACM* 31.5 (1988), pp. 498–512, Clarke is considered the first author to explore surveillance practices through information technologies.

⁵⁵ Kirstie Ball, Maria Laura Di Domenico, and Daniel Nunan. "Big data surveillance and the body-subject". In: *Body & Society* 22.2 (2016), pp. 58–81 ("When we consider what the 'Big' in 'Big Data' refers to, the etymology of the term encourages a focus on the volume of data. It refers in fact instead more to the ubiquity of data, the completeness of coverage over contemporary lives. It is this ubiquity, the knowledge of a near complete record of individual lives, which removes the need for a priori decisions on commencing surveillance.").

⁵⁶ Andrejevic and Gates, "Big data surveillance".

⁵⁷ Mayer-Schönberger and Cukier, *Big data: A revolution that will transform how we live, work, and think*.

("mined"). Because machine learning systems are said to be "agnostic"⁵⁸, any information can be relevant to extract future knowledge. This is the reason why commercial surveillance ranges across the complete spectrum of available information about the activities of consumers: every visited website, clicked link, and even hovering with a mouse may results useful detecting patterns and correlations in consumers behaviours. "Behaviour" is actually used as misnomer, as it may refer to anything that can be digitally monitored or anything that has some objective digital footprint.⁵⁹ The scale, rather than the quality, is the asset in the algorithmic business.

At the heart of new surveillance practice also lies also an expanding movement not merely in scale of data collection, but also in the scope. The emergence of the Web 2.0 and later mobile commerce has in fact expanded the terrain for corporate surveillance practices towards a wide-ranging scope of social life activities.⁶⁰ Social networks and platform of content generation have enabled marketing organizations to acquire information on a new subject: the "prosumers"⁶¹. While traditional mass media could only track the address of commercial content, thanks to social media and content generation platforms, now the commercial gaze is extended to the consumers who upload or watch videos on YouTube, upload or browse personal images on Flickr, or accumulate friends and connection on Facebook and LinkedIn. The prosumer is more active on the Internet than in the consumer in the reception of TV advertising or radio content due to the decentralized structure of the Internet, which allow one-to-many communication. Big data surveillance is prone to use the work of prosumers, with the additional effect of making no different between the people as a passive consumers and active producers of social and cultural.⁶² Buyer persona can be created relying on past purchases and website visits which may indeed fit with a marketing orientation, but also by likes of social media and video uploads on YouTube. Big data

⁵⁸ For example, Michelle Hildebrandt describes machine learning as agnostic in the sense the algorithms are oblivious to human bias or independent of the design choices that determine its performance accuracy. Mireille Hildebrandt. "Privacy as protection of the incomputable self: From agnostic to agonistic machine learning". In: *Theoretical Inquiries in Law* 20.1 (2019), pp. 83–121.

⁵⁹ Eran Fisher and Yoav Mehozay. "How algorithms see their audience: media epistemes and the changing conception of the individual". In: *Media, Culture & Society* 41.8 (2019), pp. 1176–1191.

⁶⁰ Christian Fuchs. "Web 2.0, presumption, and surveillance". In: *Surveillance & Society* 8.3 (2011), pp. 288–309.

⁶¹ As known, the concept of prosumer was introduced in the early 1980s by Alvin Toffler to optimistically describe the uptake of a new political and economic democratic order characterized "progressive blurring of the line that separates producer from consumers", self-determined work, labor autonomy and local production. Alvin Toffler. *The third wave*. William Morrow (US), 1980. As noted by Fuchs, "Web 2.0, presumption, and surveillance", p. 295, however, Toffler overlooked that presumption is used for outsourcing work to users and consumers, who work without payment, such as in the case – he argues – of social networks who exploit the work of Web 2.0 users to make profit with advertising.

⁶² *ibid.*, p. 299. Based on Marxist approach, Fuchs argues that big data capitalist exploit prosumer as much as industrial capitalists exploited labor workers in factory.

analysis interventions therefore imply a decontextualization, as any variable of behaviour, be it of an economic-commercial nature (e.g., the purchase of a product), or of a social nature (e.g., the post on Facebook), as any variable of data can determine a spurious correlation with the objective pursued by companies. The de-contextualisation in online social life has been offset by the re-contextualisation of the consumer in offline social life.⁶³ The advent of mobile phones, apps, and lately wearables technologies has given birth to a significant exchange of information, involving location, identification and authentication of the consumer; what Lyon col "mobi-veillance"⁶⁴. The s.c. "m-commerce" has increasingly allowed the dissemination of a message to consumers as they move, in the context of their interaction, which promote a vision to serve consumers with just-in-time personal messages based on their location.

Big data analytics practices are characterized for their increased reliance on predictions, rather than explanation. This represents a notable achievement in consumers surveillance, which is no longer and not only focused on generating a "map of current and past behaviours" of consumers but attempt to predictive models of future behaviours. Often cited as the guru of predictive analytics by marketers, Eric Siegel argues: "We usually don't know about causation, and we often don't necessarily care ... the objective is more to predict than it is to understand the world...It just needs to work; prediction trumps explanation"⁶⁵. The focus is no longer on data patterns as emerging from behaviours but on "(meta)data patterns to individual's potential behavior"⁶⁶, which yields powerful information about what we will do.

Finally, the characteristics of contemporary consumers surveillance practices is their networked nature.⁶⁷ Marketers have always been concerned with controlling consumers in time and space but largely within the remit

⁶³ The digitally mediated contextualization of the consumers has been analysed by surveillance scholar with the name of "brandscape". For example, Murakami Wood and Ball defines it as "a new mode of ordering that seeks to simultaneously construct space and subjectivity, a mode of ordering represented by a new apparatus", David Murakami Wood and Kirstie Ball. "Brandscapes of control? Surveillance, marketing and the co-construction of subjectivity and space in neo-liberal capitalism". In: *Marketing Theory* 13.1 (2013), pp. 47–67.

⁶⁴ David Lyon. "Surveillance, power and everyday life". In: *Emerging Digital Spaces in Contemporary Society*. Ed. by Phillip Kalantzis-Cope and Karim Gherab-Martin. Palgrave Macmillan UK, 2010, pp. 107–120.

⁶⁵ Siegel, *Predictive analytics: The power to predict who will click, buy, lie, or die*, p. 20.

⁶⁶ José Van Dijck. "Datafication, dataism and dataveillance: Big Data between scientific paradigm and ideology". In: *Surveillance & society* 12.2 (2014), pp. 197–208. The author deconstructs the ideological grounds of data-driven culture, rooted in problematic ontological and epistemological claims. As part of a larger social media logic, it shows characteristics of a widespread secular where masses of people, naively or unwittingly, trust their personal information to corporate platforms. Information that are product of predictive analytics represent the ultimate representation of such culture of "dataism".

⁶⁷ Julie E. Cohen. "The Networked Self in the Modulated Society". In: *Crossroads in New Media, Identity and Law: The Shape of Diversity to Come*. Ed. by Wouter de Been, Payal Arora, and Mireille Hildebrandt. Palgrave Macmillan UK, 2015, pp. 67–79 ("contemporary networked surveillance practices implicate multiple forms of participation, many of which are highly organized and strategic").

of bilateral transactions. Direct and email marketing are clear example. Today, marketers can follow consumers everywhere, turning the mobility of everyday life into input for the "more diffuse and expanded systems of production". The information strategy of data corporation is no longer limited to track consumers behaviours during direct interactions, but through surreptitious tracking technologies and data partnership with other companies can link and synch its corporate database and "collaborative analytics platforms" with third parties.

The scope and scale of Big data practices, as well as their predictive orientations and their networked nature, has caused sociologist Shoshana Zuboff to call the present information economy as the age of surveillance capitalism.⁶⁸ In her inspiring book, Zuboff takes inspiration from the work of Karl Polanyi, who had observed that the advent of capitalism (the "great transformation") consisted in the progressive control of social space by the market.⁶⁹ In particular, Polanyi observed that capitalism transforms products to be sold on the market (s.c. commodification) entities that were not produced for the market: land, work, and money. In surveillance capitalism, says Zuboff, the domination of the market extent to "human experience" that is claimed "as free raw material for hidden commercial practices of extraction, prediction and sales"⁷⁰. The extraction imperative establishes that the algorithmic systems operated by the surveillant capitalist can provide good results only in so far great quantities of data are injected into the system. The new competition in the surveillance capitalism is, therefore, finding new "mines" of (free) raw material which can guarantee continuous access. This is the reasons – according to Zuboff – why surveillance capitalists such as Google embark onto all kinds of apparently unrelated service (e.g. search engine, game streaming, advertising, wearable such as google glass and shoes, access to internet all over the world etc.). All Google's services contribute to and collaborate in the revamping of all mediated computation into an extraction architecture, which is not interested in personal data ("in you") but only on knowledge that can be extracted. Zuboff takes the argument further by stating that surveillance capitalism is not only a matter of extraction but also future prediction:

⁶⁸ Shoshana Zuboff. *The age of surveillance capitalism: the fight for the future at the new frontier of power*. Profile Books, 2019.

⁶⁹ Karl Polanyi. *The great transformation*. Beacon Press, 1944.

⁷⁰ This is only one of the eight definition given to surveillance capitalism. "2. A parasitic economic logic in which the production of goods and services is subordinated to a new global architecture of behavioral modification; 3. A rogue mutation of capitalism marked by concentrations of wealth, knowledge, and power unprecedented in human history; 4. The foundational framework of a surveillance economy; 5. As significant a threat to human nature in the twenty- first century as industrial capitalism was to the natural world in the nineteenth and twentieth; 6. The origin of a new instrumentarian power that asserts dominance over society and presents startling challenges to market democracy; 7. A movement that aims to impose a new collective order based on total certainty; 8. An expropriation of critical human rights that is best understood as a coup from above: an overthrow of the people's sovereignty." Zuboff, *The age of surveillance capitalism: the fight for the future at the new frontier of power*, p. 8.

the actual product, the trading commodity, of surveillance capitalism capitalists, not merely become knowledge about you, but "prediction" or "predictive models" about large subset of people which can be used to score and anticipate each and every one individual. The surveillance capitalism thus moves from an extraction imperative to the "prediction imperative", which engages in the question: "what forms of surplus enable the fabrication of prediction products that most reliably foretell the future?"⁷¹. Moving from the imperative of prediction, in Zuboff's construction, surveillance capitalism finally arrives at what she calls "action economies": predicting behaviour, which is as foretelling as possible, is aimed at intervening in the target in order to influence behaviour in real life. In order to achieve this "machine processes are configured to intervene in the state of play in the real world among real people and things"⁷². We shall see this in the next chapter.

3.2.2 Algorithmic assemblage

According to Zuboff, algorithmic systems, or what she calls "machine intelligence", represents the new means of production of the data business, or the "new factory"⁷³. There is, in fact, a double relationship between data and machines and the underlying surveillance commercial operations: one the one hand, machines allow to transform raw material (consumer data) into knowledge products (profiles and predictions); on the other, raw material must be constantly injected in the machine for it to work. Algorithmic systems allow business to make sense of consumers data and make decisions only to the extent already large, varied and updated behavioural data are available to train the algorithm and to improve learning over time. This double-sided relationship creates then a self-reinforcing loop where data-hunger machines spur more data collection, and more data collection leads to refined predictions.

Nevertheless, the industrial production metaphor, however, appears especially appropriate in describing the role of algorithmic systems in the synthetic transformation process from raw data to actionable insights. As argued some time ago by Nicholas Negroponte, in a digital world, being digital means first of all that our physical consumption matters are translated into digital bits and bytes. We are no longer physical bodies roaming around in shopping malls or in and out grocery shops but set of objective data points, often complex and erratic, that flows into database and can be stored and transferred in binary bits. The role of algorithmic systems is then supposed that of reconstruct consumers' subjectivity into standardized, rationalized and comparable structures that can be passible of screening out or direct

⁷¹ Ibid., p. 198.

⁷² Ibid., p. 199.

⁷³ Ibid., p. 38.

intervention by the marketers.⁷⁴ Evocative in this sense is the concept of "surveillant assemblage" through which Haggerty and Ericson describe the process of "abstracting human bodies from their territorial settings and separating them into a series of discrete flows"⁷⁵. The consumer can be converted into a digital assemblage and as an assemblage she or he exists and acquires meaning only in connection with other assemblages. This new digital consumption reality is composed of new virtual subjects which emerge as "data doubles" (cfr., digital-driven buyer persona) characterised by attributes, personal description, connections, and predictive scores reconstructed by the algorithm.⁷⁶

Yet as long been argued by critical data studies, it is important to remember that there is nothing 'natural' in the inferences and predictions made about the data analysed. In fact, "everything about information is artificial"⁷⁷ and relying on mathematical models or statistical methods does not guarantee that the knowledge created is undeniable or truthful. Although the insights analysts derive from data are based on rigorous analytical procedures, they should not be considered neutral or objective realities. A complex mix of hidden intentions, systematic and random errors, partial information or biased visions of the problem, contributes to making this new knowledge as situated and partial as any other type of knowledge. The same algorithms developed to analyse data should be treated as contested, situated objects of inquiry.⁷⁸ The subjectification operated by the algorithmic assemblage into data doubles should be therefore carefully approached: there is no actual guarantee that the representation of our data doubles represent us, our preference, our needs. Problems, thus, may arise from when the knowledge created is used to sort consumers into different categories and taken as absolute truth, compressed into business decisions and used to influence the relationship with customers. In this vein, Pridmore and Zwick argue that the surveillance character of algorithmic assemblage does not manifest itself in the individualization of identities. Rather, the surveillance imposed on consumers by algorithmic systems is much more concerned with "the collection of personal information to discriminate individuals into previously

⁷⁴ Detlev Zwick and Nikhilesh Dholakia. "Consumer subjectivity in the Age of Internet: the radical concept of marketing control through customer relationship management". In: *Information and Organization* 14.3 (2004), pp. 211–236.

⁷⁵ Kevin D. Haggerty and Richard V. Ericson. "The surveillant assemblage". In: *The British journal of sociology* 51.4 (2000), pp. 605–622.

⁷⁶ *ibid.*, p. 606 ("This assemblage operates by abstracting human bodies from their territorial settings and separating them into a series of discrete flows. These flows are then reassembled into distinct 'data doubles' which can be scrutinized and targeted for intervention. In the process, we are witnessing a rhizomatic levelling of the hierarchy of surveillance, such that groups which were previously exempt from routine surveillance are now increasingly being monitored."). The "data doubles" have otherwise spoken off by the literature under various label such as "dividuals" and "data shadows".

⁷⁷ Jaron Lanier. *You are not a gadget: A manifesto*. Vintage, 2010.

⁷⁸ Solon Barocas, Sophie Hood, and Malte Ziewitz. "Governing algorithms: A provocation piece". In: "Governing Algorithms" conference (paper presentation), May 16-17, 2013. 2013.

categorised consumer lifestyle groups or profiles"⁷⁹. The algorithmic machine which sifts through the database create groups, profiles, and scores; it does not merely produce new knowledge, but also create digital reality where desirable "data doubles" are set apart from undesirable ones for a specific product or marketing message. As a consequence, data-driven marketing becomes deeply functional because database marketers never really ask what a particular data flow means, nor do they look for anything to interpret in the data. What they want to know is what they can do with the data? In this setting, individual consumers' meanings are of no interest to the algorithmic business or the other actors in the value chain. The method of consumers protection and the ways in which 'Big data' are valued reflect what Zuboff calls a "formal indifference" that characterizes the firm's relationship to its populations of customers/users.⁸⁰

There is a long-standing aphorism in media theory which says, "If you're not paying, you're the product"⁸¹. The claim has very peculiar meaning in that algorithmic business. Here, the traditional production paradigm which characterized Fordist economy is supplanted by another approach.⁸² To be sure, the algorithmic business does not abandon the production function, only does it shift its object from the production of the product to that of consumers. From this perspective, the baseline approach to algorithmic marketing is that managers are less interested in finding the best tactics to sell a product or service to consumers, but rather to find the best consumers that fit its current products. It is under this light that "consumers become the product". Businesses do no longer spend time to select the best campaign to lure the aggregate demand into buying, but with the use of algorithmic systems require the "recursive selection of the best consumer or the best groups of consumers" for a specific goods. This is apparent in audience research, which is not concerned in finding the best advertising campaign to attract consumers' attention but is to find the best consumers that can be more likely be attracted by a particular product. Pridmore and Lyon and Deighton refer to as "consumer brands"⁸³: what is developed and produced is no longer a product but is a new customer or potential customer that fit the existing product.

At a fundamental level, information and research strategy of the algorithmic business is founded on a dynamic of information production where consumers' involvement and awareness are no longer required. An example

⁷⁹ Jason Pridmore and Detlev Zwick. "Marketing and the rise of commercial consumer surveillance". In: *Surveillance & Society* 8.3 (2011), pp. 269–277.

⁸⁰ Zuboff, *The age of surveillance capitalism: the fight for the future at the new frontier of power*, p. 535.

⁸¹ W. Oremus. *Are You Really the Product? The history of a dangerous idea*. Future Tense. 2018. URL: <https://slate.com/technology/2018/04/are-you-really-facebooks-product-the-history-of-a-dangerous-idea.html>.

⁸² Detlev Zwick and Nikhilesh Dholakia. "Strategic database marketing: customer profiling as new product development". In: *Marketing Management*. Routledge, 2013, pp. 481–496.

⁸³ Pridmore and Zwick, "Marketing and the rise of commercial consumer surveillance", p. 122.

will facilitate our understanding. When visiting a website, Alice may decline to disclose their private information in order to protect her privacy. At the same times, Bob and Cassie, other consumers who visited the same website, may not go for the same choice and disclose their private information. In the moment they consent to the collection of their data and their information enters the pile of Big data and injected into algorithmic model, also Alice may be potentially affected. The marketer is in a position to know Alice and the other hundred consumers who visited the same website without having to rely on her consent and in fact without needed to enter into a contact with her. The example explains that today individual data may reveal more information about consumers than what one could directly observe. The access to personal information is, therefore, not linked to the collection of pieces of data items of specific consumers, but derives from the practice of amassing consumers data – who may have consented to their data – from potentially different data sets, and then applying algorithmic statistical techniques to automatically inquire the data for the information needed. Consumer knowledge acquisition is based on an internal, concealed practices in which marketers study customers groups dynamics to expand and enrich the knowledge about individual target consumers. Consumers could be studied and sorted in categories, without them knowing, and maybe treated differently based on this categorisation. Consumers seem to have no control over how they are perceived (i.e., what my algorithmic identity is according to a particular model) since they do not know that there is such a model, what it looks like, or when it is invoked (i.e., I am being treated differently). The influence an individual has about how and when profiles are being used is very limited. The same holds for control over consumers' own data. Since models are built from data of many individuals, and consumers personal data is as good as your neighbours', often very few data items about consumers are needed to infer new knowledge. This renders many endeavours directed at protection, anonymization and even revocation of data relatively useless. All relevant (statistical) knowledge about individuals is already included in the models. One could say that the persons behind the data are forgotten through the model.

It is not totally inappropriate then to call a new information asymmetry in business-consumer relationship in the algorithmic business. Historically, the concept has been used to describe the substantial difference in knowledge between buyers and sellers in goods markets. It was George Akerlof who popularised the theory of "market of lemon" in which information asymmetries would lead to adverse selection, moral hazard, and risks to competition.⁸⁴ In that case the asymmetrical information regarded the product and its characteristics, and the fact that the seller had more information about the market in general and its competitors. Consequently, the seller had to provide the

⁸⁴ George A. Akerlof. "The market for "lemons": Quality uncertainty and the market mechanism". In: *Uncertainty in Economics*. Ed. by Peter Diamond and Michael Rothschild. Academic Press, 1978, pp. 235–251.

buyer with the necessary information to make an informed decision. State intervention was justified to regulate and rebalance this information asymmetry. But what if today the product is the consumer himself? The idea of information asymmetry is then renewed; a type of asymmetry that speaks volumes about the power relations between businesses and consumers in the era of data-driven surveillance. The asymmetry remains on the product, but it is the product that is changing, as the product is the consumer itself. Here, asymmetry is not merely about the different level of respective knowledge between the algorithmic business can know more about consumers and the consumers who most probably know little about their counterparts' data and algorithmic operation (see below), but it also and above all stems from the fact that the company knows more about consumers than the consumers know about themselves.⁸⁵ That this knowledge is not necessarily true does not really matter: the important thing is that it can bring profit to the company and possibly influence behaviour. We will look this in the course of the next chapter.

3.3 The struggle for privacy

If the new market practice portends a new socio-technical framework where businesses constantly monitor, analyse and score consumers behaviours, we might expect that privacy laws to step in and reduce such information asymmetry. At least in Western democracies, resistance to surveillance has traditionally been mobilised under the concept of privacy.⁸⁶ Yet, privacy laws turn out to have little force when it comes to most of the contemporary commercial surveillance. To be sure, in EU has in place regulations that govern commercial data practices. Among other, the General Data Protection Regulation⁸⁷ represents by far one of the most important achievement to ensure the respect of privacy and data protection in EU, and beyond. However, the regulation is based on certain theoretical premises that appear to be insufficient to prevent commercial surveillance in the algorithmic business. To understand why, it is necessary to know a little more about EU privacy legislation.⁸⁸

⁸⁵ Celia Lury and Sophie Day. "Algorithmic personalization as a mode of individuation". In: *Theory, Culture & Society* 36.2 (2019), pp. 17–37.

⁸⁶ Jan Holvast. "History of privacy". In: *The History of Information Security: A Comprehensive Handbook*. Ed. by Karl Maria Michael de Leeuw and Jan Bergstra. Elsevier, 2007, pp. 737–769.

⁸⁷ Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) OJ L 119, pp. 1–88 (also General Data Protection Regulation).

⁸⁸ In this context, it should be noted that this is not a thesis on privacy or data protection law, but on consumer protection law. It is difficult to draw a line today in data-driven context, but the author's legal background is predominantly EU consumer protection law. The study of conceptual and normative privacy, as well as data protection legal framework, has obviously been considered fundamental but a corollary to the drafting of the thesis, so the issues raised will be limited to a general overview, without going into too much detail.

Differently from other legal systems where the approach was much market-oriented,⁸⁹ the EU installed barriers against surveillance moving from a fundamental right perspective. In 1949 the Council of Europe adopted the Convention 108. This was established following the atrocities of Second World War and when the Cold War between democratic West and communist East was materialising. Among its various duties, it was tasked with the protection of human rights. Most notably, in the early 1950s, it adopted the European Convention on Human Rights (ECHR), followed by a series of issues-specific international human rights treaties. Among its many provisions, the ECHR contained Article 8 "Right to respect for private and family life". The article read:

1. *"Everyone has the right to respect for his private and family life, his home and his correspondence.*
2. *There shall be no interference by a public authority with the exercise of this right"*⁹⁰

The theoretical milieu comes from the US elaboration of the right to be left alone, as absorbed in EU via the 1956 famous judgment of the German Constitutional Court which recognised for the right to privacy as a fundamental right of the person.⁹¹

Subsequently, the rights privacy has been reconceptualised a number of times, mainly due to the advancement in technologies and commercial developments.⁹² In particular, with the rise of digital technologies and electronic marketplace, privacy lawyers realised that qualitatively new possibility for a state to intrude in the life of an individual emerged. Hence, the Council of Europe adopted the Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data.⁹³ It did so as a part of the Article 1 mandate. It read:

⁸⁹ For example, on the different approach between EU and US on granting individuals rights on personal information, see Paul M. Schwartz. "Property, privacy, and personal data". In: *Harv. L. Rev.* 117 (2003), p. 2056.

⁹⁰ Article 8, Convention for the Protection of Human Rights and Fundamental Freedoms, Nov. 4, 1950, 213 U.N.T.S. 221.

⁹¹ Samuel D. Warren and Louis D. Brandeis. "The right to privacy". In: *Harvard law review* (1890), pp. 193–220. As known the paper is considered the foundational essay in the history on privacy both from American lawyers, and from privacy lawyers.

⁹² Privacy theorists Herman T. Tavani suggests that there are four different theories of privacy: traditional Warren and Brandeis's notion of privacy is ascribed to the category of "physical privacy", which is the freedom from physical intrusion". The second and third are "decisional privacy" and "psychological privacy", which are respectively concerned with the protection from interference in important life decisions and the protection of one's intimate through. Herman T. Tavani. "Informational privacy: Concepts, theories, and controversies". In: *The Handbook of Information and Computer Ethics*. Ed. by Kenneth Einar Himma and Herman T. Tavani. John Wiley & Sons, 2008, pp. 131–164.

⁹³ Council of Europe, Convention for the Protection of Individuals with Regard to Automatic Processing of Personal Data, Jan. 28, 1981, E.T.S. No. 108, available at <https://www.coe.int/en/web/conventions/full-list/-/conventions/rms/0900001680078b37>

*"The purpose of this Convention is to secure in the territory of each Party for every individual, whatever his nationality or residence, respect for his rights and fundamental freedoms, and in particular his right to privacy, with regard to automatic processing of personal data relating to him ("data protection")"*⁹⁴

The shift from privacy as the right to be left alone to right to data protection made its way into legislation. In 1995 the EU adopted the Data Protection Directive,⁹⁵ which fulfilling the obligations set in the Convention 108, attempted to harmonization data protection legislation in all Member State. In 2000 the European Union enacted the Charter of Fundamental Rights,⁹⁶ which later become a part of the EU's primary law. Within it one can find a new fundamental right to "protection of personal data" which has been expressed in addition to the right of privacy:

1. *"Everyone has the right to the protection of personal data concerning him or her.*
2. *Such data must be processed fairly for specified purposes and on the basis of the consent of the person concerned or some other legitimate basis laid down by law. Everyone has the right of access to data which has been collected concerning him or her, and the right to have it rectified*
3. *Compliance with these rules shall be subject to control by an independent authority"*⁹⁷

The fundamental right to privacy and the fundamental right to data protection were unified in the GDPR which, approved in 2016 and in forced from 2018, raised as the general EU framework on data protection law, and which put forward the idea of informational self-determination.⁹⁸ The basic idea is that an individual enjoys privacy if she is able to set up private zones in which personal information is held and to limit the access to other to it, while, in case of consent to personal data disclosure, she has the ability to retain control over its during the whole stage of processing.⁹⁹ Both concepts operate

⁹⁴ Ibid., Article 1.

⁹⁵ Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data, OJ L 281, pp. 31–50 (also Data Protection Directive).

⁹⁶ Charter of Fundamental Rights of the European Union, OJ C 326, 26.10.2012, pp. 391–407 (also Charter of Fundamental Rights of EU).

⁹⁷ Ibid, Article 8.

⁹⁸ Antoinette Rouvroy and Yves Poulet. "The right to informational self-determination and the value of self-development: Reassessing the importance of privacy for democracy". In: *Reinventing data protection?* Ed. by Serge Gutwirth et al. Springer, 2009, pp. 45–76.

⁹⁹ This is clearly stated in the preamble of the GDPR, Recital 7: "Natural persons should have control of their own personal data." And in Recital 39: "Personal data should be processed in a manner that ensures appropriate security and confidentiality of the personal data, including for preventing unauthorized access to or use of personal data and the equipment used for the processing."

on the assumption that the individual has a choice; she can control (decide) if and to what extent restrict access to personal information. The GDPR is a general framework applicable to all natural and legal persons that process personal data; it provides individuals with a series of ex-ante transparency rights before in order to control the access to personal data and ex-post actionable rights, while also imposing on data collectors a series of obligation to ensure that personal data are processed in the respect of citizens' fundamental rights.

The GDPR has truly been one of the greatest achievements for individual privacy of this century, yet when assessing the Regulation from the perspective of data-driven marketing, its normative approach presents two major shortcomings that render the instrument largely inadequate to curtail commercial surveillance, indeed facilitate it. The first is of legal policy; the second is conceptual.

3.3.1 Consenting privacy away

A major reason for the hands-off approach to consumer data collection in current surveillance practice is that most of it is governed by a long-standing legal paradigm: information and consent.

The fundamental concern leading to the elaboration of data protection principles and legislation was to foster an appropriate balance between individuals' privacy and the free flow of information. In this perspective, personal data should be collected and processed only when necessary and proportionate to the achievement of a legitimate aim or when the individual whose personal data are being processed has freely expressed her informed consent. Indeed, the rights to privacy self-determination aims at guaranteeing individuals' freedom to construct the person one wishes to become, having autonomy of action and thought, and being able to decide whether giving access to her private life to third parties. Based on these considerations, the "privacy self-management" approach has been developed to provide individuals with the ability to consent or not over their personal data disclosure. Conspicuously, the approach assumed that those who are properly notified of the reason, context, and purpose of their personal data collection, processing, or disclosure will be able to decide freely whether to consent or not to such activities. In the GDPR, this option is visible in the obligation of data controllers to provide "at the time personal data are collected" a series of important information (such as identity, the purposes of processing, the ground on which the processing is based etc.). The duty is complemented by a number of limited grounds according to which the processing is lawful, among which consent for one or more specific purposes clearly play a central role.¹⁰⁰ Following the indication contained in Recital 32, the requirement of consent

¹⁰⁰ Article 6 GDPR.

has been strengthened as it should be "freely given, specific, informed and unambiguous"¹⁰¹.

Although, in principle, such a normative approach seems to help individuals exert control over their personal data, it provides few protection in the context of contemporary commercial surveillance practices. Indeed, rather than allowing individuals to manage their personal data privacy, the notice and consent approach has increasingly become an instrument for consumers to give away personal data in exchange for online services through the consent to access, process, and disclose their personal data.¹⁰² Indeed, when facing the binary choice between enjoying a service or being excluded from its use, based on a willingness to hand over personal data, users rarely choose the latter option.¹⁰³ Furthermore, it has been proven that the very assumption upon which such choices should be made – i.e., fact that the individual is duly informed in order to express consent – is not only fallacious but de facto extremely challenging to put into practice.¹⁰⁴ Indeed, empirical investigations have demonstrated that assuming individuals are adequately informed based on their acceptance of online services' contracts turns out to be "the biggest lie on the Internet"¹⁰⁵. Besides dedicating scarce or no time to the consultation of privacy policies and cookies notice, users frequently consider these documents as a nuisance, due to their length and complexity, as well as their overwhelming number, the fact that consent must be given in real-time, often with simply ticking a case, also facilitate the scarce attention that the average subject would put on reading privacy documents, and at the same would hardly signify the conscious acceptance of the contractual

¹⁰¹ Recital 32 GDPR reads: "consent should be given by a clear affirmative act establishing a freely given, specific, informed and unambiguous indication of the data subject's agreement to the processing of personal data relating to him or her, such as by a written statement, including by electronic means, or an oral statement."

¹⁰² Bart W. Schermer, Bart Custers, and Simone van der Hof. "The crisis of consent: How stronger legal protection may lead to weaker consent in data protection". In: *Ethics and Information Technology* 16.2 (2014), pp. 171–182. Among others, the paper objects that even if stricter legal requirements for giving and obtaining consent are in place, the consent mechanisms would be further weakened because data subject do not make informed and conscious decisions when confronted with a consent request due to consent overload, information overload, and for the fact that often-times there is no such choice. They propose to lower that thresholds for consents and rather put in place "fair transaction models" could be envisaged (p. 181).

¹⁰³ B.-J. Koops. "The trouble with European data protection law". In: *International Data Privacy Law* 4.4 (2014), pp. 250–261 ("often, there is little to choose: if you want to use a service, you have to comply with the conditions—if you do not tick the consent box, access will be denied.").

¹⁰⁴ Id. "the simpler you make the consent procedure, the less will users understand what they actually consent to; and the more meaningful you make the consent procedure (providing sufficient information about what will happen with the data), the less convenient the consent will become")

¹⁰⁵ Jonathan A. Obar and Anne Oeldorf-Hirsch. "The biggest lie on the internet: Ignoring the privacy policies and terms of service policies of social networking services". In: *Information, Communication & Society* 23.1 (2020), pp. 128–147.

clauses of every service she utilises.¹⁰⁶ But even if the average subject would be willing to carefully address its privacy concerns, a study, for example, has demonstrated that individuals should spend 8 hours a day for 76 days every year to read privacy policies of the websites they visited on average, which give a clear explanation of why the average decide not read privacy policies. But even if they did, it has been argued that privacy notices often use terminology that the average subject cannot understanding, in that they refer to different technologies, data collection mechanisms, business activities, and legal terms. According to a recent statistical measurement, a proper understanding of the meaning of privacy documents would require the IQ of an average Ph.D's.¹⁰⁷ On top of that, it has been observed many times that a wide range of privacy policies often present information in ambiguous and vague manner, using terms that do not convey the specific information that according to Article 12 GDPR should be "concise, transparent, intelligible and easily accessible form" and use "clear and plain language". Often privacy policies make reference to terms such as using data for "personalization", sharing data with "third-party business affiliated", collecting "data about you", which give little if no legal meaning to the idea of an informed consent.¹⁰⁸

More and more often, refusing to agree to data collection is simply not an option for consumers.¹⁰⁹ These can hardly avoid consenting to privacy policies without opting out of much of modern life: all websites, whether commercial providers and non, employ them. In many cases, consumers are required to consent, either because offers and services that are not based on invasive digital tracking are not available, or because non-participation would lead to serious social, economic, cultural disadvantages in life. This social fact might naively be regarded as a privacy paradox: on the one hand, individuals are concerned about their informational privacy and show desire to protect it, while on the other hand, they voluntarily disclose information online and rarely make use of their rights. Yet, an alternative explanation according to Helberger and colleagues, is that there might be no paradox at all:¹¹⁰ people may want privacy and know its importance, and they even may be aware of the rights they have, but in the Big data algorithmic marketplace

¹⁰⁶ Solon Barocas and Helen Nissenbaum. "On notice: The trouble with notice and consent". In: *Proceedings of the Engaging Data Forum: The First International Forum on the Application and Management of Personal Electronic Information*. 2009.

¹⁰⁷ Erik Sherman, "Privacy Policies are great - for Phds", CBS News, available at <http://www.cbsnews.com/news/privacy-policies-are-great-for-phds/>. See also, Iris van Ooijen and Helena U. Vrabec. "Does the GDPR enhance consumers' control over personal data? An analysis from a behavioural perspective". In: *Journal of Consumer Policy* 42.1 (2019), pp. 91–107.

¹⁰⁸ Joel R. Reidenberg et al. "Ambiguity in Privacy Policies and the Impact of Regulation". In: *The Journal of Legal Studies* 45.2 (2016), pp. 163–190.

¹⁰⁹ Christl, Kopp, and Riechert, *How companies use personal data against people*.

¹¹⁰ Joanna Strycharz et al. "Contrasting perspectives—practitioner's viewpoint on personalised marketing communication". In: *European Journal of Marketing* 53.4 (2019), pp. 635–660.

using and sharing data has become such an integral part of their life, that their "choice" and thus their "consent" is not a real one. In fact, people do not choose to share data because it now forms an inherent part of their datafication life. These initial conclusions call into question if the decisions made by individuals when sharing data are paradoxical, or rather simply reflect their needs in a highly "datafied" society.

The problems with notice and consent are widened in the context of Big data surveillance for the specific operation of data processing.¹¹¹ Professor Mantelero shows how for the very nature of Big data analytics information strategies, it is technically impossible to establish *ex ante* what data will be collected and what processing activities will take place, if not with referring to broad categories and making vague statement. As said in the previous section, the very intention of companies is to observe whatever activity and then extract information for marketing purpose. It is clear that in data-driven marketing, consumers data will be used to establish an interest profile, provide commercial offers, target advertising, and potentially improve the services, but there are also still many unknowns. What will the activity data actually show; how sensitive will this information be; what conclusions will the algorithms for data analysis reach; how will these be incorporated into their interest profiles; how will that profile be used for the advertising in particular? These questions are difficult to answer precisely because the processing activities employed on the data-driven market do not have a set end goal. Nor does it have a predefined hypothesis for which it only collects a statistically significant sample. So, in the end, a consumer agrees to data processing, will end not really knowing how her data are being processed and used.¹¹²

Besides the inherent flaws of notice and consent, the model of individual consent as a means of privacy management also fail to reflect the collective interests connected to contemporary privacy choices. Even the average consumer is fully informed and aware of the costs and benefit of disclosing her personal data and allows an algorithmic marketer to collect and analyze her personal information, its choice imposes privacy costs (or at least assessment about) her and her peers. If the average consumer provides consent to disclose information about political beliefs or sexual orientation, everything

¹¹¹ Alessandro Mantelero call this as the "transformative approach of big data". See more on the inadequacy of notice and consent, Alessandro Mantelero. "The future of consumer data protection in the E.U. Re-thinking the "notice and consent" paradigm in the new era of predictive analytics". In: *Computer Law & Security Review* 30.6 (2014), pp. 643–660.

¹¹² See also on the subject, Tal Z Zarsky. "Incompatible: The GDPR in the age of big data". In: *Seton Hall L. Rev.* 47.4 (2016), pp. 995–1020. Zarsky argues that the GDPR is incompatible with the Big Data, especially because of the omnivorous approach to Big data is incompatible with the principle of data minimization, which require that "personal data shall be . . . adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed" (Article 5(1)(c)). Moreover, the GDPR is incompatible because of the principle of purpose limitation which requires that "personal data shall be . . . collected for specified, explicit and legitimate purposes and not further processed in a manner that is incompatible with those purposes; further processing for archiving purposes in the public interest, scientific or historical research purposes or statistical purposes shall, in accordance with Article 89(1), not be considered to be incompatible with the initial purposes" (Article 5(1)(b)).

she does can later be used by the company to infer knowledge about other people's religion and gender preferences. Given the social costs inherent to any privacy decision, individual consents therefore provide an unsatisfactory mechanism to reflect collective interests in data-driven business.¹¹³

Therefore, it may be argued that the notice and consent scheme is grounded on unsuitable assumption to curtail surveillance and reduce the information asymmetry between consumers and traders in the algorithmic business. Firstly, it assumes that individuals expressing their consent to privacy policy have the time and knowledge to analyse carefully the content of every contractual agreement. Secondly, it postulates that individuals hold the bargaining power necessary to freely accept the provisions included in contractual agreements unilaterally defined by the providers. Third, it still reflects a vision of privacy as an individual good, while surveillance and surveillance harms have become a societal concern. Moreover, it is important to acknowledge that, despite the stated intention to attribute informational self-determination to individuals, the notice and consent mechanism has de facto evolved into a contractual pay-off model, consisting in trading consent to personal-data exploitation in exchange for the possibility to access online services. As such, it seems that, rather than curtailing big data surveillance, the model of notice and consent contributes to creating the conditions to transform the privacy of users' data into a commodity that can be analysed and traded for services. In this regard, it has been argued that the notice and consent failure to protect privacy and simultaneous success in easing the exploitation of personal data may be the fruit of specific ideological choices. Conspicuously, Hull has emphasised that the notice and consent model consecrates the belief that privacy can only be treated in terms of individual economic choices to disclose information;¹¹⁴ the occlusion of the fact that these choices are demonstrably impossible to make in the manner imagined; and the occlusion of the ways that privacy has social value outside whatever benefits or losses may accrue to individuals.

3.3.2 The role of personal information

The second reason that limits the effectiveness of data protection laws in contemporary commercial surveillance practices concerns its conceptual approach to define what personal information is. Following the fundamental

¹¹³ Alessandro Mantelero. "Personal data for decisional purposes in the age of analytics: From an individual to a collective dimension of data protection". In: *Computer Law & Security Review* 32.2 (2016), pp. 238–255. The author argues that: "This atomistic approach shows its limits in the existing context of mass predictive analysis, where the larger scale of data processing and the deeper analysis of information make it necessary to consider another layer, which is different from individual rights. This new layer is represented by the collective dimension of data protection, which protects groups of persons from the potential harms of discriminatory and invasive forms of data processing."

¹¹⁴ Gordon Hull. "Successful failure: what Foucault can teach us about privacy self-management in a world of Facebook and big data". In: *Ethics and Information Technology* 17.2 (2015), pp. 89–101.

right approach, EU data protection law is concerned with personal information to the extent that such information identifies or makes identifiable data subjects as natural persons. This option is clearly reflected in the definition of personal data provided by the GDPR:

*"'personal data' means any information relating to an identified or identifiable natural person ('data subject'); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person;"*¹¹⁵

The notion of personal data thus is not only limited to data that identify the natural person, but also those data that render him or her identifiable. Recital (26) clarifies addresses identifiability, namely, the conditions under which a piece of data which is not explicitly linked to a person, still counts as personal data, since the possibility exists to identify the person concerned. Identifiability depends on the availability of means reasonably likely to be used for successful re-identification, which in its turn, depends on the technological and sociotechnical state of the art.

"To determine whether a natural person is identifiable, account should be taken of all the means reasonably likely to be used, such as singling out, either by the controller or by another person to identify the natural person directly or indirectly.

To ascertain whether means are reasonably likely to be used to identify the natural person, account should be taken of all objective factors, such as the costs of and the amount of time required for identification, taking into consideration the available technology at the time of the processing and technological developments. "¹¹⁶

As said above, one crucial point in commercial surveillance is that algorithmic business does not necessarily require the identification of the individual, with information such as name, email address, or any other personal characteristics, nor it necessarily instantiates situations where the individual can be personally identified. This is very clearly explained by Paul Schwartz and Daniel Solove, who argue the distinction between personal information and personal identifiable information risks not to cover behavioural data

¹¹⁵ Article 4(1) GDPR.

¹¹⁶ Recital 26 GDPR.

markets, which arguably represent the largest share of commercial surveillance.¹¹⁷ In fact, individuals' meanings are of no interest to Big data companies as much as the behavioural implications they promise. What companies do is just to make an assessment about groups of consumers by sorting them in segments, classes, and attributing predictive score to understand how they probably behave in response to a particular commercial initiative. There needs to be an ability to track consumer somehow, for example by assigning cookies to their browser or ID to their device, but from a marketers' point of view, personal information is workable even if consumers remain totally anonymous.

The status of non-identified data sets under current data protection legislation is rather ambiguous with respect to the purpose of curtailing surveillance.¹¹⁸ As data protection is mainly concerned with the risk connected to personal information, it allows, indeed it favours, data practices where personal data are collected in a way that the risk of identification is mitigated. This is the case of anonymised pseudo-anonymised data. Anonymised data are personal data that are collected or processed in a way that the data subject is not or no longer identifiable in an irreversible way, so Recital 26 GDPR clearly states that the "regulation does not ... concern the processing of ... anonymous information,"¹¹⁹ thus, data controllers and processors do not have to abide by the principles and rules of data protection. Another category of de-identified data is pseudonymised data. These are defined as those data which require additional information in order to identify the data subject which however is held separately and securely, through the use of technical and organisation measures to "ensure that the personal data is not attributed to an identified or identifiable natural person"¹²⁰ Unlike anonymised data, the GDPR clearly states that that pseudo-anonymised data falls within the law, so that data controllers are required to fully comply with legal basis, information duties and rights. Yet, the GDPR allows for a meaningful relaxation of the purpose specification principle, since Article 6(4) permits the processing of pseudo-anonymised data for uses beyond the purpose of which

¹¹⁷ Paul M. Schwartz and Daniel J. Solove. "The PII problem: Privacy and a new concept of personally identifiable information". In: *NYUL rev.* 86 (2011), p. 1814. On the critical issues of whether non-personal data can be covered by data protection legislation, see also Frederik J. Zuiderveen Borgesius. "Singling out people without knowing their names – Behavioural targeting, pseudonymous data, and the new Data Protection Regulation". In: *Computer Law & Security Review* 32.2 (2016), pp. 256–271.

¹¹⁸ Jane Andrew and Max Baker. "The General Data Protection Regulation in the Age of Surveillance Capitalism". In: *Journal of Business Ethics* 168.3 (2019), pp. 565–578.

¹¹⁹ Recital 26 excludes anonymised data "with the only exception that anonymisation require careful engineering and constant monitoring in order to ensure that the data remain de-identified".

¹²⁰ Article 2(5) GDPR. The complete definition is "Pseudo-anonymisation is the processing of personal data in such a manner that the personal data can no longer be attributed to a specific data subject without the use of additional information, provided that such additional information is kept separately and is subject to technical and organisational measures to ensure that the personal data are not attributed to an identified or identifiable natural person".

the data were originally collected.¹²¹

For companies facing the new restrictions of the GDPR, anonymization and to a lesser degree pseudo-anonymisation has become indeed an appealing option because with anonymization they are no longer bound to comply or fully comply with the EU data protection principles and rules. Indeed, legally speaking, many marketers prefer to collect or process in anonymised or pseudo-anonymised way because they know that the less personal data they process about the real consumers, the more they can analyse their behaviour and make assessment about them and trade these knowledge products. While pseudonymized and anonymised data clearly provide additional protections for informational privacy, they do not curtail the risk of surveillance, indeed given the preferred options by the legislation, they facilitate it. Thus, paradoxically the same de-identification "safeguards", designed to shield individuals from the extraction of their private data, may be facilitating, and even institutionalizing, the exchange of their behavioural data, which despite non identifying data subject, are those that companies value the most.¹²² This is one rather clear indication that data protection law fails to grasp the economic value of personal information inherent in their uses for marketing activities. At its core, the aim of data protection law is to reduce harmful forms of identification and thus de-identification techniques respond to this aim through preventing the singling out of "natural persons". Here, the limitations of the EU data protection with granting right on information are comprehensible: the GDPR reflects a fundamental right approach to privacy which give rights to reduce asymmetry of information in as far such information represent identify the individual or render her identifiable in the real world. As such, however, data protection law is largely inadequate to curtail surveillance in data-driven markets, and the curtail of information asymmetry may come taking into consideration different normative standards.

¹²¹ Article 6(4)(e). The text reads "Where the processing for a purpose other than that for which the personal data have been collected is not based on the data subject's consent or on a Union or Member State law which constitutes a necessary and proportionate measure in a democratic society to safeguard the objectives referred to in Article 23(1), the controller shall, in order to ascertain whether processing for another purpose is compatible with the purpose for which the personal data are initially collected, take into account, inter alia: (e) the existence of appropriate safeguards, which may include encryption or pseudonymisation." This is complemented by Recital 29 which provides that "in order to create incentives to apply pseudonymisation when processing personal data, measures of pseudonymisation should, whilst allowing general analysis, be possible within the same controller when that controller has taken technical and organisational measures necessary to ensure, for the processing concerned, that this Regulation is implemented, and that additional information for attributing the personal data to a specific data subject is kept separately".

¹²² Andrew and Baker, "The General Data Protection Regulation in the Age of Surveillance Capitalism". The authors conclude that "its reach will be limited if law makers fail to understand the broader behavioral data ecosystems they seek to regulate. . . the law creates the space for a behavioral data market in which commercial self-interest is likely to flourish. In this way, whether deliberately or otherwise, the GDPR will make it possible for the behavioural data market to continue to function unencumbered."

3.4 Conclusions

In algorithmic business practice, consumer personal and non-personal information is a (the) commodity, which is acted upon, exchanged and traded on the market. Any data trail is something that holds monetary value in so far it can be processed and analysed through data analytics systems: "personal information can be viewed as a kind of property that a person can own and negotiate within the economic or commercial sphere"¹²³. Against this background, with the focus on singular pieces of personal information and the right of individuals to control or restrict access through consent to that information, a human right approach risk to lose the sight of the larger societal power relations between data-driven companies and individuals in the surveillance capitalism. The individual-centred approach to informational privacy emphasises the individual's responsibility to control their information and indeed assume that they can do that. But if privacy is conceptualised purely as individual choice it misses out the significant moves in contemporary society that go beyond the individual's ability to make conscious decisions about their own informational-self.¹²⁴ The focus on the individual to limit or control information about themselves is not only impractical given to the large amount of information that most people in the Western world handle on a daily basis. It also misses out on the new socio-technical structure at play in contemporary digital economy. Much of the information about consumers is not provided by anyone but is synthetically produced through new analytics technologies. In fact, the important question is not whether commercial surveillance increases the risk to privacy, because the right to privacy is clearly at risk in the Big data-driven society. The real question is whether the rise of the algorithmic business fundamentally change the character of privacy risks and thereby the instruments to prevent and combat them. Once data are viewed as business information capital and tradable commodity, and that algorithmic business and data market are here to stay, one might regard privacy and the fight against surveillance as a societal concern for the acceptable of the market.

¹²³ Tavani, "Informational privacy", p. 134.

¹²⁴ Jens-Erik Mai. "Big data privacy: The datafication of personal information". In: *The Information Society* 32.3 (2016), pp. 192–199. The author proposes a new privacy model - the datafication model - that address "new information produced by data processing and analysis" and is concerned "with the ability to classify and sort people based on the available data and thereby to create new insights and correlations between people, their activities, and interests". This approach would "show[s] that this information is being processed and analysed and that it falls within the interest of privacy".

Chapter 4

Predictive personalization

4.1 The one-to-one experience

Surveillance is often perceived as an inherently negative thing, even though theoretical reflections have shown that the concept per se has neutral connotation.¹ In fact, while it may pose constrain on people, surveillance may also well lead to positive consequences for the subjects that are being observed. For instance, governmental surveillance may be carried out for the interest of protecting citizens from terrorist attacks, or industrial surveillance may prevent safety risks that can incur to working employees. In a similar way, corporate surveillance of customer behaviours while leading to privacy concerns and dispossession of personal information, may well lead to a number of benefits for consumers. If companies can understand customers' needs and desires, they can be in a position to provide better access to services and products, enable new opportunities to reach their favourite brand, and facilitate the awareness to certain commercial offers. In current practice, these and other benefits are publicized by marketers through a specific and recurring word: personalization.

The term "personalization" is mobilised multiple times in privacy policies as one of the main purposes for data collection and analysis practices. For example, Google use information collected "to customize our services for you, including providing recommendations, personalized content, and customized search results"². Instagram's policy leverages the terms when saying that "we use information collected about your use of our Products on your phone to better personalize the content (including ads) or features you see when you use our Products on another device"³. Microsoft collects data to "to provide and improve our products, services and devices, provide you with personalised experiences and to help keep you safe"⁴. Yet it would be misleading to consider only the GAFAM. A study of the EU commission on

¹ Anthony Giddens. *The constitution of society: Outline of the theory of structuration*. University of California Press, 1984, p. 183. Giddens argues that surveillance should be neutrally defined as "the coding of information relevant to the administration of subject populations, plus their direct supervision by officials and administrators of all sorts".

² Google (2020), <https://policies.google.com/>.

³ Instagram (2020), <https://help.instagram.com>.

⁴ Microsoft (2020), <https://privacy.microsoft.com/en-GB/>.

online market segmentation though personalization showed that over three fifth of the 160 e-commerce websites analysed say they collect users' data to personalise marketing offers and that "most websites" or "nearly all website" state that they collected data to target personalized advertising.⁵ Personalization, or similar terms such as "customization", "tailoring", "adapting", are generally referred either for direct marketing purposes (e.g., personalization of email communications and offers on the website), to partner in the networks of digital advertising to serve more relevant content, or to create a better consumer experience of navigation.

It appears that, in return for personalized services, consumers not only agree to the surveillance of their digital footprints by means of privacy statements, but they do demand that.⁶ Although substantive research show otherwise,⁷ customers are often pictured as longing for an engaging, interactive and unique experience with the brand. They expect their marketing counterparts to be able to understand their needs in advance and therefore offer customized products and services, relevant promotions and recommendations and provide a unique and engaging customer experience. There are countless reports and statistics compiled by suppliers, consulting firms and marketing research centres that not without some methodological bravado show that digital consumers no longer bear the one-size-fits-all commercial experience. The resulting effect is a spiral effect in which each brand, whether small or big, is pushed by competitors towards personalization thereby implementing or refining surveillance practices. The inherent contradiction between personalization and privacy is frequently addressed as the s.c. "privacy-personalization paradox"⁸: while personalization requires extensive surveillance, and may heighten privacy concerns in consumers, it also enhances consumer engagement with the firm.

The critical relationship between personal information and personalization, however, represents something more than a paradox in customers' expectations. In his enlightening book *Marketing 4.0: Moving from Traditional to Digital*, Philipp Kotler and colleagues describe personalization as the most radical revolution affecting the way in which marketers interact with consumer and the default way of making approach marketing decision

⁵ European Commission. *Consumer market study on online market segmentation through personalised pricing/offers in the European Union*. Final report. 2018. URL: https://ec.europa.eu/info/publications/consumer-market-study-online-market-segmentation-through-personalised-pricing-offers-european-union_en. For example, as far as targeted advertising is concerned, across the EU28, more than two thirds (71%) of respondents in the consumer survey reported that in their experience nearly all or most websites use online targeted advertising.

⁶ Mike O'Brien. *Customers Demand Personalization — However They Define It*. URL: <https://www.sailthru.com/marketing-blog/personalization-emarketer-webinar/> (visited on 12/29/2020).

⁷ Strycharz et al., "Contrasting perspectives—practitioner's viewpoint on personalised marketing communication".

⁸ Elizabeth Aguirre et al. "The personalization-privacy paradox: implications for new media". In: *Journal of Consumer Marketing* 33.2 (2016), pp. 98–110.

in the digital economy.⁹ Using the data acquired from customers' purchasing behaviour, digital marketers can understand how to design "one-to-one" customer experience for each customer.¹⁰ Communications strategies, price schemes, products design and customer services will be tailored to customers segments to provide better growth and enhance customer engagement with the brand, improve retention and loyalty of customers, and optimize marketing and sales. This new orientation is presented as the latest development in the philosophy of "customer-centricity": marketers use customer data to provide purchase they desire and products they need. Marketing will be less a unilateral relationship where business design products and then sell them on the marketplace and turns as process of "co-creation"¹¹ where marketers use consumers inputs to develop the new engaging "customer experiences".

The move towards personalized marketing is likely to signify a major shift in contemporary modes and culture of consumption, and it is clearly ripe for wide-ranging academic reflection.¹² It is beyond the scope of this thesis, however, to reflect comprehensively on the broader implications of its emergence. The aim of this section is rather to analyse business practices by which digital marketers personalize the relationships with consumers through the employment of algorithmic systems. The complexity of marketing environment has in fact long surpassed the threshold of human analysts' intuitive understanding and manual capacities. Fine-grained profiles and frequent and velocity of customer interactions further make it necessary to remove human agents for a substantial part of the decision-making process in order to build personalized relationship. Today, marketers can personalize design advertising campaigns for targeted communication, to display recommendations and notifications presented to customers during their web browsing

⁹ Philip Kotler, Hermawan Kartajaya, and Iwan Setiawan. *Marketing 4.0: Moving from traditional to digital*. John Wiley & Sons, 2016.

¹⁰ Neeraj Arora et al. "Putting one-to-one marketing to work: Personalization, customization, and choice". In: *Marketing Letters* 19.3-4 (2008), pp. 305–321. The idea of one-to-one was introduced already in 1993 by Don Pepper and Martha Rogers, upon observing the growing role of the database in marketing. They showed that marketing was shifting from a focus on the market to a focus on the consumers and heading into an era where mass marketing would no longer be an effective way to compete. In this setting, they predicted that "business will be able to communicate directly with consumers, individually, rather than shouting them, in groups". See, in general, Don Peppers and Martha Rogers. *The one to one future: Building relationships one customer at a time*. Currency Doubleday, 1993.

¹¹ Kotler, Kartajaya, and Setiawan, *Marketing 4.0*, p. 50 ("In the digital economy, co-creation is the new product development strategy. Through co-creation and involving customers early in the ideation stage, companies can improve the success rate of new product development. Co-creation also allows customers to customize and personalize products and services, thereby creating superior value propositions.").

¹² On the shift towards personalization in recent cultural theories of consumption, see, e.g., Anna Szabo. "Consumer Culture and Post-Fordist Customization". In: *Critical Reflections: A Student Journal on Contemporary Sociological Issues* (2018), pp. 33–37; Eric J. Arnould and Craig J. Thompson. *Consumer culture theory*. Sage, 2018.

sessions; to design sales portal, establish dynamic pricing schemes and tailor return/cancellation processes.¹³ Many of these different applications are increasingly built with machine learning features and other AI technologies that function on the basis of data-driven predictions: based on multiple data, they allow different types of predictive computations on consumers' data and act upon that knowledge to make decisions at individual level and in real-time.

In last twenty years, the ability to benefit from AI in order to personalize customer relationships has resided mostly in the hand of large online platforms. Amazon has led the pack in the business of recommender systems and product suggestions; Facebook has refined over the years its news feed algorithm to show users personalised content. Google has promoted personalized search and together with Facebook has developed the computational tools and infrastructure to provide targeted and personalized advertising. Online travel agencies such as Expedia and Booking.com, together with air traffic industry companies such Ryanair or EasyJet have led the industry of personalised prices.¹⁴ During this period, barriers to adoption have typically included difficulty in gathering the needed data, difficulty hiring the IT talent, and difficulty forecasting the expected return of these expensive, long term, investments. However, with the growing commercialization of data-management software and the democratization of AI computational infrastructures, and the widespread access to data markets, personalization strategies have reached even small online providers and e-commerce retailers. The use of algorithmic personalization programs to provide personalized customer experiences has been really impressive in the recent years.¹⁵ In 2019, the world-leader consulting company McKinsey stated that that the employment of AI-powered personalization had become the prime worldwide driver of marketing investment and success with an expected 5-15% increases in revenue and 10-30% increases in spend efficiency. Leveraging

¹³ For a dive into how machine learning can be used to personalize all these aspects of a transaction, see Karl Wirth and Katie Sweet. *One-to-One Personalization in the Age of Machine Learning*. Second Edition. Evergage, Inc., 2019. The book, written by Evergage's CEO and Director of Content Marketing, is indeed a valuable insight into the practices and logic of algorithmic business. In 2020 Evergage was acquired by Salesforce, which in EU is one of the majors in the field of marketing products powered by AI.

¹⁴ Rafi Mohammed. *How Retailers Use Personalized Prices to Test What You're Willing to Pay*. Harvard Business Review. Oct. 2017. URL: <https://hbr.org/2017/10/how-retailers-use-personalized-prices-to-test-what-youre-willing-to-pay/>.

¹⁵ Evergage Inc. *2019 Trends in Personalization*. 2019. URL: https://www.evergage.com/wp-content/uploads/2019/04/2019_Trends_in_Personalization_Report.pdf (visited on 12/10/2020) (reporting survey results showing that marketers are using personalization in email, home pages, landing pages, interior pages, online ads, product detail pages, search results, pricing, and blog posts); Moz. *The Homepage is Dead: A Story of Website Personalization*. Post by Cara Hazman. May 2017. URL: <https://moz.com/blog/homepage-personalization> (visited on 08/11/2020); MarTech Advisor. *What is Dynamic Content? Definition, Types, Strategy, Best Practices with Examples*. Post by Raj Roy. July 2019. URL: <https://www.martechadvisor.com/articles/content-marketing/what-is-dynamic-content-definition-types-strategy-best-practices-with-examples/> (visited on 08/11/2020) (both illustrating the dynamic production of webpage content).

artificial intelligence technologies and machine learning correctly, marketers "can now engage with every customer on a 1:1 basis, in-the-moment, with relevant offers across channels, at scale." Many observe that the use technology sets the path towards a real one-to-one contracting, and terms such as "hyper-personalisation" convey this idea.¹⁶

In the following paragraphs, we shall analyse three common practices involving algorithmic systems as an attempt by marketers to hyper-personalize "customer experience".

4.1.1 Programmatic advertising

Algorithmic systems are increasingly used in the field of branding, that is, the act of disseminating information among customers to raise awareness on the brand. Today, digital marketing involves a great variety of means, such as digital advertising, social media content, search engine marketing, e-mail marketing. All these tools allow marketers to engage consumers in a communication process and differently influence their purchasing behaviours at different stage of the customer journey. Among all the available tools to personalize marketing communication, there is no doubt that digital advertising today represents the most pervasive means to reach with consumers. According to Statista, in the last fifteen years, spending on digital ads in the EU has increased exponentially, from 7.6 billion euros in 2006 to 64.8 billion in 2019,¹⁷ while IAB Europe had already declared that in 2016, digital advertising budget surpassed for the first time in history the spending on traditional advertising (e.g., TV advertising, newspaper ads).¹⁸ This implies that digital advertising now accounts for more than a half of the advertising market. Today, digital advertising includes many different formats. Typical examples are banner ads and video ads in social media (e.g., Facebook, Instagram, YouTube), and textual ads in search engine and native advertising (e.g., Google Ads). Digital ads can be delivered on different devices market electronic devices through which consumers access media (e.g., laptop, mobile phone) and IoT devices (e.g., smart TV, smart watches, smart home assistants).¹⁹

Regardless of its format and the channel of delivery, today the placement of digital advertising largely relies on automated means, s.c. "programmatic advertising". According to White and Samuel, programmatic advertising is

¹⁶ Alexander Galkin. *Retail Switch: From Generalization To Hyper-Personalization*. Forbes. 2018. URL: <https://www.forbes.com/sites/forbestechcouncil/2018/06/25/retail-switch-from-generalization-to-hyper-personalization/?sh=3f18a2106bc0>.

¹⁷ Statista. *Online advertising spending in Europe from 2006-2019*. 2019. URL: <https://www.statista.com/statistics/307005/europe-online-ad-spend/> (visited on 12/08/2020).

¹⁸ IAB Europe (2016), *European Online Advertising surpasses TV to record annual spend of EUR 36.4 bn*, <https://iab europe.eu/all-news/press-release-european-online-advertising-surpasses-tv-to-record-annual-spend-of-e36-2bn/>.

¹⁹ For an overview and historical evolution on the AdTech sector, refer to Andrew McStay. *Digital advertising*. Macmillan International Higher Education, 2016.

the use of "automated systems that facilitate the real-time bidding for advertising space to deliver personalised marketing materials to potential customers"²⁰. These systems allow marketers to participate into large advertising exchange networks, where ad inventories (i.e., spaces for advertisement) are sold in billions by online media publishers, website and app owners. Alternatively, in social media advertising, programmatic methods are used to display advertising directly on the platforms, being users' new feed the inventories. Ad inventories may include some information about customers that are visiting the website or are using the app or may even allow advertisers to select target audience based on (inferred) personal attributes (Facebook ads). At the crux of programmatic advertising is real-time-bidding (RTB) which allows each digital marketing to participate in a real-time auction, set a budget for ads spending, and automatically bid on an impression-by-impression basis for the most profitable customers and for showing the ads (campaign). This 'real-time' is defined in terms of the time it takes a webpage to load (if you press 'refresh' on your browser, it is that long).²¹

Current programmatic advertising landscape is very complex and includes thousands of companies taking part in the networks, such as data aggregators and analytics or as demand and supply platforms. From the marketing perspective, demand-side platforms compete to gain the opportunity to deliver advertising to interested consumers, develop and measure the quality and effectiveness of advertising campaigns. Given the myriad of potential targets, the criteria for bidding on particular types of consumers can be very complex taking into account everything from very detailed customer profiles to conversion data. For this purpose, advertisers use predictive models generally based on machine learning to make real-time predictions on the most profitable candidate for targeting. The most common, s.c. click-through rate prediction modelling, is based on customer profiles who have positively engaged with the advertising in the past and is directed at estimating the click-through rate (CTR) for future potential customers. To computer the estimated action rate, machine learning models predict a particular person's likelihood of taking the advertiser's desired action, based on the business objective the advertiser selects for their ad, like increasing visits to their website or driving purchases.

Although today programmatic is primarily a buying and serving methods, it also promises "programmatic creative optimization"²². Differently from programmatic buying, which is focused on finding the best consumers

²⁰ Gareth RT White and Anthony Samuel. "Programmatic Advertising: Forewarning and avoiding hype-cycle failure". In: *Technological Forecasting and Social Change* 144 (2019), pp. 157–168.

²¹ On programmatic advertising and current development in the field, see Heejun Lee and Chang-Hoan Cho. "Digital advertising: present and future prospects". In: *International Journal of Advertising* 39.3 (2020), pp. 332–341.

²² Gang Chen et al. "Understanding Programmatic Creative: The Role of AI". in: *Journal of Advertising* 48.4 (2019), pp. 347–355.

to match a certain campaign, programmatic creative methods are used to create and modify advertising (s.c. creatives) to adapt it to the specific viewer and its context in real-time.²³ Consumers, who according to the predictive model shows a high propensity to respond, may in fact differ one another not only depending on their specific propensity to engage with different types of contents, but also because they are situated in different contexts.²⁴ Instead of showing one generic advertisement to all target audiences, the use of programmatic creatives tools allow to generate multiple advertisements for different target audiences.²⁵ For example, when promoting the game Madden NFL 15 in 2015, EA Sports working with Google used mobile ads with different combinations copy, images, and backgrounds to reflect what was happening in the game at that exact moment.²⁶ Because algorithms alone are not able to "understand" or "judge" an advertisement, they rely on real-time customer data to test the effectiveness of many variation of advertisements design.²⁷ This means that after serving the advertisement, the system will be monitoring the feedback and return the performance score. Most advanced models adopt reinforcement learning which typically allow to incorporate the feedback to fine-tune the model and optimize the advertisement for each next round. In other cases, instead of relying on feedback, programmatic can also be used as a powerful tool for ads pre-tests. Leveraging on feedback may result in minor mistakes, which can be costly in real-time bidding and leading to a loss of potential audience. Major advertisers, therefore, conduct pretesting in a laboratory setting measuring ex-ante both the independent effect of each creative element and the interaction effects of creative element mix.

Facebook and Google are not the only players offering the tools. Adobe, for example, offers its business clients software that connects to major advertising networks and allows to "build, personalize and deliver creative assets in real time"²⁸. Besides ads optimization, Adobe platforms embeds the ultimate tool to automatically generate and manually curate different versions

²³ There is indeed often a misconception between targeted and personalized advertising. While targeting refers to the act of personalizing the audience for a particular campaign, personalized advertising also entails the adaptation of the specific campaign for a particular targeted audience. See, Addou Babet. "Utilization of personalization in marketing automation and email marketing". MA thesis. School of Business and Management, Kauppatieteet, 2020. URL: <https://lutpub.lut.fi/handle/10024/161404>.

²⁴ Anindya Ghose, Avi Goldfarb, and Sang Pil Han. "How is the mobile Internet different? Search costs and local activities". In: *Information Systems Research* 24.3 (2013), pp. 613–631.

²⁵ Guda van Noort et al. "Introducing a model of automated brand-generated content in an era of computational advertising". In: *Journal of Advertising* 49.4 (2020), pp. 411–427.

²⁶ Google (2015), EA Sports Madden GIFERATOR <https://www.thinkwithgoogle.com/consumer-insights/consumer-trends/ea-sports-madden-giferator/>.

²⁷ Marat Bakpayev et al. "Programmatic creative: AI can think but it cannot feel". In: *Australasian Marketing Journal (AMJ)* (2020).

²⁸ Adobe, Adobe Advances Programmatic Advertising with New Dynamic Creative Technology, 2015, available at https://s23.q4cdn.com/979560357/files/doc_events/2015/04/1/042915AdobeAdvancesProgrammaticAdvertising.pdf.

of the ads. Automatic copywriting represents another cutting-edge development in programmatic advertising:²⁹ consumers' data are used with natural language generation techniques to create different keywords and layouts in advertising only with advertisers' strategic planning input. This ranges from simply by entering the name to make the target audience member feel that the message is relevant to him or her, to automatically generate different design templates, ad copy, and pictures for the advertisements. For example, Alibaba has offered an AI-powered copywriting service to its business partners. This AI copywriter can produce 20,000 lines of copy per second.³⁰

AI-powered programmatic buying and creative are growing fast in the advertising industry. Advertising company provide different software packages with different programmatic features to their business clients. For example, products like Albert, MediaMath Omnichannel, Adgo, IBM Bid Optimizer and PredictiveBid provide options which use the latest advancement in machine learning to optimize impressions in the real-time bidding process. This software is directly synched with large advertising networks, so tech-savvy marketers can automatically manage creation, curation, optimization and bidding from one single workstation.

4.1.2 Recommendations

Today, besides programmatic advertising, recommendations practices are among the most visible and successful applications of algorithmic marketing. They require recommender systems, which based on the history of previous customers' data records, automatically provide personalized suggestions in the form of targeted products, offer ranking, display content, and selection of marketing materials.³¹ Differently from digital ads, recommendation systems operate directly on the company's website and does not require the intermediation of advertising intermediaries. Recommendation systems have grown increasingly popular in the last ten years, especially in e-commerce and media streaming environments for the delivery of personalized content and products. They are also employed as part of subscription-based information services such as audio and video content (e.g., Netflix and Spotify) or as a means to suggest different services delivered via the Internet (e.g., software, car rental, hotel reservations, travel tickets and travel services).

²⁹ Tom Altstiel, Jean Grow, and Marcel Jennings. *Advertising creative: strategy, copy, and design*. SAGE Publications, 2018.

³⁰ Lisa Lacy. *Alibaba Says Its AI Copywriting Tool Passed the Turing Test*. 2018. URL: <https://www.adweek.com/commerce/alibaba-says-its-ai-copywriting-tool-passed-the-turing-test/> (visited on 12/29/2020).

³¹ Francesco Ricci, Lior Rokach, and Bracha Shapira. "Introduction to Recommender Systems Handbook". In: *Recommender Systems Handbook*. Ed. by Francesco Ricci et al. Springer US, 2011, pp. 1–35.

The rise of recommendation services is strictly linked to the emergence of e-commerce business models.³² Digital channels have eliminated the cost of distributing products among customers and enabled the creation of online services with virtually infinite assortments. An online video service, for example, can offer an almost unlimited and constantly growing variety of videos, including Hollywood movies, television series from all over the world, and amateur films. While the customer base of a brick-and-mortar store was limited to people who lived in or visited that area, and so the variety of demand was rather limited, an online retailer that operates nationwide or worldwide faces much more diverse demand. Therefore, sellers with enormous assortments of niche products have appeared and prospered. E-commerce companies such as Amazon, Netflix, and Spotify started to follow the s.c. "long tail business" model: the total demand of large, assorted niche products is comparable to the total demand for single popular products.³³ So, it is equally convenient for a sell (and sometimes even more lucrative) to sell more niche products to plurality of consumers than one to a specific segment. Long-tail businesses required a shift in the socio-technical system behind its electronic operations. The impressive increase in the assortment of new e-commerce shop and the strong emphasis on niche products challenged the old approaches of products search discovery. Because an average customer could browse only a tiny fraction of available offerings that can be counted in millions, instead of or in addition to require consumers to explicitly state their purchase intent by entering a search query, business needed new technical methods to pre-emptively understand consumers preferences and provide the best suggestion among the various item offered. The new socio-technical process of product recommendation, therefore, came with a new type of interaction between business and consumers. From the s.c. "pull methods", in which business respond only when the consumer explicitly requests for certain products or information, e-commerce has moved to a "passive delivery", i.e., displays personalized information as a by-product of other activities of the consumer.³⁴

Today, the exponential volume of customer data and the rapid circulation of algorithmic models make it possible for nearly all e-commerce website and content providers, even small ones to adopt recommendations systems

³² Beatrice Paoli et al. "The evolution of recommender systems: From the beginning to the Big Data era". In: *Frontiers in Data Science*. Ed. by Matthias Dehmer and Frank Emmert-Streib. CRC Press, 2017, pp. 253–283.

³³ For the theory of long tail business, see Chris Anderson. *The long tail: Why the future of business is selling less of more*. Hachette Books, 2006. Specifically, in the field of recommendation systems, see Yoon-Joo Park and Alexander Tuzhilin. "The long tail of recommender systems and how to leverage it". In: *Proceedings of the 2008 ACM conference on Recommender systems*. 2008, pp. 11–18.

³⁴ In real practice, pull and push methods are often mixed together. For example, Amazon recommendation system pushes recommended item also when the user engages in product search, i.e., pull methods. Similarly, YouTube: when the user searches for an online content, the first results match the user's query and a later section display recommended items based on inferred preferences.

in the interaction with customers. There are many popular e-commerce platforms who use in-house recommendation systems (e.g., Shopify, OpenCart, WooCommerce, PrestaShop, and Magento), but a market of a third-party software service providers is also emerging (e.g., Blueshift, Dynamic Yield). According to Tuzhilin, adopting recommender system in the context of marketing can have serious repercussion on business goals.³⁵ Some are more oriented to understand and satisfying consumer's needs, possibly even at the expense of the short-term financial performance of the company. In this category, product recommendation can be used to maximise consumers satisfaction with the offer presented; maximise customer life-time value; and improving consumers loyalty and decreasing churn. Other objectives are more economic-oriented where the goal is to improve the short-term financial performance of the provider of the personalization service. Here, recommendations are used to maximize conversion rates whenever applicable, i.e., convert prospective customers into buyers, or to increase cross- and up-selling of provider's offerings. Critically, as observed by Jannach and Jugovac, leading companies which make use of recommendation systems usually do not publicly share the exact details about the goals pursued through their recommendation technology and how they measure the relevant results.³⁶

Algorithmic recommendation can follow different approach. For example, at Pandora, a music streaming service enterprise, a team of engineering has labelled each music with more than 400 attributes.³⁷ Then when a user selects a music station, songs that match the station's attributes will be added to the playlist. This is content-based recommendations. Users or items have profiles describing their characteristics and the algorithmic systems would recommend an item to users if the two profiles match. This approach is based on the idea that the consumer will prefer items that are similar to items of which he or she has previously purchased. Stitch Fix's fashion box services is another example of content-based recommendation: consumers' attributes are collected (height, weight, etc.) and matched fashion products are put in a box delivered to the user.³⁸ The content-based methods of recommendations generally require notable manual efforts/costs to create item attributes from the side of company engineering. However, there are many cases in which consumers themselves provide information about their product items, all are freely usable for content-based recommendations.

³⁵ Alexander Tuzhilin. "Personalization: The state of the art and future directions". In: *Handbooks in Information Systems, Business Computing*. Ed. by Gediminas Adomavicius and Alok Gupta. 2009, pp. 3–43.

³⁶ Dietmar Jannach and Michael Jugovac. "Measuring the business value of recommender systems". In: *ACM Transactions on Management Information Systems (TMIS)* 10.4 (2019), pp. 1–23.

³⁷ The Server Side. *How Pandora built a better recommendation engine*. Post by George Lawton. Aug. 2017. URL: <https://www.theserverside.com/feature/How-Pandora-built-a-better-recommendation-engine>.

³⁸ Stitch Fix. *Stitch Fix Algorithms Tour*. URL: <https://algorithms-tour.stitchfix.com/> (visited on 12/29/2020).

Another highly popular set of recommendations practices are based on collaborative filtering systems. These make recommendations based on past preference of like-minded consumers, where preferences are calculated in terms of certain past behaviours (clicked, watched, purchased, liked, rated etc.) with regard to certain items. Preferences are generally presented as a consumer-item matrix. In reality, the consumer-item matrix can be more than millions (such as in, Amazon, YouTube), and the majority of entries are missing – the goal of recommender systems is to fill those missing entries.³⁹ Collaborative filtering is by far the most widespread recommendation method as it works independently from any machine-readable representation of the items being recommended. Sometimes, collaborative methods are mashed up with content-based into hybrid recommendations. For example, the "companies you may want to follow" feature at LinkedIn used both content and collaborative filtering information.⁴⁰ To determine whether a company a user may want to follow, a logistic regression classifier is built on a set of features. The collaborative filtering information is included in a feature indicating whether the company is similar to the ones a user already followed. The content information includes whether the industry, location, etc. match between the user and the company.

With the uptake of machine learning methods, recommendation practices are today mainly based on statistical models. This means that, in the back end of recommendation practice, a software system is periodically trained on transactional data available about previous customers interaction, which then attempts to make a prediction about the most relevant item to be served to each customer. In the front-end interface, such recommendations may be displayed to consumers as targeted suggestions (e.g., such as the "you might also like" or "inspired by your browsing history"), as ranking (e.g., Google recommender products), or as filtered content (e.g., search results). Recommender systems today make use of deep learning techniques which help their designers enhance higher recommendation accuracy and allow to personalize suggestions of items different than products, such as songs, images, videos.⁴¹ Moreover, with deep learning approaches, recommendations are getting more personalised considering also context factors such the time of the day, day of the week, the weather at the moment, as well as from location of the interaction. This type of recommender systems (also called contextual-aware recommender systems), for example, suggests "Restaurants near you"

³⁹ Towards Data Science. *Deep Dive into Netflix's Recommender System*. Post by David Chong. Apr. 2018. URL: <https://towardsdatascience.com/deep-dive-into-netflixs-recommender-system-341806ae3b48> (visited on 01/10/2020).

⁴⁰ LinkedIn Engineering. *The AI Behind LinkedIn Recruiter search and recommendation systems*. Post by Qui Guo. 2019. URL: <https://engineering.linkedin.com/blog/2019/04/ai-behind-linkedin-recruiter-search-and-recommendation-systems>.

⁴¹ The annual conference RecSys, which is dedicated to state-of-the-art research and applications in recommender systems, routinely hosts workshops on applying deep learning methods to RSs. For an updated review of recommender systems application in e-commerce based on deep learning, see Zhang et al., "Deep learning based recommender system: A survey and new perspectives".

both based on consumer's past interaction with the provider and location of the customer.⁴²

According to business reports, product recommendations is bound to play a growing role in business-consumers interaction in many sectors of e-commerce, such as banking, financial services, insurance, media and entertainment, transportation, and healthcare.

Recommendation practices are typical also in content marketing, whereby contents are suggested rather than products. According to the Content Marketing Institute, "content marketing's purpose is to attract and retain customers by consistently creating and curating relevant and valuable content with the intention of changing or enhancing consumer behaviour. It is an ongoing process that is best integrated into your overall marketing strategy, and it focuses on owning media, not renting it." Rather than relying on paid media, content marketing applies similar programmatic advertising procedures to "owned media". These are the channels that the company own or largely control which are used to produce and place personalised audio-visual content for user visitors. They include websites, blog, videos and brand-owned social network channels, such as Facebook, Twitter, YouTube, etc. Nowadays, social media-based platforms have a great importance in enabling companies to design multimedia oriented, interactive content to consumers. This orientation, also called "content marketing", is today's one of the most remarkable approaches in the context of marketing processes of companies. The growing role of social media has deeply changed the way business serve advertising. The latter has gradually shifted from traditionally pushy and intrusive content towards less stressful and seamless commercial experience where branded or sponsored contents are integral part of the user experience on social media. Content marketing is exactly like this, it promotes your work, your site and, in this case, your e-commerce without saying "Buy now!". The user prefers by far the teaching approach that you propose in your blog posts (which, by the way, he chose to read) rather than the "break" method such as banners or pop-ups.

4.1.3 Dynamic website

Today's digital marketing ideal is to engage with each consumer in a one-to-one fashion beyond advertising and offers, and more holistically by creating unique "web experience" with customers. Many e-commerce companies now do not have a website; rather, the website's home pages, landing pages, and interior pages change in real-time and personalized for targeted groups of consumers.⁴³

⁴² Khalid Haruna et al. "Context-aware recommender system: A review of recent developmental process and future research direction". In: *Applied Sciences* 7.12 (2017), p. 1211.

⁴³ CXL. *Why Content Personalization Is Not Web Personalization (and What to Do About It)*. Post by Shanelle Mullin. Sept. 2019. URL: <https://cxl.com/blog/web-personalization/> (visited on 12/10/2020).

The idea of tailoring websites interface to user dates back to the Web 1.0 era and traditional desktop user interfaces (UIs). Here, web design techniques were used to adapt control structures and menu navigation based on system monitoring and assumptions about users' imminent needs.⁴⁴ The methods used were largely based on developing different version of the web and then match them through logic-driven models to different categories of users. The purpose of this type of adaptivity has always lied in making users more efficient in using information systems, as has been measured, for instance, through visual search time and required motor movements.⁴⁵

Today, website design applications increasingly feature machine learning algorithms. These can be taught to learn how to generate different scripts adapt content based on a site visitor's preferences, which allows website developers to delegate repeatable tasks such as rendering or tagging photos. By adopting machine learning, what is suggested is to "consider the full experience" and not focusing on one just portion of the website.⁴⁶ Different types of website personalization can be tested and applied to single portion of web visitors. These include interruptive experience, i.e., those messages that a person is not expected to see when navigating on the website, and more integrated forms of personalization (c.d. seamless experience). For example, in the first group, web personalization tools can provide the means to automatically position digital ads within the webpage, push notification, pop-ups, depending on the most likely effectiveness. In the second case, formats are privileged which "are an integral part of the experience" and are "usually indistinguishable from user experience"⁴⁷. For example, one such case is "in-line ads": advertising which are no longer transported through invasive pop-ups blocking the navigation experience, but through banners, search and social ads. These are for example ads sponsored on Facebook or LinkedIn, along the edges or in the middle of news articles. The layout of the website with its content can also be personalised in a seamless way: in this case formats are personalised and adapted to the user so that "they should not realise that what they are seeing is personalised"⁴⁸. Here, the personalization may involve the content, but also on the layout or images adopted on the webpages.

One the company leading in the business of AI-powered website personalization is Bookmark. According to the company site, Bookmark's AI Design Assistant (AIDA) builds client sites by predicting what sections, elements, images and design style that should be featured. These decisions are powered by information that is crawled on competitors' website or is aggregated from data brokers in order to acquire any relevant information on

⁴⁴ Saul Greenberg and Ian H. Witten. "Adaptive personalized interfaces – A question of viability". In: *Behaviour & Information Technology* 4.1 (1985), pp. 31–45.

⁴⁵ Leah Findlater and Krzysztof Z. Gajos. "Design space and evaluation challenges of adaptive graphical user interfaces". In: *AI Magazine* 30.4 (2009), pp. 68–68.

⁴⁶ Wirth and Sweet, *One-to-One Personalization in the Age of Machine Learning*, pp. 94–117.

⁴⁷ *Ibid.*, p. 94.

⁴⁸ *Ibid.*, p. 105.

the users. For instance, if a business selling books was looking to build out her web presence using Bookmark's platform, she would her information and AiDA would crawl the web in order to pull information from studio, owner, and competitor websites. The company warns that AIDA is only a design assistant, which in fact require human cooperation: "AiDa can build a website in 30 seconds, that would allow designers to rapidly create 5-10 completely different websites, present to clients in minutes and get feedback on their preferred 'look'"⁴⁹. Another AI-powered company, LiftIgniter offers a dynamic website creation system that claim to "combine in-depth behavioral analytics and first-party data with advanced machine learning to optimize your e-commerce conversions"⁵⁰. The systems understand, connect, and identify relevant shopping recommendation to the users, and propose different layout versions of how to structure purchase products on the page without manual tagging. The application can be integrated in e-commerce websites on the web and offer a module for mobile apps. Wix and Squarespace are also popular examples of website building platforms that leverage AI design technology. These platforms allow users to choose ADI-generated templates and customize them to their needs.

4.2 Optimised control

Assessments about personalization generally highlight the new opportunities created by data-driven personalization for consumers to make better choices and better pursue their self-interest.⁵¹ In fact, tailored commercial content and personalisation practices appear to provide powerful remedies to the problems of decision-making paralysis which affect consumers in today's market caused by the abundance of options. As explained by behavioural science, when options are plentiful, the act of choosing in fact may become effortful, and consumers might be discouraged from choosing altogether.⁵² By filtering out irrelevant options, recommendation practices increase the likelihood that the options presented to consumers will meet their satisfaction thresholds and therefore reduce the time consumers would be otherwise required to spend to select their best option in comparison shopping or other

⁴⁹ Criteo. *This Start-up Uses Machine Learning to Build Websites*. 2017. URL: <https://www.criteo.com/blog/bookmark-machine-learning-website/> (visited on 12/29/2020).

⁵⁰ LiftIgniter. *Products Recommendations for your Ecommerce Website*. 2019. URL: <https://www.liftigniter.com/ecommerce> (visited on 12/29/2020).

⁵¹ Jennifer M. Logg, Julia A. Minson, and Don A. Moore. "Algorithm appreciation: People prefer algorithmic to human judgment". In: *Organizational Behavior and Human Decision Processes* 151 (2019), pp. 90–103, Michal S Gal and Niva Elkin-Koren. "Algorithmic Consumers". In: *Harvard Journal of Law & Technology* 30.2 (2017), pp. 309–352 ("the most basic effect is a reduction in cost and/or an increase in quality, depending on the preferences set by the consumer, in the products purchased"), Erik Brynjolfsson, Yu Hu, and Michael D. Smith. "Consumer surplus in the digital economy: Estimating the value of increased product variety at online booksellers". In: *Management Science* 49.11 (2003), pp. 1580–1596.

⁵² Cass R Sunstein. "Choosing not to choose". In: *Duke LJ* 64.1 (2014), pp. 1–52.

time-consuming searches. By the same token, it is frequently argued that targeted personalised ads allow marketers to better direct their messages making it possible to limit exposure to messages of no interest to consumers and better serve their interests. If a lower-middle-class married father of three receives ads for minivans and family restaurants instead of luxury sports cars and online dating services, this can be a good thing. Personalization may bring hard-to-detect inclinations to the surface, potentially satisfying an individual consumer's tastes and desires that she did not even realize she had. Law professor Eric Goldman makes exactly this point, describing the benefits of digital market research that can uncover and then fulfil "latent preferences" that the consumer is incapable of articulating herself.⁵³ The fact that consumers can today engage in a one-to-one experience with business and receive response tailored to their needs is thus largely seen as a new progress for consumers, and a tool of empowerment.⁵⁴

Digital marketers are the ones spearheading the view of empowerment, via the notion of relevance. Prominent marketing consultants say that marketing has entered a new "Relevance Era"⁵⁵, that digital marketers "know that relevance is critical"⁵⁶, and admonish the industry to "start thinking about relevance"⁵⁷. The story is simple and goes: relevance is what consumers want from marketers and what marketers then want to provide in order to relieve them from unwanted or irrelevant content. Mark Zuckerberg recently attempted to explain Facebook's business model in the pages of Wall Street Journal: "People consistently tell us that if they're going to see ads, they want them to be relevant," he wrote. "That means we need to understand their interests"⁵⁸. However, besides rhetorical discourse, relevance remains a surprisingly unclear concept. Different definitions are offered by marketing experts. Wollan et al. show relevance to be tautologically based on meaningfulness and personalisation.⁵⁹ Zeally et al. emphasize immediacy as

⁵³ Eric Goldman. "Data Mining and Attention Consumption". In: *Privacy and Technologies of Identity: A Cross-Disciplinary Conversation*. Ed. by Katherine J. Strandburg and Daniela Stan Raicu. Springer US, 2006, pp. 225–237.

⁵⁴ Johann Füller et al. "Consumer empowerment through internet-based co-creation". In: *Journal of Management Information Systems* 26.3 (2009), pp. 71–102; Len Tiu Wright et al. "The Internet, consumer empowerment and marketing strategies". In: *European Journal of Marketing* 40.9/10 (2006), pp. 936–949.

⁵⁵ Sandra Zoratti and Lee Gallagher. *Precision Marketing: Maximizing Revenue Through Relevance*. Kogan Page Publishers, 2012. See also Robert Wollan et al. *Put your trust in Hyper-Relevance*. 2017. URL: https://www.accenture.com/_acnmedia/pdf-69/accenture-global_dd_gcpr-hyper-relevance.pdf.

⁵⁶ Ardath Albee. *Digital relevance: developing marketing content and strategies that drive results*. Springer, 2018, p. 3.

⁵⁷ John Zealley, Robert Wollan, and Joshua Bellin. *Marketers Need to Stop Focusing on Loyalty and Start Thinking About Relevance*. Harvard Business Review. Mar. 2018. URL: <https://hbr.org/2018/03/marketers-need-to-stop-focusing-on-loyalty-and-start-thinking-about-relevance>.

⁵⁸ Joseph Turow and Chris Jay Hoofnagle. *Mark Zuckerberg's Delusion of Consumer Consent*. The New York Times. 2019. URL: <https://www.nytimes.com/2019/01/29/opinion/zuckerberg-facebook-ads.html>.

⁵⁹ Wollan et al., *Put your trust in Hyper-Relevance*.

to do relevant marketing means "serv[ing] a customer's most relevant needs in the moment." Similarly, Zoratti and Gallagher suggest that a marketer is relevant when she reaches customers with the right message or offer in the right channel at the right time (what is it mean right?). The definitions reviewed prioritize a mélange of meaningfulness, personalisation, and contextual appropriateness, with marketers needing to connect with consumers contextually and at their precise moments of need or want.⁶⁰ Yet, it is important to have a clearer grasp of the concept of relevance, because, as mentioned at the beginning of the chapter, personalization is what moves the entire surveillance machine and – as it will be understood by now – configure choice tasks in digital environments.

4.2.1 The relevant offer

While in press releases, businesses refer to "real-time personalization" as a must-go for customer satisfaction,⁶¹ different AI service providers' websites explain that personalization is primarily concerned with serving different business goals. One of the industry leaders in the circulation of AI products, Evergage, is clear that "personalization shouldn't be viewed as a separate initiative from the rest of your marketing and customer experience, so it shouldn't be too difficult to determine your goals. Your personalization goals should be an extension of your business goals."⁶² Similarly, Lytics, an intelligent AI-powered customer platform says: "there are so many ways you can use behavioral data and predictive models to drive real business goals. So, start strategizing. Start with end goals and work backward from there"⁶³. In personalized advertising, business goals generally serve the purpose of maximising the impact of ad campaigns and build "awareness" among targeted consumers, or even "increase online sales" by directing customers on the brand webpage and increase the change of a purchase or service subscription.⁶⁴ Similarly, in recommendation practices, the goal driving personalization strategies is generally that of "sales growth"⁶⁵, "expand digital presence"

⁶⁰ Albee, *Digital relevance*.

⁶¹ Multichannel Merchant. *Why Consumers Prefer Personalization*. Post by Tom Zawacki. May 2019. URL: <https://multichannelmerchant.com/blog/why-consumers-prefer-personalization/> (visited on 08/11/2020).

⁶² Katie Sweet. *The Road to Successful Personalization*. 2018. URL: <https://www.business2community.com/infographics/road-successful-personalization-infographic-02041891> (visited on 12/20/2020).

⁶³ Lytics. *The ultimate guide to personalized marketing*. 2018. URL: <https://www.lytics.com/blog/personalization-at-scale-11-marketing-to-the-millions/> (visited on 08/11/2020).

⁶⁴ Kantar. *6 Common Digital Advertising Objectives*. 2014. URL: <https://www.kantarmedia.com/us/thinking-and-resources/blog/6-common-digital-advertising-objectives>.

⁶⁵ Julien Boudet et al. *No customer left behind: How to drive growth by putting personalization at the center of your marketing*. 2018. URL: <https://www.mckinsey.com/business-functions/marketing-and-sales/our-insights/no-customer-left-behind#>.

or "decrease customer churn". Content marketing and website personalization is concerned with increasing "customer engagement" with platform content⁶⁶ and reduce s.c. "bounce rates", i.e., the percentage of visitor who enter the site and then leave rather than continuing to view other pages within the same site. In general, personalization goals are defined by the marketing data scientists together with business management team or when adopting a prefabricated model of AI product, publicized in manufactured marketing materials. It is therefore important to underline that even before being a tool to satisfy customers, predictive customization is first of all a competitive strategy to increase the relevance of products among consumers according to the objective set by the company.

In all these cases, different metrics are used to determine whether a certain personalized strategy will achieve its goals. Metrics defined as a specific data point (or set of data points) which represent the measure of success based on the goals pursued. For example, as outlined above, personalized advertising commonly leverages the click-through rate. The CTR helps marketers measure the actions each consumer with regard to the advertising delivered and understand how well the audience is responding to the message. Similarly, conversions are another popular metric in digital marketing, being that a completed activity on the brand website. This can be either a macro-measure such as purchase transactions, or micro-measures, such as email signup, indicating that the consumers is progressing towards a conversion. When maximising engagement with the brand, business generally calculate through parameters such as "session length", "session frequency", "screen flow", "number of pages viewed"⁶⁷. Metrics of engagement are generally used in most renowned recommendations applications (e.g., Facebook's new feed) and video recommendations (e.g., Google). For example, Google used hours spent watching YouTube as a proxy for how happy users were with the content, writing on the Google blog that "If viewers are watching more YouTube, it signals to us that they're happier with the content they've found"⁶⁸. In product recommendations, success can be measure through "revenue for recommendations", i.e., the ratio between revenues generated through recommendations and the total revenue; or "number of recommendation clicks", the number of products clicked by those visitors who actively used recommendations while roaming on the website. "Conversion rate from recommendation" is also frequently used to actually measure the success of recommendations in leading towards purchases. Relevance, therefore, is not

⁶⁶ Alexander Bleier, Arne De Keyser, and Katrien Verleye. "Customer engagement through personalization and customization". In: *Customer engagement marketing*. Ed. by Robert W. Palmatier, V. Kumar, and Colleen M. Harmeling. Springer, 2018, pp. 75–94.

⁶⁷ LaptrinhX. *34 Marketing Metrics to Include in Every Marketing Report*. en. Aug. 2020. URL: <https://laptrinhx.com/34-marketing-metrics-to-include-in-every-marketing-report-2764961370/> (visited on 12/29/2020).

⁶⁸ YouTube, Why We Focus on Watch Time, 2012, <https://youtube-creators.googleblog.com/2012/08/youtube-now-why-we-focus-on-watch-time.html>.

merely oriented towards a goal, but it is also expressed through quantified measurements set by the business.

Once business has set the goal and established the relevant metrics for measurement, personalized marketing requires data. Although it will be abundantly clear by now, the core of predictive personalization, in fact, is that it leverages available data or inferred knowledge about the individual consumers and other people to tailor content. So – it must be emphasizing – the method of determining relevance is purely data-driven. For example, when Alice, being a consumer who is surfing on Amazon website, is showed with sponsored content for kitchen items, the algorithm employs the information contained in her digital profile to suggest the most "relevant" option. In that, Amazon's algorithm does not serve the most objectively useful content but only the result that is relevant based on her data. The most fundamental assumption behind this way of determining relevance is that preferences are established through the pattern that emerges from the data consumers produces, data indicating behaviour. Here, "behaviour" is actually used as misnomer, as it may refer to anything that can be digitally monitored, from the Alice's navigation on the web to its post and images on Facebook. Behaviour, in other words, is anything that has some objective digital footprint and can be referred to a single customer. As pointed out by Susanne Krasmann, such way of determining preferences gives primacy, if not exclusivity, to surface over depth.⁶⁹ To determine consumers' individual preferences does not mean to analytically and empirically understand the reasons for his or her behaviour, but simply to be able to recognize patterns of behaviour. Behaviour is "what counts" in the algorithmic business.

The method of establish relevance is data-driven also because it is based on past "behaviours" of like-minded consumers. In the above example, the relevant result provided by Amazon is not defined by looking only at Alice's data, but also by relying on similar customers whose data have been collected by the company and entered in the algorithmic model. Once the system is deployed, Alice's information is input into the model and the algorithms returns the result showed to "like-minded" consumers. Consumer preferences thus become inherently relational. Sometimes this fact is even rendered explicit by marketers ("people also viewed"; "similar customer also buoyed"). As effectively described by Lury and Day, the process of establishing what is relevant has nothing to do with "personalization" in the sense of moving from the general to the individual person ("zooming on the self").⁷⁰ Rather, it takes place on a process of recursive division of consumer as part of types and classes. The Amazon recommendation algorithm determines the

⁶⁹ Susanne Krasmann. "The logic of the surface: on the epistemology of algorithms in times of big data". In: *Information, Communication & Society* (2020), pp. 1–14. The author argues for a specific epistemological approach of the algorithms. The algorithms- she holds- has "their own "style of reasoning" by "reducing reality" as they lack access to the world of human sense making", thereby, they paint a "behaviourist picture" of human modes of existence, algorithms and big data might change our self-understanding.

⁷⁰ Lury and Day, "Algorithmic personalization as a mode of individuation".

relevant offers and ranks products by "bordering or adjoining" data points representing each consumer continuously defining and redefining similarity or dissimilarity. Personalization can only be produced through constant aggregation, comparison, sorting and re-arrangement of other singularities in the operation of multiplicity. In such a process, individual preferences are therefore the product of "lively data"⁷¹. This means that individual preferences are constantly configured and re-configured as other consumers interact with the provide and that the choices that are made by other consumers might have an instant indirect impact on the options configured to John. The concept of relevance is therefore constantly evolving and updated on the basis of the consumer's occasional belonging to the group or category of the moment. Consumers preferences are never fixed, but constantly changing, so long as other consumers change their "behaviour".

Based on like-minded consumers and current available data about the individual consumers, the operative process of establishing relevance is predictive. This means that considering relevant available data and business goals the system computes the probability of each outcome of each possible decision (e.g., delivering a certain content, offer, advertising) and the evaluate each outcome on the basis of the expected utility in achieve the business goal. The predictive model which determines the expected utility of certain business decision must not necessarily calculated on one shot; it can also be fine-tuned while consumers interact with the system by means of controlled experiments. Consider, again, Stitch Fix: the online subscription shopping service uses multi-testing A/B testing to calibrate which products match customers' clothing preferences.⁷² A/B testing shows different variations of marketing offers to different consumers and measure which variation is the most effective at turning them into customers.

Online controlled experiments (such as A/B testing, bucket testing or randomized experiments) have become a habitual practice in numerous companies for enhance marketing communications.⁷³ In fact, it has been observed

⁷¹ Deborah Lupton. "Personal data practices in the age of lively data". In: *Digital Sociologies*. Ed. by Jessie Daniels, Karen Gregory, and Tressie McMillan Cottom. Bristol University Press, 2016, pp. 339–354. The essay draws on the concept of "algorithmic assemblage" (see 3.2) and expand the concept by arguing that thanks to the algorithm, data subjects co-evolve with their peers ("The vitality of digital data has significant implications for people's data practices. People are confronted with attempting to gain some purchase on information about themselves which is not only continually generated, but is also used by other actors and agencies in ways of which they may not be fully aware.", p. 338)

⁷² Fix, *Stitch Fix Algorithms Tour* ("experimentation and algorithm development is deeply engrained in everything that Stitch Fix does.").

⁷³ Ron Kohavi and Stefan Thomke. *The Surprising Power of Online Experiments*. Harvard Business Review. Sept. 2017. URL: <https://hbr.org/2017/09/the-surprising-power-of-online-experiments>. The paper describes how Microsoft and several other leading companies—including Amazon, Booking.com, Facebook, and Google – each conduct more than 10,000 online controlled experiments annually, with many tests engaging millions of users ("by combining the power of software with the scientific rigor of controlled experiments, your company can create a learning lab. The returns you reap—in cost savings, new revenue, and improved user experience—can be huge. If you want to gain a competitive advantage,

that as much as consumers are biased in decision-making, so do managers, whose decision-making tends to be affected by preconception about customer behaviours and tends to follow cause-effect logic.⁷⁴ Some of these preconceptions and models may still be valid in influencing customer behaviours but given the availability of data it is important that they can be back-up with evidence. Marketing managers should therefore no longer use experience or intuition but hypothesis, testing and results analysis. Siroker express this:

A/B testing neutralizes the ideological and replaces it with the empirical. Instead of, "I feel we should do X because that's what I feel," a culture of A/B testing encourages both curiosity and humility, where people say, "I hypothesize that X is better than what we have right now. I don't have the data today, but let's run an experiment and test it." After that process is complete, A/B testing then offers the much stronger claim: "I know we should do X because of the evidence that it's the right thing to do."⁷⁵

With experiments, the focus of marketing shifts from data-driven predictions towards to data-driven observation. This can be helpful especially when the company does not have enough data about consumers before the transaction. One could say that model generation takes data and delivers a model, whereas model use takes a model and causes new data to arise. The resulting profiling loop can be applied to any domain where data is digital and ubiquitous.

Interestingly, this feedback loop can be driven using human intervention, but can also function in an automated fashion driven purely by algorithms and adapt according to business goals. Even after an algorithmic system is launched, machine learning models can ongoingly tweak its decisions in response to consumer feedback about the results of the actions it takes thereby optimize the effectiveness of the business's advertisements, websites, apps, etc. as consumers response changes over time.⁷⁶ This may take place with an activity of further retraining of marketing systems based on feedback data, or even without, being the system automatically learning from feedbacks. The system of the company analyses responses to its actions with reference to a business objective, and autonomously recalculate the expected utility of future action, balancing "exploratory learning and exploitation of that learning."⁶⁴ A popular approach to algorithmic marketing is contextual multi-arm

your firm should build an experimentation capability and master the science of conducting online tests.")

⁷⁴ Kohavi and Thomke, *The Surprising Power of Online Experiments* ("some executives mistakenly believe that causality isn't important. In their minds all they need to do is establish correlation, and causality can be inferred. Wrong!")

⁷⁵ Dan Siroker and Pete Koomen. *A/B testing: The most powerful way to turn clicks into customers*. John Wiley & Sons, 2013, p. 102.

⁷⁶ See, e.g., Vertical Leap. *What can machine learning do for me right now in marketing?* 2018. URL: <https://www.vertical-leap.uk/blog/what-can-machine-learning-do-for-me-in-marketing/>.

bandit testing. This process takes many versions of, for example, a webpage, along with "any historical or current information" the system has about individual consumers, and continuously experiments to determine which version shown to which consumer in which context is most effective.

Following the above, one can conclude that predictive personalization purports a peculiar notion of "relevant offer": content, product or any campaign configuration is not determined considering the actual needs and wants or the preferences of consumers, but through a continuous process of predicting and measuring the impact of algorithmic decision in pursuing certain business goal, calculated with the suitable metrics. The algorithmic business does not personalize interactions for consumer enjoyment or satisfaction, unless these happen to coincide with click and conversion. Things would be different if businesses pursued maximizing objectives other than profit or engagement, and if different metrics could be exploited. Thus, this view of relevance reflects a fundamental consideration on machine learning algorithms, which is their epistemologically performative. Machine learning make no claims to capture the truth in the data, but only to function. They cannot even be said to be wrong in any theoretical or mathematical sense. As Lowrie puts it, algorithms: "can only be evaluated in their functioning as components of extended computational assemblages; on their own, they are inert. As a consequence, the epistemological coding proper to this evaluation does not turn on truth and falsehood but rather on the efficiency"⁷⁷.

4.2.2 Control of the interface

There is nothing wrong with personalisation maximising the chances of success of the marketing action, if consumer is aware of it. Yet, one of the critical features of predictive personalisation is that consumers know the underlying process until it materialises on the digital website or mobile interfaces. These interfaces display or play advertisements, link web pages, highlight text, prioritise products, juxtapose content or hide it. In the back-end of the system, personalisation involves optimising data, in the front-end it changes the interface.

This socio-technical development clashes with the long-standing cultural assumption for which individuals understand digital interfaces as tools for personal interaction with content or interpersonal interactions with others.⁷⁸

⁷⁷ Ian Lowrie. "Algorithmic rationality: Epistemology and efficiency in the data sciences". In: *Big Data & Society* 4.1 (2017). Lowrie describes algorithmic decision-making as something whose evaluation cannot be truth or false, but efficient or inefficient with a given "algorithmic assemblage".

⁷⁸ Daniel Susser. "Invisible Influence: Artificial Intelligence and the Ethics of Adaptive Choice Architectures". In: *AIES '19: Proceedings of the 2019 AAAI / ACM Conference on AI, Ethics, and Society*. 2019, pp. 403–408. The understanding of technology as a mediating interface between people and the world is founded on the post-phenomenological approach to technology championed by Don Ihde and Peter-Paul Verbeek, according to which the technology would bear meaning only in context. In particular, the latter building on the

In fact, as philosophers of technology argue, once we become adept at using technologies, we also tend to lose conscious attention and perception the technology the mediate our experience with the world, or with other people. This leads us to focus on what we can accomplish using the technology, rather than focusing on it themselves. To be sure, individuals have underappreciated the constructed nature of the information and choices presented in offline environment too. A salesperson can model a choice tasks using various techniques of personal or interpersonal influence, techniques that are powerful in part because they go unnoticed. The popular examples are the supermarket placements of chips in the bottom shelves so that children can have their mums buy them. Or it is the seller who, when informing on the options available, uses alluring description or social cues to stimulate the buyer's attention on one product in particular. The difference in these cases, however, is that consumers do not view the salesperson or the shelves as tools under consumers' control.

Expectedly, businesses have an incentive to cultivate and maintain consumers' illusion of control on the interface. Consumers, one web design consultant observes, "like to think they are in charge of their actions."⁷⁹ When they perceive themselves to have more control over the commercial messages targeted at them, they find the messages to be more persuasive.⁸⁰ Even without cultivation, the perception of user control is sufficiently strong that researchers who were not attempting to create this feeling found their subjects experienced it. In the experiment, some subjects were offered identity theft protection in a neutral frame, and others were offered the service in increasingly deceptive and manipulative frames. Subjects overwhelmingly reported that they felt free to refuse the service, even in the most aggressively deceptive condition. This was true even though four times as many subjects agreed to the offer in the aggressive frame as in the neutral frame.

The artificiality of commercial digital interfaces allows to consider online websites as neutral environments but as architectures designed according to specific principles and purposes.

Historically, the concept of architecture has been thoroughly explored by

former has famously proposed the theory of technological mediation, whereby he has systematically analysed the influence of technology on human behaviour in terms of the role technology plays in human-world relations. For an introduction, see Peter-Paul Verbeek. "Beyond interaction: a short introduction to mediation theory". In: *Interactions* 22.3 (2015), pp. 26–31.

⁷⁹ The Next Web. *The psychology behind Web browsing*. Post by Liraz Margalit. 2015. URL: <https://thenextweb.com/lifehacks/2015/06/09/the-psychology-behind-web-browsing/> (visited on 08/11/2020); Matthew William Fendt et al. "Achieving the Illusion of Agency". In: *Interactive Storytelling*. Ed. by David Oyarzun et al. Springer Berlin Heidelberg, 2012, pp. 114–125.

⁸⁰ Brahim Zarouali et al. "'Everything under control?': Privacy control salience influences both critical processing and perceived persuasiveness of targeted advertising among adolescents". In: *Journal of Psychosocial Research on Cyberspace* 12.1 (2018) (finding that as adolescents perceive themselves to have more control over the advertising targeted at them, they find the advertising to be more persuasive).

cyberlawyers together with the notion of "code".⁸¹ The thinking is famously centred around the work of Lawrence Lessig, for whom code constructs the space people use and access information. Code, in Lessig's mind, "is law"⁸²: rules are both intentionally and unintentionally written into the hardware and software of internet technologies that then create the infrastructure that determine the possibility of action in cyberspace. Lessig also noted that, for the code writers, the architecture-creating and access-managing capacity of their trade is bound to become "a means to achieving the behaviours that benefit them best"⁸³. One can see this form of design-based regulation also in the field of marketing. For example, a form, even though mild, of coercion is when the consumers surf on an e-commerce website for product information but cannot skip a promotional video. Here consumers have no choice (i.e., their set of actions have been restricted), and were not looking for that video, they have been coerced to see it.

A more contemporary reflection on the code as architecture takes a more nuanced approach to possible constraints on action. The discussion is prominently influenced by the debate on choice architecture originating from the field of behavioural economics. In their 2008 book *Nudge*, Richard Thaler and Cass Sunstein put forward the idea that the contexts in which we make decisions inexorably shape the decisions we reach.⁸⁴ The reason for this is that we do not, for the most part, give our decisions a great deal of conscious, reflective thought. Rather, as the psychologists Daniel Kahneman and Amos Tversky argue, we make most decisions very quickly, using fairly unreliable cognitive shortcuts or heuristics.⁸⁵ We tend to stick with same comfort choices even if they might be inefficient, we tend to focus only on certain number of information, we lean on examples that come quickly to mind and rule-of-thumb judgments, even if they are not representative or

⁸¹ James Grimmelman. "Regulation by software". In: *Yale LJ* 114 (2004), pp. 1719–1758; Jonathan Zittrain. "Law and technology The end of the generative internet". In: *Communications of the ACM* 52.1 (2009), pp. 18–20.

⁸² Lawrence Lessig. "Code is law". In: *Harvard Magazine* (2000). URL: <https://harvardmagazine.com/2000/01/code-is-law-html>.

⁸³ *Ibid.*, p. 84.

⁸⁴ Richard H. Thaler and Cass R. Sunstein. *Nudge: improving decisions about health, wealth, and happiness*. Penguin Books, 2009.

⁸⁵ Daniel Kahneman. *Thinking, fast and slow*. Macmillan, 2011. As known, the great contribution of Kahneman's contribution to the field of behavioural science (and economics) is a general theory of cognition that divides the human mind into a dual system composed of two types of cognitive activity that Kahneman calls "System One" and "System Two": System One makes judgments quickly in ways that are experienced as effortless and mostly automatic. In contrast, System Two is slower, experienced as more effortful, and quite limited in terms of how much incoming information it can process at any given time. System Two handles the most complex and mentally taxing operations, but System One serves as the most pervasive, default mode for making decisions. Behavioural economists largely focus on how elements of System One processes lead to decision outcomes that diverge from the optimal outcomes predicted by a rational choice perspective. Thus, choice architecture can be created in order to leverage both System 2, then generally leading to a rational and self-reflexive decision, but also can exploit System 1, providing a context for in impulsive, biased, and incorrect decisions.

well-grounded. We assume that if our friends are doing something then perhaps, we ought to do it too. The many mental "bias" shows that we can be deeply affected by contextual cues, often without realizing it, and that the way in which our choices are situated and framed (e.g. the options we have and how they are described, who offers them to us, in what way, and when) all help determine the decisions we eventually make. Thaler and Sunstein call these decision-making contexts "choice architectures"⁸⁶.

A choice architect is somebody in a position that renders them capable of "organizing the context in which people make decisions"⁸⁷, such as arranging the offerings in a particular order that makes one choice more likely than the others or setting a particular option as the default one and thus requiring individuals to put in some effort (e.g., opt out or change) if they are not to go with it. Everyone can wilfully create choice architectures, or it emerges at random, and it represents an individual's immediate environment that directly influences their decision making. Yet, while being a choice architecture in the physical space require some degree of power over peoples (e.g., the speed bump in the streets) or interpersonal authority (e.g., a mother with her child), the digital environment does not require such. One only has to think of the design, built-in (and left out) functionalities, paths, design, and other affordances of website and platforms to understand the scale of both architectures' empowerment and users' constraints. On other occasions, the very threat of invisibility, such as on social media or among search results, is enough to strongly steer actors towards pre-programmed decisions, with platform owners not infrequently manipulating their users by disclosing elements of algorithmic ordering to some users but not to others.⁸⁸ Hence, the algorithmic architecture of code can in itself also be conceived of as a choice architecture. In its least intrusive, it can act identically to the offline one – through a nudge – but in its most intrusive, it simply eliminates all unwanted choice options.

In a recent piece over behavioural approaches in data-driven marketing, Nadler and McGuigan emphasise that digital marketers can be effectively described as "choice architects" that "manipulat[e] the contexts in which decisions are made"; through their algorithmic assemblage, they "seek control over choice architecture to promote their interested or their clients"⁸⁹. Indeed, she shows that they themselves represent their activity as an activity of

⁸⁶ Thaler and Sunstein, *Nudge: improving decisions about health, wealth, and happiness*, pp. 81–102.

⁸⁷ *Ibid.*, p. 428.

⁸⁸ Eric J. Johnson et al. "Beyond nudges: Tools of a choice architecture". In: *Marketing Letters* 23.2 (2012), pp. 487–504.

⁸⁹ Anthony Nadler and Lee McGuigan. "An impulse to exploit: the behavioral turn in data-driven marketing". In: *Critical Studies in Media Communication* 35.2 (2018), pp. 151–165. Indeed, the two authors argue that by applying the principles and the methodologies (such as experiments) of behavioural economics, data-driven marketing companies "themselves conceptualize the capacities of digital marketing as forms of social and behavioral control" (p. 152).

constructing choice architecture. For example, Ogilvy Change, a unit specializing in behavioural economics describes itself as a team of "choice architects" who "apply principles from cognitive psychology, social psychology and behavioural science to create measurable behaviour change in the real world"⁹⁰. This unit has a global presence with 10 offices worldwide and boasts of working with marquee firms such as American Express, Nestlé, British Airways, Starbucks, and many more. Another advertising giant, Foote, Cone & Belding (FCB), created the "Institute of Decision Making" which partners with business on delivering clients insights derived from behavioural psychology.⁹¹ The idea is still that to allow their clients to choose but to make them do this not under the conditions of their own making, by "nudging" them towards certain behaviours; and in this endeavour, the machine of algorithmic personalization have an extremely powerful function.

In fact, in the contemporary discussion on digital architecture, the code is characterized not only by the fact of placing (soft) constraints on actions, but also, and above all, by the fact of making constraints adaptive to the individual user. As shown in the first chapter, with machine learning, the code is no longer described as a linear process which, given certain premises, produces certain effects, but rather reflect "new adaptive standards of conduct which can work in all kinds of situations at all kinds of scales"⁹². In fact, the algorithmic model learns itself according to the input and output data and reprograms itself to arrive at the best result set by its programmer. Under this view, the role of the designer does not translate in designing specific (soft) constraints in the architecture, but it is the code that adapts according to the external inputs. Code is part of a dynamic relationship with the real world, one that can "automatically and continuously" affect life chances offered to digital users based on a pre-configured logic but also adaptive calculation. The role of choice architects then changes. It does not merely arrange one-identical choice context making some elements more prominent than others; but it works for creating architectures that become more dynamic, interactive, and adaptive. They display messages, insert content into news and social media feeds, and alter the display of digital billboards along consumers' physical paths. Websites are no longer passive billboard or static shopping portals but becomes tailored interfaces. Consider how Amazon's recommender systems works: in response to a query, Amazon's mine hundreds of potential products with lightning speed, algorithmically evaluating their "relevance" and displaying the results in rank order. Ranking does not stop customers from skipping the first twenty entries and starting to read product listing from the third page of results. Yet, by highlighting certain products and excluding others, it increases the possibility that consumers will dwell on the top ten. Although theoretically free to review all potential

⁹⁰ Ogilvy Change (n.d.). Homepage. Retrieved January 6, 2017, www.ogilvychange.com.

⁹¹ FCB, 2020, <https://www.fcb.com/capabilities/institute-of-decision-making>.

⁹² John Cheney-Lippold. "A new algorithmic identity: Soft biopolitics and the modulation of control". In: *Theory, Culture & Society* 28.6 (2011), pp. 164–181.

items, in practice each consumer is likely to visit only those on the first page or two.⁹³ In a similar way personalized advertising act: today we are getting used to seeing less intrusive advertising (e.g., pops advertising that forces us to see). The advertisement is inserted, hidden, and modified inside the page or in the apps. It relies on interpolation of digital interface after determining the likelihood of engagement, the aim is to adapt content.

All the above adds an additional element to understand the one-tone experience: marketing pursues its goal by optimizing their marketing decisions through predictions, experiments and learning for maximising conversion by controlling and manipulating elements of the context of consumer choice, wrapping each consumer in an (at least somewhat) different tightly fitting version of code-driven architecture. This specific dynamic has led information lawyer Karen Yeung to coin the concept of "hyper-nudging", which she defines as the practice of

"...relying on the use of 'nudge' – a particular form of choice architecture that alters people's behaviour in a predictable way without forbidding any options or significantly changing their economic incentives."⁹⁴

Yeung argues that this socio-technical transformation represents a new design-based regulation, where the technologies are programmed not to foreclose options, but

"...to direct or guide the individual's decision-making processes in ways identified by the underlying software algorithm as 'optimal', by offering 'suggestions' intended to prompt the user to make decisions preferred by the choice architect."⁹⁵

Thus, hyper-nudging does not use hard constraint on people – in a behavioural economists' terminology, it is always possible to "opt-out" – but use a kind of soft power, yet extraordinarily powerful, to control consumers.

⁹³ Frank Pasquale. "Rankings, reductionism, and responsibility". In: *Clev. St. L. Rev.* 54 (2006), p. 115.

⁹⁴ Karen Yeung. "'Hyper-nudge': Big Data as a mode of regulation by design". In: *Information, Communication & Society* 20.1 (2017), pp. 118–136. In her ground-breaking piece, Yeung describes data-driven decision-making as a "design-based instrument of control" that operates as a new, potent form of nudge – the "hyper-nudge": the algorithm "dynamically configures the targeted individual's choice environment in highly personalised ways, affecting individual users' behaviour and perceptions by subtly moulding the networked user's understanding of the surrounding world". Such a new technique is "distinctly manipulative, if not straightforwardly deceptive" as it affords a system which "exploit systematic cognitive weaknesses which pervade human decision-making to channel behaviour in directions preferred by the choice architect" (p.130).

⁹⁵ *Ibid.*, p. 121.

The concept of hyper-nudging is used by critical marketing scholars Zwick and Dholakia to describe personalization as a "fiction" through the pure "symbolic power of relevance"⁹⁶. According to the authors, digital marketers have become aware of the power in new technology-driven personalization narrative is prone a fiction that resolves a contradiction between empowerment/consumer autonomy and control/manipulation that otherwise cannot be resolved. For relevance to fulfil this function, it is not necessary that this resolution of the contradiction is real, i.e., that hyper nudging really creates more autonomy and that manipulation really empowers consumers. The point of an act that functions symbolically is precisely that it constructs a fantasy – a symbolic universe – where the co-existence of two opposites appears possible. In the universe of digital marketing, hyper-relevance brings together ubiquitous surveillance and algorithmic choice design on the one hand with autonomy and freedom of choice on the other; not as opposites but as complements that construct a perfect (albeit fairy-tale) world. This fiction ultimately lies in the message "that the true empowerment of consumers in fact requires the algorithmic manipulation and modulation of consumers' decision-making", consumer empowerment is the same as control of the choice context. Provocatively, the authors then argue that this conception of marketing represent the "un-marketing"⁹⁷. They argue that "marketing was marketing by the force of its own negativity - with failures to "be on target", failures to be personal, failures to be meaningful, and so on". This was once what arguably made consumers empowered in the business-to-consumer game – the fact that no matter how much it tried to influence and control consumer choices, marketing could fail. Then, in a vision where algorithms allow the full anticipation of behaviour of individuated consumers and techno-architectural modulation of choice architecture possible by automated computational analytics is a vision where consumers no longer experience marketing, but control.

4.3 Influenced by design

If algorithmic marketing amount to a mechanism of potentially biased determination of preferences and design-based control of the choice architecture, one might consider the actual empowerment of the digital consumers and space for its actions. Of course, a marketing website can be strategically designed to trick specific consumers into making certain choice that are profitable to the marketers and unfavourable to the consumer. Much of the considerations here are still anecdotal but given the pervasive surveillance and the refined means of data extraction, it is reasonable and fair to assume that marketers can exploit sensitive information about consumers to elicit certain

⁹⁶ Aron Darmody and Detlev Zwick. "Manipulate to empower: Hyper-relevance and the contradictions of marketing in the age of surveillance capitalism". In: *Big Data & Society* 7.1 (2020), pp. 1–12.

⁹⁷ *Ibid.*, p. 9.

desired response from consumers. Even more important, however, are the risks to consumers' decision-making stemming from the very operation of algorithmic personalization, where the system itself can engage in manipulative techniques even when their deployers have not designed the systems for this reason. After all, the algorithmic business does not care to personally "know" people, but only to enhance the functionality and effectiveness defined in terms of predictive ability and the capacity for machines to meaningfully interact with customers the exact time in which they are more prone to engage through clicks and conversions.

4.3.1 Choice traps and preference formation

In predictive personalization, whether is targeted content, recommendations, or website personalization, marketing initiative are designed to maximise the occurrence of a certain goals, measured through certain metrics. Take, for instance, Amazon's recommendation: the system is designed to maximise purchase of items on the platform by predicting what the consumer may be interested in by proposing items. Advertising targeting system is designed to maximise the probability of consumers clicking on certain advertising and possibly conversion by on the landing webpage. Once programmed with certain objectives, the algorithmic system determines what is the best action to achieve that objective. Ideally, it may well happen then that what is relevant for the firm to achieve its commercial objectives is also relevant for consumers because it truly reflects their real preferences. Yet, given the intrinsic bias in determining preferences and the unilateral modulation of the interface, tensions may arise between business and consumers and lead to problematic outcomes for consumer choice.

Emerging patterns of preference may indeed correspond to multiple causal mechanisms in consumers' behaviour: maybe there is a genuine fit between the content suggested by the algorithm and the reasoned preferences of a consumer, and this explains why she might follow the suggestion. At the same time, there could be the case where patterns in data do not represent her actual "preference", but her vulnerabilities.⁹⁸ For example, if Alice, being a recovering smoker consumer, has a long browsing history of researching and buying tobacco products, an algorithm based on such "patterns" can give prominence to certain marketing content which offers a certain discount on

⁹⁸ See, e.g., Sachin Banker and Salil Khetani. "Algorithm Overdependence: How the Use of Algorithmic Recommendation Systems Can Increase Risks to Consumer Well-Being". In: *Journal of Public Policy & Marketing* 38.4 (2019), pp. 500–515. Through several behavioural experiments, the authors shows that recommendation system expose users show a high degree of overdependence from algorithmic recommendations and expose them greater vulnerability facilitating choices of inferior products and services which cause welfare loss. The authors shows in particular greater over-dependence when recommended with highly specialized medical products and in financial domains. The authors draw the attention of policy makers towards the fact that "without full information on product attributes and consumers' true utility functions, both watchdogs and consumers themselves cannot accurately assess whether adopting the recommendations they are presented with may lead to a welfare loss".

a pack of cigarettes, thus increasing the likelihood of a purchase and leading Alice to a relapse.⁹⁹ In a classic view of economic rationality, which regards rational choice as the one that matches individual's preferences thereby maximising one's own utility, one could argue that Alice's choice to click and buy the product is perfectly rational. However, the argument would not consider that rationality account also for second-order preference: one can have a first-order preference for smoking, but a second-order preference for not smoking and not indulging in temptation.¹⁰⁰ The importance of "endorsement" and "self-identification" in first-order preferences have been used to try to characterize free or autonomous action.¹⁰¹ And on many such accounts, second-order preferences play a prominent role.¹⁰² One can indeed imagine multiple circumstances where second-order preferences act as a constraint to impulsive consumers' decision. A person who is addicted to online gambling may wish she would spend more of its money on books instead of buying ticket lotteries. A young girl might be tempted to spend three hours on social media, but she may also aspire to hang out with friends. In all these cases, as pointed out by Köcher and Holzmüller, data-driven personalization, by responding to immediate preferences and not contemplating aspirations, might deprive consumers of the ability to improve their own character and encourage them to repeat choices or keep behaviours that they would wish not to make again, thereby decreasing autonomy.¹⁰³

Such problems are also related to the way "consumers' satisfaction" is measured. Current metrics in use by marketers, in fact, do not allow to distinguish the reason behind those measurements. The preference are not

⁹⁹ This possibility has indeed been proven in studies on targeted advertising, such as Brianna A. Lienemann et al. "Tobacco advertisement liking, vulnerability factors, and tobacco use among young adults". In: *Nicotine and Tobacco Research* 21.3 (2019), pp. 300–308.

¹⁰⁰ Quentin André et al. "Consumer choice and autonomy in the age of artificial intelligence and big data". In: *Customer Needs and Solutions* 5.1-2 (2018), pp. 28–37. The authors endorse the view that while algorithmic systems might relieve choice overload, at the same time their "psychological reductionism" might deprive consumers to exercise self-reflection and caution in making attentive judgments between autonomous and hedonistic choices.

¹⁰¹ The American philosopher Harry Frankfurt, in particular, has famously developed a notion of "freedom of the will" which emphasize the role of double volition. According to Frankfurt, a person can be said to have free will and make autonomous decisions not simply if this decision is in line with its "action-determining volitions", but also about if this volition has been endorsed by a "high-order volitions", which are those shaped by principles and reasoning and guided by long-term convictions. See more in his treatise on free will: Harry G. Frankfurt. "Freedom of the Will and the Concept of a Person". In: *The Journal of Philosophy* 68.1 (1971), pp. 5–20.

¹⁰² Donald W. Bruckner. "Second-order preferences and instrumental rationality". In: *Acta Analytica* 26.4 (2011), pp. 367–385. The author is inspired by the Frankfortian theory of autonomy based on first-order and second-order preference. See, Frankfurt, "Freedom of the Will and the Concept of a Person".

¹⁰³ Sören Köcher and Hartmut H. Holzmüller. "New Hidden Persuaders: An Investigation of Anchoring Effects of Recommender Systems on Consumer Choice". In: *Creating Marketing Magic and Innovative Future Marketing Trends*. Ed. by Maximilian Stieler. Springer International Publishing, 2017, pp. 51–52; C. Kathiravan, P. Mahalakshmi, and V. Palanisamy. "Online Impulse Buying Behavior of Consumer Triggered by Digital Marketing". In: *International Journal of Recent Technology and Engineering* 8 (2019), pp. 648–653.

communicate ex-ante, nor the perception of the advertising ex-post.¹⁰⁴ A positive engagement of consumers with the brand might indeed reflect conscious, rational and self-reflective behaviour, or conversely, it might conceal an act of intoxicated choice.¹⁰⁵ Consumers might buy products or might indulge on certain marketed content not because of their true preferences, but because of their fragility or because the way it is presented to them has successfully captured their attention. After all, the metrics are often developed in environments that are designed from the outset to be as engaging as possible, loaded with intransparent patterns, and where financial incentives may have already significantly narrowed the range of options available to the consumer.¹⁰⁶ Yet, the way of establishing satisfaction through clicks or conversion is biased since these measures could spring from a variety of possible mental states.¹⁰⁷ The issues concerns the broader issue of AI-mediated interaction: given that AI systems today are based on implicit feedback, which is unilaterally determined by its deployed, the human who interact with the system is unable to signal its preference to their business counterpart in an explicit or discursive way but must rely on. Cristianini explains that before representing a technical constrain of data-driven AI, the use of relevance feedback is a cultural transformation: "rather than asking users explicitly what they wanted the AI system to do – a core that many users are reluctant to take on - designers started making use of implicit feedback, which is another way to say that they replaced unobservable quantities with cheaper proxies."¹⁰⁸

Also, the fact that preferences are established by looking at like-minded consumers may lead to a disruption in customer's behaviours. de Vries powerfully articulates the idea that our digital experience today is mediated by the data categories and groups to which we are assigned, thereby also influencing our choice contexts.¹⁰⁹ For example, the optimization selection performed by recommender systems can affect individual choice in so far as the labelling that the system uses to categorise consumers may not correspond to recognisable attributes or social categories with which the consumer would self-identify. For example, the category "dog owner" or "undergraduate student" may be recognisable as significant to consumers and might turn to

¹⁰⁴ One might even argue that if a consumer consciously or unconsciously does not click on a certain advertising, because simply it may simple not notice it, the system would still infer that the consumer is not interested in that particular product. This means that, from the algorithmic perspective, even not choosing, is choice, which can be stored and analysed.

¹⁰⁵ Julie E. Cohen. *Between truth and power: The legal constructions of informational capitalism*. Oxford University Press, 2019, p. 77.

¹⁰⁶ Rachel Thomas and David Uminsky. "The Problem with Metrics is a Fundamental Problem for AI". in: *arXiv preprint arXiv:2002.08512* (2020).

¹⁰⁷ Travis Greene and Galit Shmueli. "Beyond Our Behavior: The GDPR and Humanistic Personalization". In: *arXiv preprint arXiv:2008.13404* (2020).

¹⁰⁸ Cristianini, "Shortcuts to Artificial Intelligence".

¹⁰⁹ Katja De Vries. "Identity, profiling algorithms and a world of ambient intelligence". In: *Ethics and Information technology* 12.1 (2010), pp. 71–85.

meaningful marketing personalization. Consumers positioned in this category can find it useful if marketers recommend food or cheap deals for academic books. At the same time, the category "bought novelty shoes" or "spend 3 hours a day on social media" are arguably be less significant, if not in itself disrupting, from a consumer's perspective. Why should the fact that consumers similar to me have in the past purchased a sweater make the purchase of a sweater more relevant or satisfactory for me? In what ways does the fact that I spend three hours on Facebook would characterise by preference as a consumer? Yet, following the logic of algorithmic personalization, the system may still regard these aspects as statistically significant when making inferences about the preferences of the user and personalize offers thereby leading to a choice that she would not have made. Coupled with design-based influence, which is inherently functional to direct choice, algorithmic marketing blindness to social categories creates an environment where marketing activity eliminates the user from the social categories that she considers meaningful in forming her personal identity and controlling her purchase behaviours. The risk is that of generating a situation in which the consumer is led to buy goods and services that in reality do not interest him, in which addicted buyers are more inclined to unbridled consumption, and perhaps they immediately regret after the purchase.¹¹⁰

The likelihood of choice disruption is even more clear in the field of programmatic advertising, where personalization is increasingly based on micro-moment where the consumers is expected to be more prone to click.¹¹¹ Indeed, digital advertising agencies themselves, which serve both firms and consumers in multi-sided markets, provide a double, covertly contradictory narrative around their algorithmic systems: on the one hand they promote the idea that consumers will receive more relevant and personalized ads, thus promoting empowerment and utility-maximising purchase decisions. On the other hand, they present to business partners the view that thanks to the data collected and the refined algorithmic machines, they have reached previously unseen techniques to influence to more effectively consumers' shopping behaviour. Imagine the firm YogaMaster that engages in personalized advertising and wants to increase the chance of consumers purchasing their products (say, yoga widgets) while browsing the net on their smartphones. The company may collect data about past engagement, and its algorithm establishes that people with characteristics similar to Alice are most prone to buy the widgets when seeing the ad early in the morning, especially

¹¹⁰ Personalized advertising may lead to problematic outcomes especially when people are profiles a compulsive buyer. See on this, Kalina Mikolajczak-Degrauwe and Malaika Brengman. "The influence of advertising on compulsive buying – The role of persuasion knowledge". In: *Journal of Behavioral Addictions* 3.1 (2014), pp. 65–73. Similarly, some studies have showed how targeted advertising may pose problem to people with health diseased or addictive behaviours.

¹¹¹ Zeynep Tufekci. *We're building a dystopia just to make people click on ads*. TED: Ideas Worth Spreading. Sept. 2017. URL: https://www.ted.com/talks/zeynep_tufekci_we_re_building_a_dystopia_just_to_make_people_click_on_ads.

if they went to sleep later than usual. Alice-types also like the product being advertised by fit, young people. At the same time, people with characteristics similar to Barbara, most often buy products when shown the ad late at night, and especially when coming back from their friends'. They are most convinced by ads that have widgets advertised by people who look like a happy family. With this knowledge and applying experiments, the company can fine-tune the timing, content, and form of the widget ads, and manages to increase the sales by 20%. This may be profitable to the company but can be costly to Claudia and Janice. If for most of the time, they would not be willing to buy a widget, but do so when shown an ad at the moment when they are most prone to engage in unnecessary spending, the actual cost they pay is higher than the overall utility they derive from owning the widget.

All in all, given that the personalization is deployed to optimize commercial gains, there is no guarantee that these objectives will align with the short-term needs and desires of consumers whose decisions and behaviours these systems are aimed at influencing. On the contrary, given the unilateral determination of the establishing the parameters of relevance, personalization may well lead to a widespread deceptive-by-design dynamic where consumers are constantly persuaded into conclude bargaining and spend money on goods that they do not need, to overspend, to engage in risky financial transaction, to indulge their weaknesses. This is not to say that all business in algorithmic personalization techniques will always deceive. For some products and services, the optimal sales action taken forward by the algorithm may result in actual consumers' satisfaction. For others, a particular commercial material might deceive some consumers, at sometimes, or in some situations, and not others. Certainly, algorithmic marketing risk to penalize those consumers that are characterized by weaknesses in the digital markets. But the underlying problem is that, under algorithmic personalization, it will be increasingly difficult to tell the different when the act of choosing a product over another was the result of algorithmic design or autonomous cognition.

In addition, algorithmically determined consumers options may also disrupt the long-term relationship between the algorithmic provider and the consumers and disrupt the very essence of consumer preference formation.¹¹² By relying consumer's (or like-minded consumers') past interactions with the provider to determine the relevant offer, the algorithmic system narrows each consumers' space of option. Moreover, each time the algorithm incorporates consumers' feedback as a new input variable, the system will generate more precise tailored and provide additional data to incorporate into the algorithms. If the consumer is presented with an increasingly narrower array of options, she provides the algorithmic with an increasingly narrow set of

¹¹² Gediminas Adomavicius et al. "Do recommender systems manipulate consumer preferences? A study of anchoring effects". In: *Information Systems Research* 24.4 (2013), pp. 956–975; Gediminas Adomavicius et al. "The hidden side effects of recommendation systems". In: *MIT Sloan Management Review* 60.2 (2019), pp. 13–15.

feedback. A recommender system is supposed to highlight certain results with the effect of making it more difficult for consumers to select search results that are positioned in lower page results because deemed as irrelevant. A consumer will tend therefore to select a product which is presented in their search results and she will unlikely buy that product which does not show up on the recommender system's results. This is how self-reinforcing (feedback) loops are created, and how personalization algorithms can ultimately keep us trapped in our consumers current choices.¹¹³ Since the consumer's past interaction with the trader informs the options of the future, the algorithm may growingly create a myopic, one-dimensional view of the consumer and its preferences, with the result of limiting content and products consumers can access and the risk of missing out other products that might have been of interest of consumers.¹¹⁴

Much attention has been devoted to such self-reinforcing loops in algorithmically curated content on individuals, with many scholars arguing that people now live in "filter bubbles" that suppress dissonant facts and promote "information cocoons"¹¹⁵. However, less attention has been devoted the possibility that algorithmic personalization based on past preferences would make a given individual's preferences more stable over time than they would normally be. Contrary to what common economic wisdom suggests, consumers' preferences continue to change significantly over life.¹¹⁶ Sociologists show that this may originate from increased awareness in socio-cultural factor, such as shift towards more environmental consumption, care for animal welfare, or reaction to corporate political activism. However, an algorithm that is predicated on best predicting consumers' current taste would encourage repetition of past behaviours, and make exposure to unusual, serendipitous content less likely, and may cause a perception of reduced autonomy.¹¹⁷ Because of their narrow focus on past choices and biased past preferences,

¹¹³ Sofia Grafanaki. "Autonomy Challenges in the Age of Big Data". In: *Fordham Intell. Prop. Media & Ent. LJ* 27.4 (2016), pp. 803–868. The challenges to autonomy caused by this feedback loops is explained which no longer may affect the sphere of consumption, but any activity in life (news, media, healthcare) that is mediated by personalization technologies.

¹¹⁴ Paul M Schwartz. "Internet Privacy and the State". In: *Connecticut Law Review* 32 (2000), pp. 815–860. Schwartz describes one of the traits of said trap as the "reduced sense of the possible." An additional discussion of this concept can be found in Tal Z Zarsky. "'Mine Your Own Business!': Making the case for the implications of the data mining of personal information in the forum of public opinion". In: *Yale Journal of Law and Technology* 5.1 (2003), pp. 1–56.

¹¹⁵ See, e.g., Engin Bozdog and Jeroen van den Hoven. "Breaking the filter bubble: democracy and design". In: *Ethics and Information Technology* 17.4 (2015), pp. 249–265. More generally on the concept of "filter bubble", Eli Pariser. *The filter bubble: what the Internet is hiding from you*. Penguin Press, 2011.

¹¹⁶ Nathan Novemsky et al. "Preference fluency in choice". In: *Journal of Marketing Research* 44.3 (2007), pp. 347–356; Tien T. Nguyen et al. "Exploring the filter bubble: the effect of using recommender systems on content diversity". In: *Proceedings of the 23rd international conference on World wide web*. 2014, pp. 677–686.

¹¹⁷ Yonat Zwebner and Rom Y. Schrift. "On My Own: The Aversion to Being Observed During the Preference-Construction Stage". In: *Journal of Consumer Research* 47.4 (2020), pp. 475–499.

those recommendations could force consumers into more predictable patterns of consumption and deprive them of their ability to evolve over time, or at the very least reduce the likelihood of radical changes in their tastes.

4.3.2 Biases and other social norms

In the contemporary discussion on predictive personalization, greater emphasis is placed not only on cases where the choice architecture affects the structure of the choice tasks (for example, by displaying particular products or content), but also on cases where personalization affects the description of that choice. In this case, the choice architect here relies on specific known consumers' bias to highlight certain options and trigger desired behaviour.

Different kinds of nudge can be included into the digital choice architecture to steer consumers towards certain options – a practice called digital nudging.¹¹⁸ For example, the s.c. bandwagon effect, i.e., the tendency to do things because many other people do the same, can be exploited to on the page of a specific product recommending for further products based on what items were bought by other customers ("Customers Who Bought This Item Also Bought"). This is typical in recommender system and content generated platforms such as Facebook ("your friend also shared") and YouTube ("other users also viewed"). The bias of "loss aversion", which describes how losses and disadvantages have greater impact on preferences than gains and advantages, can be directly triggered to capture people attention on certain offers. Examples of these nudges can be found for example on Booking.com on the result page of an applied search for a hotel. There, statements such as "Booked 36 times today", "-65% Today!", "8 people are looking right now", or "In high demand!" are implemented to trigger the user to not "lose" the offer she found. By giving information about the popularity or limitation, these statements may shorten the purchase decision. Another popular bias that is often actioned in digital environments is the "availability heuristics", according to which individuals tends to judge probabilities of events based on the ease at which they can be recalled. Targeted advertising can indeed exploit this bias when through tracking the user, they can show the ads repeatedly. "Hyperbolic discounting", i.e. the tendency of having a stronger preference for more immediate payoff relative to later payoff, is often used through attaching countdown or time-limit description to certain offers.¹¹⁹

The novelty with algorithmic-mediated environments is that the choice architects must no longer nudge the generality of the population, but select different types of nudging that best fit the specific susceptibility of groups

¹¹⁸ Tobias Mirsch, Christiane Lehrer, and Reinhard Jung. "Digital Nudging: Altering User Behavior in Digital Environments". In: *13th International Conference on Wirtschaftsinformatik (WI 2017)*. 2017, pp. 634–648.

¹¹⁹ Armando Schär and Katarina Stanoevska-Slabeva. "Application of Digital Nudging in Customer Journeys? A Systematic Literature Review". In: *AMCIS 2019*. 2019.

of consumers.¹²⁰ In fact, if everyone is affected by certain mental shortcuts, not everyone has the same biases or experiences them to the same degree.¹²¹ This is what Shlomo Benarzi, a behavioural economist, points out about the potential of the web:

"the advantages of digital nudging is that ... the digital space allows us to conduct research much faster, as we test out multiple designs to see which one works best. Instead of waiting years to see if an intervention is effective, we can often get results in days or weeks."¹²²

In particular, in their framework to design digital nudging, Schneider et al. emphasize the role of online experiments (such as A/B testing and split testing) in personalizing nudges. In particular, they claim that testing is particularly important, as the effectiveness of a nudge may depend on the different target users and the unique nature of the decision-making processes, or even different layouts or colour schemes on the webpages. Nudge experiments is what the company Nudgify provides to its business clients. Their tool A/B-tests on different nudges and see how they perform on different consumers groups. Adobe is also another AI-powered platform that offer AI-powered products that allow to A/B test the whole experience giving nudges to consumers: "It helps ensure that you zero in on the experience that nudges customers to buy, read, download, or take whatever other action you want them to take to meet business goals."

Other risks to consumer autonomy may come from what has been called "persuasion profiling". Rather than looking at behavioural economics, persuasion profiling enacts the methodologies of interpersonal persuasion famously theorised in social psychology. In fact, even before the break-through of behavioural economics and nudge theory, social psychologists had highlighted how contextual factors affect consumers psychology and can be influence leveraging social cues of persuasion. Cialdini, in particular, is widely known in academic environments for having proposed a theory of interpersonal persuasion.¹²³ According to the author, persuasive communication is

¹²⁰ M. Ryan Calo. "Digital Market Manipulation". In: *Geo. Wash. L. Rev.* 82 (2013), pp. 995–1051 (citing Leslie K. John, Alessandro Acquisti, and George Loewenstein. "Strangers on a plane: Context-dependent willingness to divulge sensitive information". In: *Journal of consumer research* 37.5 (2011), pp. 858–873.)

¹²¹ Eyal Peer et al. "Nudge me right: Personalizing online security nudges to people's decision-making styles". In: *Computers in Human Behavior* (2020), p. 106347 ("The problem of nudges (or other interventions) being administered only according to averages in a "one-size-fits-all" approach is not limited to computer security. A particular nudge may have a strong positive effect on some individuals, but smaller, insignificant, or even negative effects on others, for whom a different nudge may be more effective.")

¹²² Shlomo Bernazi. *How Digital Tools and Behavioral Economics Will Save Retirement*. Harvard Business Review. Dec. 2017. URL: <https://hbr.org/2017/12/how-digital-tools-and-behavioral-economics-will-save-retiremen>.

¹²³ Robert B. Cialdini. *Influence: The psychology of persuasion*. Collins New York, 2007.

based on six cognitive strategies based on social norms that allow to modify attitude in individuals. They are: authority (people are inclined to follow suggestions originating from authority), consensus (individuals are more prone to follow the behaviour that has been manifested by multiple others), commitment (people strive to maintain consistency in their behaviours if they have previously committed to some course of action), scarcity (the scarcity or presumed scarcity of commodities and opportunities tends to increase the probability that people will seek or pursue that opportunity), liking (people are more inclined to be influenced by people who express liking in them or whom they can better identify with); reciprocity (it is more likely that individuals will follow certain behaviours if they are in a situation of reciprocity with those who try to persuade them, for example because they owe a favour).

Instead of relying on experiments, the persuasion profile acts *ex ante*. Data about consumers are collected and profiles according to their potential susceptibility to a certain persuasion strategy.¹²⁴ Persuasion profiles can be based on explicit techniques based on questionnaires of specific types of consumers, or directly on implicit methods.¹²⁵ In the latter case, persuasion profiles are constructed directly from the analysis of demographic, personality, or behavioural data. They can be created by looking at how consumers respond to certain products or how they have responded to certain products. A persuasion profile thus represents a model that categorises consumers according to their susceptibility to a certain persuasion strategy. Thus, for example, it could be inferred that a certain consumer tends to respond positively to messages based on authority is used ("This product has been endorsed by 5 world-wide celebrities"). Otherwise, the model could contain a correlation between certain groups of consumers and a higher susceptibility to scarcity messages ("This product will be available until midnight today"). Other consumers could instead have a high score for consensus principle ("All your friend on Facebook are buying this book").

The company Zoovü ensures that "persuasion profiling is quickly emerging as the pinnacle of personalized buying experiences", "for example, there are some people who cannot resist the temptation of a good last-minute discount, while others will perceive a lowered price as an indication of subpar

¹²⁴ Maurits Kaptein. *Persuasion profiling: How the internet knows what makes you tick*. Business Contact, 2015.

¹²⁵ Maurits Kaptein et al. "Personalizing persuasive technologies: Explicit and implicit personalization using persuasion profiles". In: *International Journal of Human-Computer Studies* 77 (2015), pp. 38–51.

quality and not buy. Using a generalized sales approach and generic messages can backfire big time"¹²⁶. Crobox also describes itself as persuasion-as-a-service.¹²⁷ The Dutch company has built a "data-driven persuasion framework" in order to help e-commerce brands to drive those purchase decisions and provide unique consumer insights through their persuasion. CEO Rodger Buyvoets explained "by making use of machine learning, the technology knows exactly which persuasion tactic does, and doesn't, work for every individual." Persuasion profiling seems to be becoming a real-world business and increasingly relies on AI and real-time analytics to identify which persuasive techniques work best for each customer.

4.4 Conclusions

With the advent of predictive personalization practices, such as programmatic advertising, algorithmic recommendations, and web designs, new questions clearly emerge regarding the level of consumer autonomy in the digital marketplace. Although contemporary culture characterizes personal choice as a primary way in which people perform both their freedom and their individuality, the extraordinary popularity and omnipresence of marketing personalization practices in digital environments demonstrate ways in which this freedom might be restrained and controlled in order to make these choices and decisions "easier." Importantly, digital marketers do not disavow the reality of marketing practice as increasingly enabled by technologies of limitless surveillance, tracking, capturing, and automated computational analytics. Rather, digital marketers regard it as true progress as they now have the ability to track consumers closely, to recognise consumers for "who they really are" and provide the most relevant offer. No longer do marketers have to make decisions based on crudely measured and aggregated facsimiles of artificially homogeneous consumer segments, nor do consumers have to suffer the inefficiencies inherent in that model.

The conceptualization of consumer empowerment proposed by marketing discourse, is however, rather questionable. Empowerment would result from decisions that are pre-packaged by computational systems built by marketing experts yet experienced as autonomous and self-directed. The digital consumer, ultimately embedded in a series of algorithms processing personal information and expected to provide relevant offers, is autonomous to the extent she is in a position to take a stance in relation to the algorithm at work and to the related content offered. In the words of Neyland, a "configuration through which users and/or clients are modelled and then encouraged

¹²⁶ Zoovü. *Persuasion Profiling - How You Sell Matters More Than What You Sell*. 2018. URL: <https://zoovu.com/blog/persuasion-profiling/>.

¹²⁷ TechEU. *Crobox raises \$1.25 million for its persuasion-as-a-service technology*. Post by Johnathan Keane. 2016. URL: <https://tech.eu/brief/crobox-1-25-million/> (visited on 08/11/2020).

to take up various positions in relation to the algorithm at work"¹²⁸. Yet, the actual possibility of being able to choose are hampered by the way personalization work, which goes far beyond what could be relevant to the needs and desires of consumers. Companies optimize their marketing offerings for conversions, the measurable result that the company seeks, such as clicks, purchases or "likes". There is no assurance that with these tools marketing action will align with consumers wants and needs, and result in true empowerment. On the contrary, the risk is that the determination of the relevance offer is biased and leads to a narrowing of the consumer's offer quickly leads to a dangerous situation for an informed and autonomous consumer decision making process.

Absent corrective intervention, algorithmic businesses practices will lead to a situation where it will become increasingly difficult to tell the difference between choices of informed consumers and choice of deceived consumers, where it will not be possible to understand the difference between information and influence. The algorithm cannot "know" whether the consumer was intoxicated or under a misperception with regard to the transaction, because the system only measures conversions. Under conditions in which deceived consumers are more likely to take the desired action, the technology, by maximizing conversions, will deceive. At the same time, by recommending only those choices that many others across the world have already made, these systems commodify choice and make the consumer generic. The act of making choices ceases to be a performance of individuality and instead becomes an operation of conformity.

¹²⁸ Daniel Neyland. "On organizing algorithms". In: *Theory, Culture & Society* 32.1 (2015), pp. 119–132.

Chapter 5

Empathic connection

5.1 The intimate communication

In a 2019 book *Applied Empathy* written by Sub Rosa's founder and CEO, Michael Ventura provides the guidelines for a new methodology to corporate leadership designed to "drive internal cultural change, build better products, and connect [businesses] more deeply with [their] audiences."¹ According to Ventura, empathy is a chronically misunderstood term, particularly in the business world: "people think empathy is about being nice, being compassionate, being sympathetic – it's none of those things"². At Sub Rosa, he says, "empathy is self-aware perspective-taking to gain richer, deeper understanding of the customer". Companies like Sub Rosa that position themselves as "empathetic marketing companies", being able to see beyond what people buy and discover their emotional needs has real economic benefits. It allows to align more with real customers' needs by creating more impactful campaigns and more memorable brand activations.

Based on Ventura's guidelines, researcher at Harvard Business School Belinda Parmar created the "Empathy Index" to rank companies that are most successfully in creating empathic communications with customers in order to enhance brand perception.³ Among the first ten ranked, one can find tech companies leaders in the algorithmic business, such as Facebook, Google, LinkedIn, Netflix, Microsoft, and Salesforce. As proof of its empathic propensity towards customers, for example, the top-ranked Facebook launched in 2015 its Empathy Lab as an effort to make its products and services more attuned to users with special needs: now blind woman can use a Braille display and a screen reader to communicate with her friends on Facebook and share her daily experience online. To build empathy into their products, Facebook told *Wired* magazine, designers will listen to what customers feel when interacting with products, tries to put itself in their shoes, and then makes changes based on that feedback. Google too found its Empathic Lab, a multidisciplinary team that works side by side with AI engineers to enhances users' emotional well-being across various products offered by the

¹ Michael Ventura. *Applied empathy: The new language of leadership*. Hachette UK, 2019.

² *Ibid.*, p. 3.

³ Belinda Parmar. *The Most (and Least) Empathetic Companies*. Harvard Business Review. Nov. 2015. URL: <https://hbr.org/2015/11/2015-empathy-index>.

company.⁴ Danielle Krettek, its founders, said that she cannot longer bare how technologies ignore the "whole emotion lawyer of our human experience" and started to explore "the invisible layers of emotional resonance, taking inspiration from non-verbal communication and the subtle ways we all connect because they're wired inside us"⁵. Though it is hard to argue with Google's and Facebook's desire to make its products more accessible to disabled people, the effort highlights the inherent tensions in connecting empathy and business: more thoughtful products are important, as long as they attract more users.

Indeed, if "empathy" effectively means striving to understand how people feel and think, then in the last ten years, we have witnessed some "empathic practices" and Facebook appears to be playing in the frontline. In 2014, researchers from the social network company and Cornell University published an article in the Proceedings of the National Academy of Sciences (PNAS) describing a 2012 experiment that had changed the content of the News Feeds of almost 700,000 Facebook users.⁶ The study was aimed at assessing "whether [Facebook] posts with emotional content are more engaging"⁷. The researchers were interested in the "positive" or "negative" emotional valences of a user's Facebook posts, and how those posts might influence the emotional expressivity of users exposed to them – an effect known as "emotional contagion". To perform the experiment, the researchers had used A/B testing: the company provided two versions of its service to randomly chosen groups of users at the same time, and then measures how each set of users reacted. One group of users had the negative semantic emotional content of posts on their Facebook News Feed algorithmically suppressed, while another group saw the positive semantic content of their feed reduced – a third control group had posts from on their News Feeds reduced at random. The authors found that when they manipulated user timelines to reduce positive expressions displayed by others "people produced fewer positive posts and more negative posts; when negative expressions were reduced, the opposite pattern occurred."

Facebook was also at the centre of another "empathic story". In 2017, a leaked document revealed how the social network corporation found the

⁴ Venture Beat. *Google Empathy Lab founder: AI will upend storytelling and human-machine interaction* | *VentureBeat*. Post by Kari Johnson. Mar. 2018. URL: <https://venturebeat.com/2018/03/11/google-empathy-lab-founder-ai-will-upend-storytelling-and-human-machine-interaction/> (visited on 05/10/2020).

⁵ Carrie Neil. *Inside the Google Empathy Lab*. en. URL: <https://dscout.com/people-nerds/danielle-krettek-google-empathy-lab> (visited on 12/20/2020).

⁶ Adam DI Kramer, Jamie E. Guillory, and Jeffrey T. Hancock. "Experimental evidence of massive-scale emotional contagion through social networks". In: *Proceedings of the National Academy of Sciences*. Vol. 111. Publisher: National Acad Sciences. 2014, pp. 8788–8790.

⁷ *Ibid.*, p. 8788.

way to provide its advertising partners the opportunity to target young Australian users exactly in "moment when young people need a confidence boost"⁸. The company stated that it was able to discover by using "internal Facebook data" when people felt "stressed", "defeated", "overwhelmed", "anxious", "nervous", "stupid", "silly", "useless" and a "failure". The documents, Facebook said, were based on "research done by Facebook and subsequently shared with an advertiser" and were "intended to help marketers understand how people express themselves"⁹. However, despite the press release, Facebook has not denied its apparent ability to assess users' psychological states based on ongoing tracking of their online activity, nor it has ruled out that similar research has been conducted for advertising in markets outside Australia.

Perhaps, the most famous story of digital empathy that has involved Facebook is not about marketing in a strict sense, but something even more valuable such as the political elections. As is well known, in 2016 the data analytics company Cambridge Analytica managed to send targeted political messages based on the psychological profile of Facebook users in order to influence their decisions before the US election.¹⁰ Through a third-party app ("This is your digital life") developed by academic researcher Alexander Kogan, some selected users were invited to log-in through their Facebook profile and take a five minutes personality test to self-evaluate their psychological profile. Through acquiring such self-reported information and simultaneously accessing users' social media data such as likes, posts, profile details, Cambridge Analytica was able to create predictive models correlating behavioural data of each user with their psychological personality. Based on this information, the data collected and inferred by Kogan was shared with Cambridge Analytica which, based on the psychological profiles available, was accused of targeting personalized political messages to users most likely to be influenced in the run-up to the national elections. The same practice is suspected to have influenced national elections in Mexico and UK Brexit referendum. In 2018, there was a great turmoil around Facebook and its corporate practice. In reality, Facebook did not directly transfer any personal

⁸ Sam T. Levin. *Facebook told advertisers it can identify teens feeling 'insecure' and 'worthless'*. The Guardian. May 2017. URL: <https://www.theguardian.com/technology/2017/may/01/facebook-advertising-data-insecure-teens> (visited on 12/07/2020).

⁹ Facebook (2017), Comments on Research and Ad Targeting, <https://about.fb.com/news/h/comments-on-research-and-ad-targeting/>.

¹⁰ The brief reconstruction of Cambridge Analytica case was based on a series of newspaper sources, e.g. John Harris. *The Cambridge Analytica saga is a scandal of Facebook's own making* | John Harris. The Guardian. Mar. 2018. URL: <https://www.theguardian.com/commentisfree/2018/mar/21/cambridge-analytica-facebook-data-users-profit>; Carole Cadwalladr and Emma Graham-Harrison. *Revealed: 50 million Facebook profiles harvested for Cambridge Analytica in major data breach*. The Guardian. Mar. 2018. URL: <https://www.theguardian.com/news/2018/mar/17/cambridge-analytica-facebook-influence-us-election>; Tim Adams. *Facebook's week of shame: the Cambridge Analytica fallout*. The Guardian. Mar. 2018. URL: <http://www.theguardian.com/technology/2018/mar/24/facebook-week-of-shame-data-breach-observer-revelations-zuckerberg-silence>.

data to Cambridge Analytics, but simply belatedly enforce - or some suspect willingly refused to enforce - its corporate policy which prohibited Facebook-connected application operators from distributing information to third parties. Even if only if Cambridge Analytica case was due to Facebook's negligence, the episode made it clear that the platform's business model can actually allow anyone, marketers and politicians (is there still a difference?)¹¹ to know and the deepest information about us and use it to successfully build "empathic connection".

The episodes involving Facebook, however, have only uncovered the tip of the iceberg. When navigating through algorithmic marketers' blogs and materials online, the drumbeat of "more empathy" is hard to escape. Forrester Consulting found that "65 % of marketers strive for employing emotional marketing as they turn to automation to improve customer engagement." Empathetic marketing now seems to be one of the prerequisites for "brand credibility"¹². Marketing managers today are under tremendous pressure to uncover factors driving customers' attitudes and behaviour. In a market dominated by communicative cacophony on social media, where capturing the attention of a volatile audience is the real competition, understanding the depth of customer psychology and establishing an emotional connection increasingly appears to be the ultimate strategy to make yourself heard by the public. A new mantra is emerging MarTech: consumers not only prefer for personalized campaign, but they grow frustrated if marketers do not provide emotionally engaging contents. Indeed prominent marketing experts say that empathy will be to be the next chore feature in "marketing 4.0". In an increasingly digital world, where business-consumers interactions are disconnected by the digital infrastructure, marketers must embrace the power of empathic-centred design to re-connect with their customers. This "requires emphatic listening and immersive research into what is known as digital anthropology. Once the human side of the customers has been uncovered, it is time for brands to uncover their empathic side. Brands need to demonstrate empathic attributes that can attract customers and build human-to-human connections."¹³

Microsoft's business report on Empathy in Business build on a distinction proposed by social psychologists Daniel Goleman between cognitive empathy and emotional empathy.¹⁴ The first is the ability to understand what a

¹¹ Luciano Floridi. "Marketing as Control of Human Interfaces and Its Political Exploitation". In: *Philosophy & Technology* 32.3 (2019), pp. 379–388. Following Wiener, Floridi argues that marketing not simply control the digital interface but treat us humans as interface to get our attention. Similarly, thanks to the digital evolutions, politics has moved towards marketing and adopted the same techniques to treat us as interfaces, and get our votes.

¹² The increased uptake of empathic strategy in marketing is reflected in growing interest in marketing literature. See, e.g., Claire Brooks. *Marketing with Strategic Empathy: Inspiring Strategy with Deeper Consumer Insight*. Kogan Page Publishers, 2016; Nello Barile. *Empathic Media and Communication in the Fourth Industrial Revolution*. EGEA, 2020.

¹³ P Kotler and KL Keller. *Marketing Management*. Pearson Inc., 2016, p. 110.

¹⁴ Daniel Goleman. *Emotional intelligence*. Bantam, 2006.

person thinks and how she feels. Thoughts and feelings are generally associated to rational or irrational traits of personality, which are hard-wired and enduring elements in each individual. To be "cognitively empathic", business must do "perspective tacking", that is, trying to identify and understand customers' psychology. On the other hand, "emotional empathy" (also known as "affective empathy") refers to the ability of experience the same emotions as the other person. Different from feelings, social psychology generally characterises emotions as unconscious processes which respond to some external stimuli. This distinction is useful to dig down into the algorithmic practice that attempt to afford such kind of "empathic relationship" with consumers. In the previous chapters, we have analysed the general outlook of information and research practices as well as the approach that characterises how the algorithmic business interact with consumers at personalized level. In this chapter, we will analyse the increased role of consumers psychology and emotions in research and decision-making strategies of business adopting algorithmic technologies.

5.1.1 Psychological profiling

Research into customers psychology has been known in marketing practice under the name of "psychographics"¹⁵. This covers a set of quantitative methods which can offer managers with more descriptive insights into consumers and their personality and better understand brand engagement. In his seminal work on the subject, Wells defined psychographic research in marketing as a form of quantitative research, delimiting of demographics, that is intended to assign psychological dimensions to consumers.¹⁶ While the study on how psychological attributes of personality affected consumption have fascinated theoretical debates in marketing literature, their practical applications have been limited in the past to common. The expensive, time-consuming, intrusive and hardly scalable nature of traditional approaches to psychological assessment, such as questionnaires or interviews, made it difficult to obtain psychological profiles of large, numbers of individuals as an input for psychologically informed interventions.

The increased availability of customer social data and statistical techniques have led to a new uptake in psychological assessments of consumers.¹⁷ In the beginning of the last decade, research in computational social science has

¹⁵ Carson J. Sandy, Samuel D. Gosling, and John Durant. "Predicting consumer behavior and media preferences: The comparative validity of personality traits and demographic variables". In: *Psychology & Marketing* 30.11 (2013), pp. 937–949.

¹⁶ William D. Wells. "Psychographics: A critical review". In: *Journal of Marketing Research* 12.2 (1975), pp. 196–213.

¹⁷ Sandra C Matz and Oded Netzer. "Using Big Data as a window into consumers' psychology". In: *Current Opinion in Behavioral Sciences* 18 (2017), pp. 7–12; Leo Alexander III, Evan Mulfinger, and Frederick L. Oswald. "Using Big Data and Machine Learning in Personality Measurement: Opportunities and Challenges". In: *European Journal of Personality* 34.5 (2020), pp. 632–648.

shown how data science and machine learning can be used to accurately predict psychological traits and states of large groups of people.¹⁸ Studies have proved that personality can be easily predicted from personal websites, Twitter profiles, blogs, transaction records and pictures. Matz and colleagues of the PNAS project have called these new techniques as "psychological profiling"¹⁹.

Psychological assessment is increasingly side-stepping demographics profiling in marketing practices, augmenting data-driven persona research.²⁰ Rather than being concern with what content to target to whom, psychological assessment can help predict how to target them. "No marketer wants to present a message that is off-key or even irrelevant; personality science offers the chance to empathize with individuals, and engage them with the message, advertisement, or content in a way that is more likely to resonate with them."²¹ Today, marketers can have access to psychological profiles of their customers is facilitated by the availability of datasets that contain sample of individuals for whom psychological information and related behaviours are already known. Thousands of anonymous "psychometric databases" circulate on the web, some in open access and curated by academic researchers,²² others paid for by psychometric data brokerage firms. Using this data, and the data available about consumers, any marketer can build its own predictive model to make assessment about consumers psychology. Databases can be built following different personality test and methodologies. For example, one of the best known is the Five-Factor Model (also called OCEAN model). The model has traditionally been used to subsume a wide variety of other personality scales: "openness", "conscientiousness", "extraversion", "agreeableness", and "neuroticism", collectively known as the Big-5.²³ Another very popular measurement is the Myers-Briggs Type Indicator based on Carl Jung's theory of archetypes. It measures individual attitudes (extraversion-introversion), perceiving functions (if a person is more prone to uses senses or intuition), judging functions (whether one tends to make decisions on rational through or empathic feeling) and lifestyle preferences (whether one is more judger or preceptor).

¹⁸ David Lazer et al. "Life in the network: the coming age of computational social science". In: *Science* 323.5915 (2009), p. 721.

¹⁹ Sandra C. Matz, Ruth E. Appel, and Michal Kosinski. "Privacy in the age of psychological targeting". In: *Current opinion in psychology* 31 (2020), pp. 116–121.

²⁰ James Blake, Demographics are out; personality profiling is in, 2016 <https://marketingtechnews.net/news/2016/jul/29/demographics-are-out-personality-profiling>.

²¹ Christopher Graves and Sandra Matz. *What Marketers Should Know About Personality-Based Marketing*. Harvard Business Review. May 2018. URL: <https://hbr.org/2018/05/what-marketers-should-know-about-personality-based-marketing>.

²² For example, the Open-Source Psychometrics Project lists 48 different databased available based on different variables of the interviewee such as age, gender, countries, and applying different psychometrics measurement. Available at https://openpsychometrics.org/_rawdata/.

²³ Danny Azucar, Davide Marengo, and Michele Settanni. "Predicting the Big 5 personality traits from digital footprints on social media: A meta-analysis". In: *Personality and individual differences* 124 (2018), pp. 150–159.

Services of psychological assessment of consumers are otherwise available from third-parties. For example, Visual DNA's marketing executive summary affirms that the company "combine Big data and psychological profiling to accurately determine the personality of web users – in real time". The company uses online visual quizzes to capture personality data and then build "millions of detailed personality profile for web users" and then "precisely tailor digital marketing campaigns and enhance the online customer experience". Similarly, Silhouette describes itself as an "industry's first audience intelligence platform for characterizing and reaching anonymized personas based on earned media consumption, influencers, passions, personalities, and interests". They use a social identity graph of more than 1.2 billion profiles sourced from 60 different platforms and more than a million websites, 300 million individual email accounts, and more than one billion IP addresses and mobile devices. All of these accounts are linked and correlated using Silhouette's patented "Identity Graph" algorithms to unique identities that together cover more than 70% of US households.

Sometimes psychological profiling tools is embedded in analytics software and personalization products. Besides behavioural profiles, for example, recommender systems are built also with a look to consumers psychology, hence adapting systems to user personality is an intuitive way to increase a system's attractiveness. For example, Netflix is well known to personalize not only movie suggestions, but also imagery used to portray the titles. They say, "if the artwork representing a title captures something compelling to you, then it acts as a gateway into that title and gives you some visual "evidence" for why the title might be good for you."²⁴ Personality-based adaptations can be used to provide personalised visualizations,²⁵ to suggest music,²⁶ and even to change the overall diversity of a recommender system itself.²⁷

5.1.2 Sentiment analysis

If psychology is said to be the mental attitude endured in each one of us (hence, a trait of our personality), sentiment is described more like a "mental state towards something or someone which expresses certain conviction or emotion". Sentiment is regarded as a state of the mind that conveys conscious process of thoughts.

²⁴ Netflix, Artwork Personalization at Netflix, (Netflix Technology Blog), <https://netflixtechblog.com/artwork-personalization-c589f074ad76>.

²⁵ Schneider et al., "Your data, your vis".

²⁶ Rong Hu and Pearl Pu. "A study on user perception of personality-based recommender systems". In: *International conference on user modeling, adaptation, and personalization*. Springer, 2010, pp. 291–302.

²⁷ Li Chen, Wen Wu, and Liang He. "How personality influences users' needs for recommendation diversity?" In: *CHI'13 extended abstracts on human factors in computing systems*. 2013, pp. 829–834.

Sentiment analysis, also called opinion mining, has become an important research area in digital marketing management in order to understanding people's opinion and feelings about brands. As much as personality traits, sentiment and moods are key influencers of individual' behaviours: our feelings towards people and object are what motivates us to action. Marketers are starting to recognize the profound importance of consumer sentiment in social communities, and the explosion of user-generated and social network is presenting the perfect environment to research about consumers sentiment. Today, millions of consumers express their thoughts about various brand and products using social networking sites, blogs, forums, and popular products review sites such as Amazon and TripAdvisor. They express what they like and what they dislike, determining what is known as the "wisdom of the crowd"²⁸. The ability to learn the constant feedback of customers is valuable for companies to understand the level of their satisfaction and those of competitors and to measure the performance of promotional campaigns in real-time. Marketing managers will then have actionable information on the popularity of a product or individual promotions, to pinpoint groups of consumers more emotionally-engaged with the brand,²⁹ and to design appropriate responses to potential "social media crisis management"³⁰.

Sentiment analysis makes today use of different NLP techniques to evaluate and classify attitude and opinions on a specific topic of interest.³¹ Generally, sentiment analysis is based on bi-polar classification based on supervised learning: as somebody may either be for or against something, like or dislike the product, so programmer would train the machine to classify textual sources into positive or negative emotions. Other applications allow for a more nuanced approach to categorising emotions based on lexical approach. For example, the LIWC database already link certain words or phrase to a range of psychological traits or emotions, which can be easily implement in the company software. For example, the digital consumer intelligence company Brandwatch offers software service that analyse customer posts on blogs and social media and extract affective states categorised in anger, disgust, fear, joy, surprise, sadness. Emotion is assisted to mentions automatically by the Brandwatch systems, using a custom statistical classifier which was create in-house by the computer scientist teams. Business can use it the software to "filter or chart by any of those emotions to view the

²⁸ Steven Hoornaert et al. "Identifying new product ideas: waiting for the wisdom of the crowd or screening ideas in real time". In: *Journal of Product Innovation Management* 34.5 (2017), pp. 580–597.

²⁹ Natalia Abin Vences, Jesus Diaz-Campo, and Daniel Francisco Garcia Rosales. "Neuro-marketing as an emotional connection tool between organizations and audiences in social networks. A theoretical review". In: *Frontiers in psychology* 11 (2020), p. 1787.

³⁰ Clémence Vignal Lambret and Edgard Barki. "Social media crisis management: Aligning corporate response strategies with stakeholders' emotions online". In: *Journal of Contingencies and Crisis Management* 26.2 (2018), pp. 295–305.

³¹ Meena Rambocas and João Gama. *Marketing research: The role of sentiment analysis*. Working Paper 489. Universidade do Porto, Faculdade de Economia do Porto, Apr. 2013. URL: <http://wps.fep.up.pt/wps/wp489.pdf>.

emotive mentions in [the] data set however you like," and to "set up custom alerts to detect sudden increases in a particular emotion surrounding [the] brand"³². Based on customer insights, "can help you be more authentic and address them in a tone that fits the situation".

The ability to detect customers' sentiments has an additional benefit that goes beyond provide emotional-engaging relationships. Corporate practices based on sentiment analysis also allow to detect unsatisfied customer and anticipate their grievances towards the brand. Tom Sabo, Principal Solutions Architect at SAS Federal explain how SAS sentiment analysis software allow companies "to identify dissatisfied consumers and prevent lodge a complaint with the Consumer Financial Protection Bureau (CFPB)" (which is the consumer protection authority in financial matters in the US).³³

Beyond textual analysis, sentiment analysis can also employ image detection techniques to analyse emotional "visual representation". Social media emoji, for example, can be linked to a author introduced a new emoji-based metric for monitoring consumer emotions toward brands on social media, associated with the American Customer Satisfaction Index (ACSI). The author suggested that this abbreviated communication mechanism may be more diagnostic than complete statements. Gómez-Adorno et al. (2016) presented a lexical resource to pre-process social network data based on neural networks and also includes systems of non-verbal mechanisms: emoticons. Computer visions technologies allows to detect the level of engagement with the brand also through analysis of brand photo sharing. Consumers reveal incredibly valuable information about themselves through the photos they post, share, and engage with. Using image recognition and computer vision applications, marketers can identify which brands consumers are posting about, how they use those brands in their daily lives, the role brands play in candid interactions, and much more. This is the case of Tracx, a very powerful tool, which is able to add the analysis of "visual mentions" through the recognition of logos and products to the text analytics activity.

Sentiment analysis is increasingly applied together with NLG tools to generate emotionally-aware textual advertising. For example, the company Persado is one of the leading actors in NLP-powered software. Its product "understands language and breaks down marketing creative into its critical elements: narrative, emotion, descriptions, calls-to-action, formatting, and word positioning"³⁴. The system applies its understanding of language

³² Brandwatch. *Get a Deeper Understanding of Consumer Sentiment With Emotion Analysis*. Post by Nick Taylor. Mar. 2019. URL: <https://www.brandwatch.com/blog/get-a-deeper-understanding-of-consumer-sentiment-with-emotion-analysis/> (visited on 05/10/2020).

³³ Yonathan A. Arbel and Roy Shapira. "Theory of the nudnik: The future of consumer activism and what we can do to stop it". In: *Vand. L. Rev.* 73 (2020), p. 929. The authors explain a peculiar concerns problem for the law, notably the collective legal enforcement in consumers law, because sentiment analysis allows to pinpoint unsatisfied consumers, who would likely publicize or pursue a complaint against the company, and select them for targeted promotions and special care.

³⁴ Persado, 2020, <https://www.persado.com/gb/how-it-works/>.

to textual sources and generate the commercial message "improving and evolving its language knowledge base and generating valuable data-based insights into how different language elements resonate with different audiences".

Finally, beyond textual sources, sentiment analysis is also developing in speech recognition technologies. Marketers here are interested not what we say but how we say it. Through "speech emotion recognition", companies can process and classify speech signals to detect emotions embedded in real time by analysing audio segments for their acoustic-prosodic features, such as changes in tone, loudness, tempo and voice quality. For example, Amazon, Google, and IBM have filed patent applications concerning the use of smart speakers and other devices to detect subjects' moods. Amazon's patent suggested that its smart speaker Alexa could analyse the pitch and volume of user's commands to determine the subjects' moods, and "respond to commands accordingly"³⁵. Google has also filed a patent "for a method to augment devices to detect negative emotions; the devices will then automatically offer advice."³⁶ And has filed a patent for a process that helps search engines "return web results based on the user's 'current emotional state', based on indicia of mood drawn from webcam facial recognition, a scan of the user's heart rate, and even the 'user's brain waves."³⁷ Such systems may developed and embedded in smart home devices such as Amazon's Alexa or Google Assistants (see next chapter). Yet, speech emotion recognition technologies are also beginning to be part of a broader market. An example is the Boston-based start-up Affectiva, which in 2017 launched an API in which provides client with stacks to develop voice recognition applications based on deep learning.³⁸ Any company can virtually use it to have a better understanding of customers calling into their call centres or dealing with a customer service bot (they would find me often annoyed). For example, Health insurance company Humana has used emotion analytics with its call centre to understand customer emotions through voice analysis and improve the customer experience. The technology helps to identify the emotion of the caller and provide suggestions for how to respond appropriately to try to make the call a positive experience.

³⁵ Huafeng Jin and Shuo Wang. "Voice-based determination of physical and emotional characteristics of users". Publisher: Google Patents. Oct. 2018.

³⁶ **johnston2014providing**.

³⁷ Sideny Fussel. *Amazon's Echo May Be Able to Read Your Emotions - The Atlantic*. The Atlantic. 2018. URL: <https://www.theatlantic.com/technology/archive/2018/10/alex-emotion-detection-ai-surveillance/572884/> (visited on 12/30/2020).

³⁸ TechCrunch. *New Affectiva cloud API helps machines understand emotions in human speech | TechCrunch*. Post by Ron Miller. 2017. URL: <https://techcrunch.com/2017/09/13/new-affectiva-cloud-api-helps-machines-understand-emotions-in-human-speech/> (visited on 08/11/2020).

5.1.3 Emotion analytics

In empathic marketing, intimate communication extends from behavioural data (window on consumer psychology), from text/speech (window on consumer sentiment), directly to the body, which is now the window of consumers' emotions. Here, affective information is conveyed differently from sentiment filtered through conscious thought, but through unconscious reaction to a certain marketing stimulus.

Digital cameras connected to our PCs, gaming consoles or smart devices can today track eye movements in much greater detail than before, including eye exploration, eye fixation time, visual path, pupil dilation and eye-blink.³⁹ For example, eye tracking has been successfully deployed in SmartGaze, an AI-powered software product developed by KarnaAI that allows marketers to highlight and predict eye-gaze patterns on their advertising for detecting effectiveness of targeted ads in real-time.⁴⁰ Noldus' FaceReader is another software that allow companies to "analyse customers' facial expressions" and categorise emotional states into "happy, sad, angry, surprised, scared, disgusted, and neutral"⁴¹. Through its API, it allows third-parties integrate facial expression analysis into their own applications available for Windows and Android, and made it run on PC or server. Among its customers, one can find Microsoft, Bayer, Bosh, L'Oréal, to name but few. Among its solutions for advertisers, Affectiva offers a system that "measure their moment-by-moment facial expressions of emotion as consumers view your brands' advertising", extract "rules [that] help benchmark how your ads perform compared to those of your competitors", "moment-by-moment emotion data which can pinpoint viewer confusion and lack of engagement", and testing scoreboard which "use emotion data to see if your audiences are emotionally engaged at the moment of brand reveal in an ad, and test the effectiveness of taglines and voice-overs"⁴².

Emotion recognition technologies are also used out of the online marketplace, in brick-and-mortar retail stores. For example, the UK supermarket giant Tesco uses Amscreen's OptimEyes for customer facial scanning at its petrol stations to deliver targeted advertising based on their facial expression, changing ads in real time based on the information gathered by the system.⁴³ Outdoor digital advertising billboards also are being fitted with an optic lens to read and map the faces as people pass by and view the sign

³⁹ Ahmad F. Klaib et al. "Eye tracking algorithms, techniques, tools, and applications with an emphasis on machine learning and Internet of Things technologies". In: *Expert Systems with Applications* 166 (2021), p. 114037.

⁴⁰ Threatpost. *Smart TV Manufacturer Vizio Fined \$2.2M for Tracking Customers*. Post by Chris Brook. Feb. 2017. URL: <https://threatpost.com/smart-tv-manufacturer-vizio-fined-2-2m-for-tracking-customers/123597/>.

⁴¹ Noldus, 2020, accessed 20 December 2020, <https://www.noldus.com/facereader>.

⁴² Affectiva. *Affectiva Media Analytics*. en. URL: <http://go.affectiva.com/affdex-for-market-research> (visited on 12/20/2020).

⁴³ Philip Schmidt et al. "Wearable affect and stress recognition: A review". In: *arXiv preprint arXiv:1811.08854* (2018).

(s.c., gladvertising).⁴⁴ They focus on the eyeballs, in terms of direction, to determine the approximate age, sex and point of focus. It provides real-time engagement data and audience profile to targeted advertising. An example is JCDecaux, which is using the technology to determine whether passers-by have happy or 'hangry' expressions to dispense vouchers to sample the new range of Yoplait Yoghurt Smoothies.⁴⁵ Another example was a project run by Mondelez which ran on Val Morgan Outdoor screens promoting its Cherry Ripe bars. The technology tapped into historical data to identify when the Cherry Ripe target audience is most likely to be paying attention to the screen while at the petrol pump and is combined with Val Morgan's DART emotional measurement system.⁴⁶

Besides eyes and facial tracking, emotional analytics techniques are also applied to monitor physiological feedbacks coming directly from the body, through different wearables devices. For example, smartwatches can be built with small electronic sensor that allow to measure skin conductance and heart rate and infer stress, excitement, and other emotional states, and correlate when the holder is exposed with certain aural or visual stimuli.⁴⁷ For example, Amazon recently introduced a wristband that can track a person's emotions: the Amazon Halo wellness tracker monitors vocal tone, physical activity, body fat, heart rate and sleep as part of a subscription service.⁴⁸ Amazon entered in the market of wearables emotional tracking to compete with Apple Smartwatch and FitBit, which also track physiological signs of customers and allow analysis of emotional cues.⁴⁹

Emotion analytics technologies applications are gaining significant traction in the marketing industry. In 2018 Gartner predicted that "by 2022, 10% of personal devices will have emotion AI capabilities, either on-device or via cloud services, up from less than 1% in 2018" and that "your personal device

⁴⁴ Jonathan Keats. *Jargon Watch: Gladvertising, Photonic Hyperhighway, Quebecol, Flyjin*. Wired. 2011. URL: <https://www.wired.com/2011/06/st-jw-gladvertising/>. More extensively on the subject, see Ian Grant and Kathryn Waite. "Concepts, issues and research avenues for digital consumption". In: *The Routledge Companion to Digital Consumption* (2013), p. 333.

⁴⁵ CMO. *Facial recognition technology being used in a new out-of-home campaign*. Post by Vanessa Mitchell. Oct. 2019. URL: <https://www.cmo.com.au/article/667474/facial-recognition-technology-being-used-new-out-of-home-campaign/> (visited on 08/11/2020).

⁴⁶ VMO, 2020, accessed 20 December 2020, <http://valmorganoutdoor.com/dart/>.

⁴⁷ Elia Gatti et al. "Emotional ratings and skin conductance response to visual, auditory and haptic stimuli". In: *Scientific Data* 5.1 (2018).

⁴⁸ Christina Farr. *Amazon unveils Halo to battle Apple Watch and Fitbit — tracks activity, body fat, emotions*. CNBC: Technology. Aug. 2020. URL: <https://www.cnbc.com/2020/08/27/amazon-hal-wearable-tracks-activity-body-fat-emotions.html>.

⁴⁹ Sophie Charara. *A new Fitbit claims to track your stress levels. Can it really do it?* Wired UK. Aug. 2020. URL: <https://www.wired.co.uk/article/fitbit-stress-tracking-eda>; iClarified. *Beyond Verbal Demos Its Emotion Analytics Software on Steve Jobs [Video]*. 2013. URL: <https://www.iclarified.com/34701/beyond-verbal-demos-its-emotion-analytics-software-on-steve-jobs-video> (visited on 08/11/2020).

will know more about your emotional state than your own family"⁵⁰. The prediction perhaps looks a little far-fetched. Technology experts still believe that the technology is not yet accurate enough to generate large investments in the sector,⁵¹ but the increase access to data, the low-cost computing power, and the development in powerful deep learning techniques is clearly indicating that this is the direction.⁵²

5.2 Empathic business for the mindshare

The interest in consumer emotional life clearly emerges as one of the developments in the algorithmic business. As consumers become increasingly tracked and their data collected and merged across online and offline interactions, more information about the intimate sphere of consumers are disclosed and are available for businesses to analyse and use. As a minimum, the interest in emotional life successfully builds on the voluntary sharing of such information by consumers. This occurs especially in social media through emoticons, post and photos. Obviously, from the perspective of social media users, this information is originally disclosed to engage with friends, entertain others, or socialize, and is not meant to be disclosed for business analytics. Yet, it is nonetheless collected and repurposed by digital marketers to get insights into individual and groups sentimentality, opinions and emotional dispositions. In the middle, algorithmic applications of personality profiles and traits extraction are successfully being developed for the consumers psychology research, where digital footprints are used to study and categorise consumers according to their personality and targeted with personality-matching commercial messages. As a maximum, new algorithmic systems linked to different capture devices are emerging as a new marketing frontier, where emotional signals are studied and used to respond in real time with commercial triggers.

Observing these various developments, in 2016, digital media professor Andrew McStay described the emergence of an industry of empathic media.⁵³ The author refers to the capacity for emergent media and marketing

⁵⁰ Susan Moore. *13 Surprising Uses For Emotion AI Technology*. 2018. URL: <https://www.gartner.com/smarterwithgartner/13-surprising-uses-for-emotion-ai-technology/> (visited on 12/20/2020).

⁵¹ VentureBeat. *Emotion detection is a hot ask in marketing, but the tech just isn't ready yet*. Post by Paul Barba. May 2020. URL: <https://venturebeat.com/2020/05/02/emotion-detection-is-a-hot-ask-in-marketing-but-the-tech-just-isnt-ready-yet/> (visited on 08/11/2020).

⁵² A 2018 study by Market Research Future (MRFR) predicted that the "emotional analytics" market, which includes video, speech, and facial analytics technologies among others, will be worth a whopping \$25 billion globally by 2025. Tractica has made a more conservative estimate in its own analysis, but still predicted the "emotion recognition and sentiment analysis" market to reach \$3.8 billion by 2025. Researchers at Gartner have predicted that by 2022 10 percent of all personal electronic devices will have emotion AI capabilities, either on the device itself or via cloud-based services". Study available at [https://www.designnews.com/electronics-test/whats-state-emotional-ai/203153414061482\(lastaccess13/12/2020\)](https://www.designnews.com/electronics-test/whats-state-emotional-ai/203153414061482(lastaccess13/12/2020)).

⁵³ Andrew McStay. *Emotional AI: The rise of empathic media*. Sage, 2018.

industry to "sense and discern what is significant for people, categorise behaviour into named emotions, act on emotional states, and make use of people's intentions and expressions"⁵⁴. The commercial significance of emotions is clear: if one can affect emotions and make people feel a certain way, an organization has an increased chance of capturing attention, making a desired impression and affecting decision-making.

Some argue that this new development should not be a cause for concern, as the use of emotions simply makes it easier for businesses to give consumers what they want, and indeed to do so through experiences that maximise the happiness and enjoyment of the consumer experience. Speaking about neuromarketing, UCLA neuroscientist Marco Iacoboni says: "Controlling the mind requires some form of manipulation. Neuromarketing does exactly the opposite. It reveals to consumers and marketers what people really like. It makes consumers more aware of their deepest motivations, motivations that... consumers cannot express explicitly"⁵⁵. Some other authors also claim that emotional knowledge available with empathic technology will actually help customers to understand own decision-making patterns and subsequently allows them to understand whether they are being manipulated or simply influenced "for their own benefit"⁵⁶. But these arguments ignore what companies are actually doing with a view to better understanding of how our minds work.

5.2.1 The scalable consumer

Writing about advertising and market research in the post-Cold War era, Vance Packard in his popular book *The Hidden Persuaders* described how behavioural psychology was used to manipulate consumer desire for goods and service. Marketers started to question three basic assumptions they had been making about consumers: "you can't assume that people know what they want"; "you can't assume people will tell you the truth about their wants and dislikes if they know them"; "it is dangerous to assume that people can be trusted to behave in a rational way."⁵⁷ Although the mantra was making an impression among the *Mad Men* of Madison Avenue, the traditional tools and methodologies of behavioural psychology have always struggled to translate its meaning in practice. Traditional behavioural research on behavioural psychology was indeed still largely reliant on directly involving the participant.⁵⁸ Methods included qualitative focus groups, interviews and

⁵⁴ McStay, *Emotional AI: The rise of empathic media*, p. 2.

⁵⁵ Marco Iacoboni. *Mirroring People: The Science of Empathy and How We Connect With Others*. Springer, 2013.

⁵⁶ Patrick Renvoisé and Christophe Morin. *Neuromarketing: Understanding the buy buttons in your customer's brain*. HarperCollins Leadership, 2007.

⁵⁷ Vance Packard. *The hidden persuaders*. McKay, 1957, p. 37.

⁵⁸ John Gountas et al. "Looking beyond traditional measures of advertising impact: Using neuroscientific methods to evaluate social marketing messages". In: *Journal of Business Research* 105 (2019), pp. 121–135.

surveys, ethnographies where consumers are observed in specific environments, accompanied shopping, and intercepted in the street and surveyed. These approaches in marketing research measured the cognitive and emotions variables of the consumers with regards to a brand or a product only as they verbally expressed at conscious level. The canon, so to speak, was that customers were assumed to be able and willing to tell marketers what they are looking for, which in turn, implied that marketers were able to ask the right questions to customers, then analyse, and interpret the data correctly, all before generating actionable insights.

As explained by Pradeep, one of the early neuromarketers, the validity of these self-report measures is unhelpful to understand the consumer mind.⁵⁹ Consumer respondents usually have imperfect memory, while the mere act of asking a question is known to change consumer stance towards the interrogator. Highly sensitive questions are subject to misinterpretation or outright deception. Perhaps most worryingly, there are few ways to know with confidence when respondents are being truthful versus when they are not, and when marketers ask the appropriate questions versus when they do not. It is also not uncommon that people wish to present themselves in a favourable light or say what other people say (s.c. social desirability bias), and thus distort their response. Moreover, as explained by Clint Kilts, one of neuromarketing's father in an early interview with New York Time, traditional focus groups "are plagued by a basic flaw of human psychology: people often do not know their own minds"⁶⁰ The future is brain imaging as it "offers the promise of concrete fact – an unbiased glimpse at a consumer's mind in action"⁶¹.

From the early 2000s, neuro-marketing studies have attracted many projects and aroused the attention of marketers in order to capture the unconscious responses of consumers.⁶² The research field combines brain-imaging technologies and neuroscience insights to investigate how people subconsciously reacts to certain brand-related stimuli. The purpose of neuromarketing research was indeed to obtain objective information about the personal preferences of consumers without resorting to data filtered by conscious strata.⁶³

⁵⁹ Anantha Krishnan Pradeep. *The buying brain: Secrets for selling to the subconscious mind*. John Wiley & Sons, 2010.

⁶⁰ BBC. (2015, May 15). Surge in US 'brain-reading' patents. BBC News. Retrieved from <http://www.bbc.co.uk/news/technology-32623063>.

⁶¹ Clive Thompson. "There's a sucker born in every medial prefrontal cortex". In: *The New York Times Magazine* (2003), pp. 54–54.

⁶² For an introduction and a short history on the field, see Christophe Morin. "Neuromarketing: the new science of consumer behavior". In: *Society* 48.2 (2011), pp. 131–135. The authors recognises "Neuromarketing is here to stay. And it will evolve, like humans—and even brands—do. Consumers like you may never see the difference in the messages that are refined or produced as a result of gaining a better understanding of our buying decision process. Ethical issues will continue to surface but standards have already been adopted to make sure that neuromarketing research is conducted with respect and transparency" (p.135).

⁶³ *Ibid.*, p. 131.

One of the earliest studies in this area was conducted in 2003 by Pepsi and Coca-Cola, in which a group of consumers were asked to drink either Pepsi or Coca Cola while their brains were scanned an fMRI (functional magnetic resonance imaging) machine.⁶⁴ The study proved that different sections of the brain light up if people are aware or not aware of the brand they consume. Specifically, the study proved that a strong brand such as Coca Cola had the power to "own" a piece of our frontal cortex and stimulate pleasant feeling. In the last twenty years, a remarkable attention has been directed towards neuromarketing and its actual benefits for advertising practices. Already in 1997, Gerald Zaltman at Harvard, one of the strongest supporter, suggested that virtually all consumer purchases are influenced by subconscious stimuli or reactions, even when the individual claims to have made a rational choice, and neuro-marketing is an important development to probe their desire.⁶⁵ Neuromarketers have diagnosed certain areas of the brain that show increased activity when a brand successfully signals status to a consumer, notoriously known as "the Buy Button"⁶⁶. Activity in other areas of the brain predicts how much brand associations will influence consumer judgment. For example, subliminal exposure to strong corporate logos influences the way the brain encodes perceived value, even for options unrelated to the brand, causing an emphasis on short-term benefits over long-term gains.⁶⁷

Over the years, neuro-marketing research practice has continued to build on these methods and has progressively incorporated other diagnostic techniques of neuroscience (e.g. electroencephalogram, functional magnetic resonance, galvanic skin response etc.). Yet, in spite of its popularity with some large commercial companies and continued studies in university workers, enthusiasm for neuromarketing has relatively waned over the past decade. The unique neurological processes involved in activating people's subconscious against certain commercial stimuli are still largely unknown, while the need to find candidates for experiments to be tested neurologically together with clear ethical and privacy issues led many managers and the general

⁶⁴ Samuel M. McClure et al. "Neural correlates of behavioral preference for culturally familiar drinks". In: *Neuron* 44.2 (2004), pp. 379–387.

⁶⁵ Gerald Zaltman. "Rethinking market research: Putting people back in". In: *Journal of Marketing Research* 34.4 (1997), pp. 424–437. In this piece, Zaltman calls upon a shift in research where the study of consumers' behaviors should be ground on the "nature of the phenomena that is studied". In particular, he claimed that consumer thought rest in having an image of its brain, and not by looking at his words, as most communication is non-verbal. Metaphor (i.e. "understanding and experiencing one things in terms of another") is central to human thought and can be used to elicit hidden knowledge. Finally, he holds that "emotions and reasons are equally important and commingle in decision-making". We will return on this later on.

⁶⁶ Sandra Blakeslee. *If you have a 'buy button' in your brain, what pushes it*. New York Times. Oct. 2004. URL: <https://www.nytimes.com/2004/10/19/science/if-your-brain-has-a-buybutton-what-pushes-it.html>.

⁶⁷ Carsten Murawski et al. "Led into temptation? Rewarding brand logos bias the neural encoding of incidental economic decisions". In: *PLOS ONE* 7.3 (2012), e34155.

(aware) public to view these developments with scepticism.⁶⁸

Someone has observed that the practice of neuromarketing is today experiencing a new spring thanks to Big data and artificial intelligence technologies.⁶⁹ Indeed seen, with the increase presence of Big consumer data online and digital capturing devices in the real-life, and powerful computer equipped with image recognition and other analytics technologies, the ability to scale up in the study of consumer emotions has become easier. Today, however, the focus is not so much on the neural manifestations of emotions, but on the physiological and external signs of emotions even before they are processed by the human brain (s.c., bio-feedback).⁷⁰ These signals can be captured at a distance (s.c., remote sensing), analysed and processed in the cloud; a transition recently described by marketing professor Giuliano Noci as "bio-marketing".⁷¹

Market research once required a dialogue, providing consumers an opportunity to consciously shape the ads they watched and the products they bought. Companies guided by remote sensing and bio-feedback now threatens to replace that dialogue and the consent to abiding by neurological experiments. Methods to collect, analyse, interpret, and code consumer responses to stimuli do not attempt to engage the consumer in a dialogue, that is, an exchange of written or spoken information, but are fundamentally based on a unilateral capture and analysis based on activities in labs largely beyond consumers' and society awareness. The availability of Big consumer data and the methods of computational consumers research offer insightful consumer knowledge without consumers awareness.⁷² With proper analytical models connected to sample of psychological assessment, any digital track on the web can become useful to make psychological assessment of people. Even when consumers read companies' privacy statements and fully understand their meaning, they will hardly encounter the clause where it is stated that one of the purposes of the data processing is to study your behavioural

⁶⁸ Monica Diana Bercea Olteanu. "Neuroethics and responsibility in conducting neuromarketing research". In: *Neuroethics* 8.2 (2015), pp. 191–202.

⁶⁹ Paul Root Wolpe. "Neuromarketing and AI – Powerful Together, but Needing Scrutiny". In: *AJOB Neuroscience* 10.2 (2019), pp. 69–70.

⁷⁰ Arabinda Bhandari. "Neuromarketing Trends and Opportunities for Companies". In: *Analyzing the Strategic Role of Neuromarketing and Consumer Neuroscience*. Ed. by Dincer Atli. IGI Global, 2020, pp. 82–103.

⁷¹ Giuliano Noci. *Biomarketing: non solo big data: battito cardiaco, respiro e movimenti oculari per rivelare preferenze e scelte del consumatore*. EGEA, 2018. The author envisions a new human-centred approach to marketing in the world of digital disintermediation. The distinctive features of bio-marketing include: the overcoming of the distinction between the physical and digital space; the data as a new raw material for business; a strict focus on the time variable in the relationship with the consumer; and research based on biometric (body) signals and brain activity with a view to providing authentic interpretations of why an individual displays certain reaction when exposed to a marketing stimulus.

⁷² Mark Bartholomew. *Adcreep: The Case Against Modern Marketing*. Stanford University Press, 2017, p. 118.

online, make psychological assessment on your personality, to better understand how to influence. If anything, there is a general reference to the collection of lifestyle data for "personalization" or "enhance customer's experience". Especially, with remote sensing technologies, technologies that surround consumers and their environments becomes vehicles to gather a wide range of emotional data and bio-feedback. Such data are gathered at distance in time or space from the consumer of interests and analysed in through new analytics technologies stored in companies' servers. Cognitive maps of different subpopulation groups can be created which may facilitate the targeting by marketers,⁷³ assessments and predictions about consumer behaviour based on emotional profile can be made after presented to different stimuli.⁷⁴ The expected value of these enhanced segmentations is based in part on the expectation that "neuroscience data can indicate implicit processes, improve out-of-sample predictions, improve the generalization of models of behaviour, and provide a reliable and process-based approach for segmenting customers"⁷⁵.

The "scalable subject"⁷⁶ is a refinement of the surveillance study notion of the "data double", the digitally articulated person is plastic, perpetually modelled from both within (the company) and without (the peers). With the algorithmic assemblage, the consumer subject is not only plastic but also scalable, it is "legible and shaped at different levels of the self by technical analysis", either cognitive, affective, or emotional. The concept of "scalability" very well explains the very *raison d'être* for algorithmic "empathy". Empathic practices deny consumer self-representation about the products they buy and the ads they see. The problem with emotional appeals is not that machines are capable of recognizing our emotional states in itself. Rather, the point is that they "have" this knowledge beyond our awareness. There is no reciprocity. Not because we cannot perceive their emotions (see next chapter), but because we remain ignorant about ours.⁷⁷ We may be "read" before we have a fair chance to develop our own reflection and response to our own emotional state. In this vein, the infringement our privacy goes deep, until the idea of a cognitive privacy. We still do not have the means, technological and legal, to anticipate how we are being anticipated.

⁷³ Russell A. Poldrack and Tal Yarkoni. "From brain maps to cognitive ontologies: informativity and the search for mental structure". In: *Annual Review of Psychology* 67 (2016), pp. 587–612.

⁷⁴ Dan Ariely and Gregory S. Berns. "Neuromarketing: the hope and hype of neuroimaging in business". In: *Nature reviews neuroscience* 11.4 (2010), pp. 284–292.

⁷⁵ M Venkatesan and K Thangadurai. *History and overview of the recommender systems*. IGI Global, 2017.

⁷⁶ Luke Stark. "Algorithmic psychometrics and the scalable subject". In: *Social Studies of Science* 48.2 (2018), pp. 204–231.

⁷⁷ Selena Nemorin. "Neuromarketing and the "poor in world" consumer: how the animalization of thinking underpins contemporary market research discourses". In: *Consumption Markets & Culture* 20.1 (2017), pp. 59–80.

5.2.2 Mind commodification

By bypassing consumer awareness, the use of data analysis and emotion analytics tools in consumer research tells us something more about how the current industry approaches the study of the mind. Current empathic practices have their roots in the conception of psychology and emotions as observables elaborated in mid-1960s in the work of Paul Ekman. From his earliest papers, Ekman and his colleagues argued that "actions speak louder than words". Even when a person is determined to censor or control his or her emotional communications, Ekman postulated that some types of non-verbal behaviours "escape control and provide leakage."⁷⁸ Ekman's theory proposes that there are at least six emotions common to all humans, and that these emotions are registered in easily recognizable facial expressions, an influential area of research that Ekman has also pioneered. He recognized the potential utility of a "categorical scheme" that reliably traced the effects of expression back to some "basics emotion". The premise is that there is a set of fundamental basics emotions endured in each one of us, which he numerates in six (anger, fear, sadness, enjoyment, disgust and surprise). More complex emotions result from a combination of basic emotions. Following this approach, Ekman is famous for proposing its Facial Action Coding System (FACS), which applied its categorical scheme the "six basic emotions" anchored the wider array of human emotional expressions. FACS and the six-emotion model is still today the dominant paradigm applied in the field of facial recognitions, in much the same way that the OCEAN Big-5 factor model came to dominate studies of personality.

Much of the methodological assumption of Ekman have been appropriated by empathic marketing research in the 1980s and developed in a more nuanced approach. Aaker is often cited for being one of the first to quantitatively studying the relationships between emotions and advertising. He expanded the universal basic emotions account towards a multi-dimension approach taking into consideration two measure: i) valence, i.e., whether the experience is pleasant or unpleasant (e.g. happy or frustrated, or depressed and content), and ii) arousal, which represented the intensity of the experience (e.g. such as excited or calm, or tense or tired).

Taken together valence and arousal provide a two-dimensional axis on which emotional experience can be mapped. Based on such metrics, Aaker et al., conducted a ground-breaking study where he empirically generates a list that represents the full spectrum of feelings likely to be generated by ads, developed this full range ad feeling model with the following characteristics. First, it identifies 31 feeling clusters (16 positive and 15 negative), representing the range of specific feeling response to advertising. Second, it focuses on the less intense feelings rather than the stronger emotions. Third, using a

⁷⁸ Paul Ekman and Wallace V. Friesen. "The Repertoire of Nonverbal Behavior: Categories, Origins, Usage, and Coding". In: *Nonverbal Communication, Interaction, and Gesture*. Ed. by Adam Kendon, Thomas A. Sebeok, and Jean Umiker-Sebeok. De Gruyter Mouton, 1969, pp. 57-106.

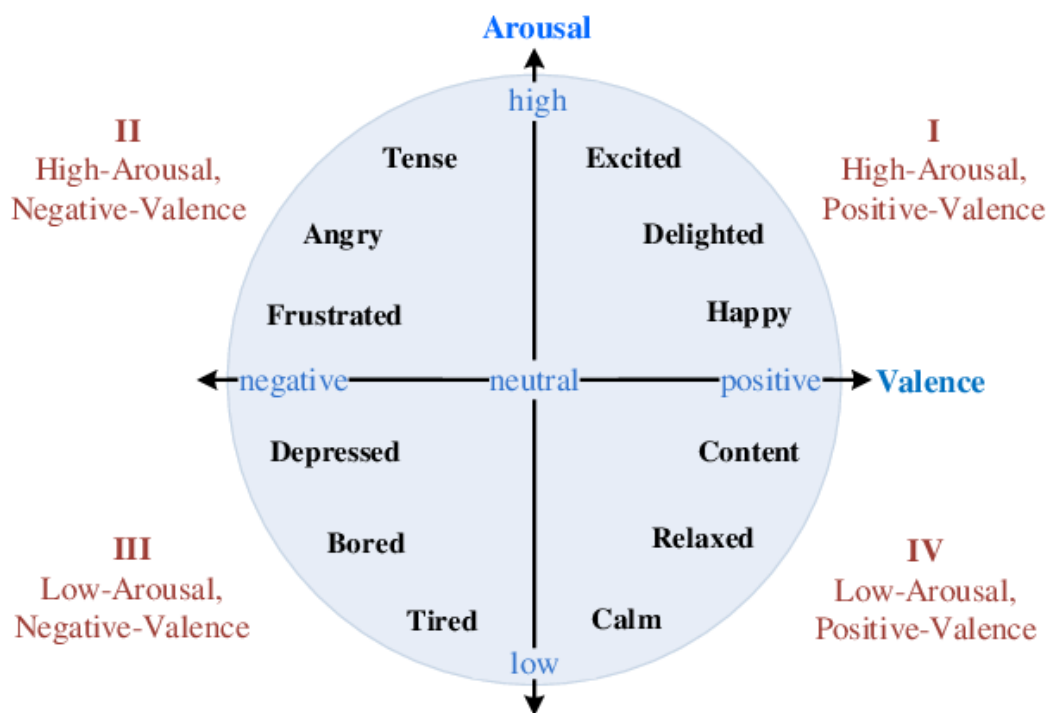


FIGURE 5.1: The valence-arousal matrix

Source: Liang-Chih Yu et al. "Building Chinese affective resources in valence-arousal dimensions". In: *Proceedings of the 2016 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies*. 2016, pp. 540–545.

cluster approach it assumes maximizing differences between emotional clusters.⁷⁹

Positive Feelings	Negative feelings
Playful/Childish	Fear
Friendly	Bad/Sick
Humourous	Confused
Delighted	Indifferent
Interested	Bored
Strong/Confident	Sad
Warm/Tender	Anxious
Relaxed	Anxious
Energetic/Impulsive	Ugly/Stupid
Eager/Excited	Pity/Deceived
Contemplative	Mad
Pride	Dissagreeable
Persuaded/Expectant	Disgusted
Vigorous/Challenged	Irritated
Amazed	Moody/Frustrated
Set/Informed	

TABLE 5.1: Feeling elicited by advertising

Today, empathic business practices build exactly on these the quantifiable approach towards emotional life, in the they imply the measuring, categorisation, and labelling of wide array of emotions and psychological status. Empathic businesses do not employ a mentalistic process in which they are trying to explain the reasons behind certain cognitive status, they only observe, classify, allocate, and if useful, modify their behaviours according to certain measures. Emotions are appraised through neo-behaviourist approach, whereby the machine sense, discern patterns of behaviours, make judgment by means of algorithms and heuristics (e.g., if person A is behaving in X manner, it means that its emotions is Z). Machines do not engage in such question as to whether people feel real emotions or do show some psychological attribute but simply judge their assessment by the effectiveness. The machine converts aspect of life into data and put to work to generate new forms of value through the relevant "emotional metrics" that is commercial significant.⁸⁰

⁷⁹ David A. Aaker, Douglas M. Stayman, and Richard Vezina. "Identifying feelings elicited by advertising". In: *Psychology & Marketing* 5.1 (1988), pp. 1–16.

⁸⁰ David Beer. *Metric power*. Springer, 2016 (The difficulty is how we might go about understanding metrics as affective. The problem is where to start if we want to think about how measurement is felt, how it is embodied, and how it can be seen to be experienced emotionally. Clearly, this produces for us a set of questions and possibilities that stretch far beyond the capacity of this chapter alone. What I would like to do here then is to open up

This approach is in stark contrast with the idea that psychology and emotions are something culturally specific. This approach to emotions has later been more fully elaborated by Lisa Feldman Barrett in her "theory of constructed emotions".⁸¹ She highlights that, while some emotions are universal and are experienced in similar ways as a reaction to similar events across all cultures, other emotions show considerable cultural differences in their antecedent events, the way they are experienced, the reactions they provoke and the way they are perceived by the surrounding society. She highlights differences in emotions between different culture and says that emotions "are not triggered; you create them. They emerge as a combination of the physical properties of your body, a flexible brain that wires itself to whatever environment it develops in, and your culture and upbringing, which provide that environment."⁸² There is no 'stamp' for a particular emotion, so it cannot be said to be the same 'thing' each time it is felt. Accordingly, emotions exist in so far as they are part of the subjective experience of the individuals. Moreover, critics such as Gunes, Schuller and Pantic highlight that categorical approach to emotions obscures the fact that "emotions are generated through continuous, recursive subjective evaluation of both our own internal state and the state of the outside world"⁸³. The categorization of emotions would not pay enough respect to "the changes in all relevant components including cognition, motivation, physiological reactions, motor expressions, and feelings."⁸⁴

While the cultural debate about emotions remains highly debated, someone has highlighted the risk of a universal-categorical approach to emotions, when embedded in AI-powered machines.⁸⁵ For example, it has been observed how emotional analysis technology assigns more negative emotions to people of certain ethnicities than to others. If machines are trained to attribute certain sentiment, psychological status, or emotional states to a certain individual, the risk is denying the cultural and situational aspects that shape the meaning of certain states. For example, a smile after having received a gift might indicate pleasure; a smile in the context of just having spelled soup might indicate embarrassment; and a smile in the context of greeting an adversary might indicate an act of politeness. Also, a smile might

these questions by drawing upon work on affect theory and the sociology of emotions. This conceptual framework can provide us with the beginnings of a toolkit for analysing what I call here affective measures and for understanding how metric power works through the production of uncertainty.")

⁸¹ Lisa Feldman Barrett. *How emotions are made: The secret life of the brain*. Houghton Mifflin Harcourt, 2017.

⁸² *Ibid.*, p. 36.

⁸³ Hatice Gunes and Maja Pantic. "Automatic, dimensional and continuous emotion recognition". In: *International Journal of Synthetic Emotions (IJSE)* 1.1 (2010), pp. 68–99.

⁸⁴ *Ibid.*, p. 69.

⁸⁵ Mark Purdy, John Zealley, and Omaro Maseli. *The Risks of Using AI to Interpret Human Emotions*. Harvard Business Review. Nov. 2019. URL: <https://hbr.org/2019/11/the-risks-of-using-ai-to-interpret-human-emotions>.

mean one thing in Germany and another in China. Confusing these meanings can lead business to make working decisions. Imagine a Chinese tourists needing assistance while visiting a shop in Berlin. If the shop used emotions recognition to prioritize which custom to support, the shop assistants might mistake their smile – a sign of politeness back home – as an indication that they did not require help.

The unconcern over cultural backgrounds of emotional life is evident also in marketing research which is shifting away from interest in macro-concerns about consumers' identity, to micro-level of understanding mapping and influence of its affective components. As noted by McStay, this idea makes part of a path towards the biomedicalization of life mediated by technology and represent a subtle form of "bio-power"⁸⁶, where surveillance on the body and mind are integrated into systems of efficiency and effectiveness that service the purpose of economic efficiency. The objective of this is nothing less than the capacity to control manage, engineer, reshape and modulate the vital capacities of human beings as living creatures. Indeed, as argued by McStay, "it is quite reasonable to assert that empathic media are nothing less than the automation of consumers and industrial psychology"⁸⁷.

5.3 The algorithmic hidden persuaders

The new algorithmic approach towards emotional life open up for new methods of monetization. When the Mad Men of Madison Avenue embarked on the project of studying consumers depth psychology and subliminal tactics, their aim was to convince groups of consumers to perform simple actions such as buying a product. Advertising and labels had to be "convincing with limited arguments and few words"⁸⁸. Here, the primary purpose of advertising was the "creation of a particular way of life"⁸⁹. It was not as important to persuade the individual through rational means; rather, the aim was to implant in the individual a certain way of thinking about life.⁹⁰ In his book, Packard call this new generation of professionals "the hidden persuaders", for their ability to manipulate people into buying by appealing to desires, lifestyle, and fears, over reason. Looking to their practice, he identified eight compelling needs that the hidden persuaders systematically integrated in advertising to generate emotional arousal in consumers and prompt them to buying. These included: emotional security, reassurance of worth, ego gratification, creative outlets, love objects, sense of power, roots and immortality.

⁸⁶ Nikolas Rose. "The politics of life itself". In: *Theory, culture & society* 18.6 (2001), pp. 1–30.

⁸⁷ McStay, *Emotional AI: The rise of empathic media*, pp. 20–21.

⁸⁸ Jacques Ellul, John Wilkinson, and Robert King Merton. *The technological society*. Vintage books, 1964.

⁸⁹ Selena Nemorin and Oscar H. Gandy Jr. "Exploring neuromarketing and its reliance on remote sensing: Social and ethical concerns". In: *International Journal of Communication* 11 (2017), p. 21.

⁹⁰ *Ibid.*, p. 23.

According to Packard, these needs are so strong that people were compelled to buy products in order to merely to satisfy them.

With big data and emotional analysis technologies, the modality of hidden persuasion follows more granular and subtle routes, for which it is worth talking about "algorithmic hidden persuaders".

5.3.1 Personalized appeals

To give a sense of how affective integration is today possible thanks to AI-powered analytics technologies, it is interesting to mention the Star Wars-Volkswagen advertising example offered by McStay. The advertising agency Sand Research Inc. tested an advert for Volkswagen title *The Force*.⁹¹ The advertising features a child dressed as the Darth Vader character who believes that he starts a car with the "force". The commercial clearly utilized a sense of nostalgia (Star Wars nerds, probably everyone!) with empath (a parent's love and care for a child) and arguably humor (a child using the force to start a car!). By combining three different and distinct emotions, the data-driven machines in the empathic lab of Sand Research Inc. predicted high positive reaction engagement on the on a range of population ranging from 35 to 60. The campaign was strategically released in the US during the 2011 Super Bowl, upon receiving great acclamation from the public, was widely shared on online social media, demonstrating records of enjoyment from viewers, which were indeed predicted during the pre-release in house-research. The episode effectively explains the power of AI technologies in helping to test and implanting emotional cues in certain advertising campaign across a broad target of population. However, it does not give a fair portrayal of the granularity with which today algorithmic business can influence consumers.

To the testing the effects of psychological profiling, Matz and Kosinski showed that it is possible to infer users' personality from Facebook Likes and deliver ads that best fit consumers personality to influence their behaviour measures by clicks and conversions.⁹² They extracted lists of Likes indicative of high and low levels of users' extraversion and openness-to-experience from the myPersonality.org database, which contains the Facebook Likes of millions of users alongside their scores on the 100-item International Personality Item Pool questionnaire, a widely validated and used measure of personality. They then computed the average personality trait levels for each Like and selected 10 Likes characterized by the highest and lowest aggregate extraversion and openness scores (i.e., target Likes). For example, the list of introverted target Likes included Stargate and "Computers," while the

⁹¹ Neuroscience Marketing. *Darth Vader Wins Super Bowl*. Post by Roger Dooley. URL: <https://www.neurosciencemarketing.com/blog/articles/darth-vader-wins-super-bowl.htm> (visited on 12/12/2020).

⁹² Sandra C. Matz et al. "Psychological targeting as an effective approach to digital mass persuasion". In: *Proceedings of the national academy of sciences* 114.48 (2017), pp. 12714–12719.

list of extraverted target Likes contained "Making People Laugh" or "Slightly Stoopid". The list of target Likes for low openness included "Farm Town" and "Uncle Kracker," while the list for high openness contained "Walking Life" and "Philosophy". These measures were used to create different sets of advertising tailored the persuasive advertising messages for a UK-based beauty retailer to users that showed a high/low score on extraversion, a personality trait that reflects people that are energetic, talkative sociable and enjoy company, excitement and stimulation. For example, for high score extraversion people, the ad created an ads of a young girl dancing with underlying claim "Dance like no one's watching (but they totally are)", while for low extraversion an ad showing a girl-next-door types doing her makeup in the mirror saying: "Beauty doesn't have to shout". After experimenting each of the audience personality type with the two different ad personality types, they showed that both the number of clicks and conversions were indeed more likely to rise if the ad matched audience personality. The result of the study provided converging evidence that tailoring persuasive appeals to the psychological profiles of large groups of people allowed us to influence their actual behaviours and choices.

Indeed has shown by research on consumer psychology, integrative advertising that match personality traits produces stimulate emotional arousal in the target with the effect of increase the persuasive effect in decision-making.⁹³ For example, such personality-based appeals trigger positive valence because the consumer self-identifies with the message and positively enhances its perception of the brand.⁹⁴ In another study, Wheeler et al. employed the Big-5 traits to vary the message about a video player that was either framed to appeal to consumers scoring high in extraversion (e.g., you'll be the life of the party) or for introverts (e.g., you can enjoy movies without the crowds). When strong arguments were presented, the matched appeal was more effective.⁹⁵ Apparently, the matching effects with personality traits seem to emerge regardless of whether consumers objectively versus subjectively possess them.⁹⁶ In this case, whether or not consumers explicitly acknowledge themselves as high in neuroticism, messages matched to this dimension have increased persuasion. Personalized appeals to social identities also proven to have a strong effect on consumers' decisions. For example, when appeals are framed as particularly advantageous for a specific gender,

⁹³ Jacob D. Teeny et al. "A review and conceptual framework for understanding personalized matching effects in persuasion". In: *Journal of Consumer Psychology* (2020).

⁹⁴ Gaby Odekerken-Schröder, Kristof De Wulf, and Patrick Schumacher. "Strengthening outcomes of retailer-consumer relationships: The dual impact of relationship marketing tactics and consumer personality". In: *Journal of Business Research* 56.3 (2003), pp. 177-190.

⁹⁵ S. Christian Wheeler, Richard E. Petty, and George Y. Bizer. "Self-schema matching and attitude change: Situational and dispositional determinants of message elaboration". In: *Journal of Consumer Research* 31.4 (2005), pp. 787-797.

⁹⁶ Cong Li. "When does web-based personalization really work? The distinction between actual personalization and perceived personalization". In: *Computers in Human Behavior* 54 (2016), pp. 25-33.

those who identify with that gender tend to be more impacted.⁹⁷ Besides personal and social identity, social personalities can contribute to an empathic relationship with the commercial target. As showed by Petty, consumers profiled as "needy for cognition" (i.e., the extent to which people believe they enjoy thinking), can be profitably exploited by advertising which engage in intensive thinking. Other research has observed similar effect in dominance orientation (assertive messages v. diffident message for those low).⁹⁸

The ability to study consumers personality and psychology and elaborate personalized emotional appeals risks masking commercial characters of business-to-consumer communication and bringing the perils of exploit "weaknesses" in a person's character.

5.3.2 Emotional targeting

Even before the popular story of Cambridge Analytics, the online services and advertising company Oath Inc. (a subsidiary of Yahoo! and AOL) released a patent in 2010 called "Emotional Targeting". In the description, one can read:

"Methods and systems are provided for emotional targeting of online users, including targeting of advertisements and content. Techniques are provided in which, based at least in part on online user behavior, a user is classified into one of a set of emotional states. Advertisements or content are targeted to the user based on at least in part on an emotional state of the user, or a forecasted, predicted, or likely emotional state of the user at a particular time or during a particular period of time."⁹⁹

Today, emotional targeting seems to be high on the empathy monetisation agenda of algorithmic business. So Conversioners, a website offering emotional targeting services explains the methodology: "First, you need to investigate and understand what emotional triggers will influence your target audience in the right direction to push them to action. For this you will need to dig down to understand your users' behaviour - what kind of messaging influences them, what your product makes them feel and so on. Then

⁹⁷ Monique A Fleming and Richard E Petty. *Identity and persuasion: An elaboration likelihood approach*. Lawrence Erlbaum Associates Publishers, 2000.

⁹⁸ John T. Cacioppo and Richard E. Petty. "The need for cognition". In: *Journal of Personality and Social Psychology* 42.1 (1982), pp. 116–131.

⁹⁹ Tarun Bhatia and Dipika Bhatia. "Emotional targeting". Google Patents. Sept. 2011. In the description one can read: "Emotional targeting, by contrast, remains a vast, potent, and largely untapped resource on the Web. In dramatically increasing fashion, users are able to express themselves emotionally on the Web. Social networking and real-time interaction provide huge levels of emotionally rich communication. Rich media, including audio and video, provide unprecedented opportunities for users to share their emotions and emotionally charged experiences. Furthermore, if facilitated, tapped, and recognized, direct and indirect online behavioral clues abound regarding users' emotions and emotional patterns."

you can pursue the triggers that you see as the most effective in engaging customers."¹⁰⁰

The capacity to detect emotion in real-time and use it to target commercial messages that fit the emotional states represent another important turning point in empathic practices. In describing their endeavours to target emotions, empathic marketers frequently refer to the work of neurologist Antonio Damasio. Beginning in the mid-1990s, Damasio used neuroscientific research to stress the centrality of emotion to human reasoning and decision making.¹⁰¹ According to Damasio, emotions, and the "somatic markers" they create in the brain, guide our reactions and behaviours. Advertisers have long tried to play on human emotion in their messaging by stimulating cognitive appeals directly via the message, but Damasio changed the narrative by cementing the importance of individual emotions in consumer behaviour. By arguing for the role of emotion in efficient forms of cognition and improved well-being, his work has provided a new impetus for marketers who rely on emotion-based appeals and who might once have been accused of subverting consumers' rational and deliberative faculties.

Over the last twenty years, empathic market research has renewed the interest in consumer behaviour theories on how incidental emotions may affect a variety of consumer responses such as perception, brand choice, information processing, risk taking.¹⁰² The assumption here is different from personalized appeals and integrative emotions, as the emotional appraisal is not elicited by marketers via marketing stimuli, but by the state or environment in which the consumer finds himself in.¹⁰³ Consumers may engage in different situations previous and during consumption (e.g., fighting with parents, watching TV, running to work, navigating on certain webpages etc.) which may lead to different cognitive appraisal of commercial content. Being able to target such consumers during such states may influence subsequent, unrelated decisions.

For example, one aspect across individuals' affective states is the commercial significance of their arousal (i.e., the intensity of one experience, either positive or negative). Researchers have discovered that when are in a

¹⁰⁰ Conversioner, 2020, accessed 12 December 2020, <https://www.conversioner.com/glossary/emotional-targeting>.

¹⁰¹ Antonio R. Damasio. *Descartes' Error: Emotion, Reason, and the Human Brain*, New York, Quill. HarperCollins Publishers Inc., 1994. Damasio presents the "somatic marker hypothesis", a proposed mechanism by which emotions guide (or bias) behavior and decision-making, and positing that rationality requires emotional input. He argues that René Descartes' "error" was the dualist separation of mind and body, rationality and emotion.

¹⁰² See, e.g., Nidhi Agrawal, DaHee Han, and Adam Duhachek. "Emotional agency appraisals influence responses to preference inconsistent information". In: *Organizational Behavior and Human Decision Processes* 120.1 (2013), pp. 87–97. The research brings together the literature on discrete emotions and biased processing of information. Studies provide evidence that incidental emotions differ in their response to preference-inconsistent (vs. preference consistent) information due to their differences in agency appraisals.

¹⁰³ Chethana Achar et al. "What we feel and why we buy: the influence of emotions on consumer decision-making". In: *Current Opinion in Psychology* 10 (2016), pp. 166–170.

state of high level of arousal, they are more likely to respond to containing arousing content (e.g., louder claims, shocking colours) or ads touting exciting rather than relaxing attributes.¹⁰⁴ Also, on consumers experiencing situations of high-arousals, messages promoting products that are commonly linked to intensity situations produce similar outcomes. For example, advertising on energy drinks has a likelihood of higher persuasion on consumers scoring high on positive arousal, while advertising on cigarettes may have positive impact on people with negative valence.¹⁰⁵

Research on emotional valence (i.e., whether the consumer is incidentally experiencing a positive or negative emotional state) also has contributed to understand how emotional targeting can trigger coping behaviours. Researchers agree that consumers which experience a state of positive valence (whether high or low on arousal) and are targeted with messages that stimulate enhanced persuasion. This means that in any case, if a trader can detect that a consumer is in a good mood (e.g., content, happy), it would be more likely to be persuaded. Also, a person in a good mood is more likely to be focusing positively engaged if targeted with content that highlight the positive aspects of making the purchase work better for people in a positive, while the opposite is also true: if consumers are in a bad mood (low valence) are more likely to be persuaded if the message is framed in a way that highlight the negativity of not making a purchase.¹⁰⁶

Because valence itself is a binary dimension (positive-negative), though, targeting the specific emotion elicited by the combination of the person's valence and arousal can produce even more precisely targeted appeals. Whether the person is feeling romantic or fearful, sad or angry, or cheerful or tranquil, targeting messages to specific emotional states can enhance persuasion.¹⁰⁷ For example, if a person is feeling sad, pointing to the sad (rather than angering) consequences that a product could allay could improve the appeal's effectiveness.

Another aspect considered in emotional targeting is the incidental "mind-set" in which a consumer might find herself. For example, it has been showed that using more abnormal (vs. normal) appeals for those in a creative mind-set¹⁰⁸ and using arguments that emphasize competence for those that present

¹⁰⁴ Li Yan et al. "An arousal-based explanation of affect dynamics". In: *European Journal of Marketing* (2016).

¹⁰⁵ Fabrizio Di Muro and Kyle B. Murray. "An arousal regulation explanation of mood effects on consumer choice". In: *Journal of Consumer Research* 39.3 (2012), pp. 574–584.

¹⁰⁶ Duane T. Wegener, Richard E. Petty, and David J. Klein. "Effects of mood on high elaboration attitude change: The mediating role of likelihood judgments". In: *European journal of social psychology* 24.1 (1994), pp. 25–43.

¹⁰⁷ Teeny et al., "A review and conceptual framework for understanding personalized matching effects in persuasion".

¹⁰⁸ Xiaojing Yang et al. "The construal (in) compatibility effect: The moderating role of a creative mind-set". In: *Journal of Consumer Research* 38.4 (2011), pp. 681–696.

a high power mind-set have been shown to increase effectiveness of the advertising.¹⁰⁹ Additionally, using metaphors that match consumers' cognitive representation of the advocated brand (e.g., advertising antidepressants with metaphors that describe depression as "feeling down" for those who cognitively represent depression as "down" vs. "up") can enhance persuasion.¹¹⁰ Feeling of guilt-laden consumers chose a product with unattractive primary feature but attractive secondary feature, but shame lade consumers choice the reverse. This apparently absurd example illustrates the possible combination of how incidental emotions can influence consumer's mindset towards advertising.

Research into how consumers' emotional states can be detected and exploited by advertising is still in its infancy. Nonetheless, given the increasing availability of analytical tools and the large amount of consumer data, this scientific field could be incredibly advanced. Knowledge in psychological research is leading marketers to greater empathy with their consumers, giving them the tools to detect emotional states in real time and influence consumers through targeted messages that strike at people's unconscious aspects. Although emotion and emotion-detection technologies have long been used in market research (thus informing the development of marketing campaigns and products and services), today their expansion beyond laboratory conditions into every day, direct consumer interactions raise the stakes considerably with the potential for real-time detection and personalization.

5.4 Conclusions

If new "empathic connection" means having companies constantly devising methods to modelling and capture consumers psychological and emotional response to increase engagement, one might contend some would rather prefer some sort of alexithymia, or emotional analphabetism, by their business counterparts. No doubt that the ability to provide more emotional engaging content, may indeed increase the overall "customer experience". But when it comes to the core of our economic behaviours and decisions, even if science say we're not, we might still want that companies can still see us as rational human-being and give us the opportunity to lie. This is - we can expect – a reasonable consumer, if asked and properly informed, would face with techniques invasive such as psychological profiling and emotional analytics. Yet, rather than making each consumer's own choice more transparent, one of the central tenets of neuro- and bio-marketing is to communicate commercial meanings in a way that does not trigger the consumer's conscious defences.

¹⁰⁹ David Dubois, Derek D. Rucker, and Adam D. Galinsky. "Dynamics of communicator and audience power: The persuasiveness of competence versus warmth". In: *Journal of Consumer Research* 43.1 (2016), pp. 68–85.

¹¹⁰ Mark J. Landau, Jamie Arndt, and Linda D. Cameron. "Do metaphors in health messages work? Exploring emotional and cognitive factors". In: *Journal of Experimental Social Psychology* 74 (2018), pp. 135–149.

As one expert in the field noted, "We are more vulnerable when we are only vaguely aware that our emotions are being influenced, and most vulnerable when we have no idea at all that our emotions are being influenced." In a historical moment, in which fear and antagonism between peers are spreading, and more and more influential people foment distrust in what is different, it would be wrong to abandon the attention to algorithmic empathy only because the concept has been sold out to generate more consumption.

This is not the first-time cognitive scientists and psychology meet to build relationship with marketers from the early days of the "hidden persuaders". Nevertheless, today, the presence of algorithmic systems that capture, read, interpret, and act upon psychological and emotional consumers insights pose renewed challenges to consumers, both in terms of ubiquity, ephemerality, lack of awareness etc. New empathic practices do not aim to engage with consumers in a subversive dialogue but focuses on capturing emotions and communications outside the consumer's awareness, relying on indiscernible emotional appeals to build brand goodwill. Meanwhile, at the same time that brand goodwill is increasingly built on subconscious stimulation, new developments in trademark law censor activities that threaten to erode this goodwill, including activities that are non-confusing and immaterial to consumer purchasing decisions. Some writers optimistically refer to the latest era of brain discovery as a "neuro-revolution," but in the commercial context, this is a revolution where advertisers are moving forward, and consumers are being left behind.

While psychology as contributed to the advancement of marketing practice and algorithmic design, it has also informed, although belatedly, law making. As of the 1980s, regulators started to incorporate findings of psychology into consumer law. Lawmakers did not stop the penetration of emotional marketing altogether, but clearly set boundaries. For example, lawmakers rushed to stop "subliminal advertising" techniques which seemed more like an attempt to brainwash consumers rather than fair market information practices. These boundaries on the use of psychology in advertising are now being challenged by new emotional and psychological AI techniques based on Big consumer data. Regulators tasked with rooting out "unfair" marketing practices are encouraged not to look this problem as problem of "neural privacy". We have already seen a tendency for consumers to sacrifice their privacy for short-term gain. Emotional privacy may simply become another casualty in a world of inescapable commercial surveillance. As technology capable to monitoring and analysing bio-feedback is increasingly embedded in everyday life devices, the temptation to submit oneself to emotional market research will just not be an option.

Miniaturization allows advertisers to scrutinize emotional response without ever giving the subject a real sense of the scrutiny she might be under by reading privacy policies. The most prominent threat connects with concerns such as autonomy, identity and digital sorting, occurs if we cannot defend ourselves. If we cannot contest the way we are being "read" and steered

and thus if we cannot resist the manipulation of our unconscious emotional states, we may lose the sense of self that is pre-conditional for human autonomy, even before consumer's.

Chapter 6

Human-like interaction

6.1 A new interaction

"Talk to Siri as you would to a person" suggested Apple to the users of its new AI-powered voice assistant Siri in 2011, after it was built into the iPhone operating system. The promotional headline was meant to inspire a sense of ease and familiarity with the personal assistant.¹ Apple assured that everything was ready to bring the new technology into the everyday users' experience: customers just needed to extend their conversational habits to the invisible interlocutor embedded in the phone for everything they once did by touching the screen. Given the swift success of Siri and other AI voice assistants in the following years, Apple's invitation might have worked. In the last five years, the market of AI-powered voice assistants has exponentially grown. In 2013 Microsoft launched Cortana, in 2014 Amazon introduced Alexa, Google followed with Google's Assistant in 2016, while Facebook's M, now discontinued, was launched in 2017. In just a few years, the technology left the confined spaces of smartphones to dwell in all sorts of digital devices and objects, from personal computers to smart speakers, to smartwatches and other wearable, inhabiting both professional and domestic environments.² The new assistants capture voice inputs of their users, elaborate commands through natural language processing, and produce spoken outputs to reply to the users' queries or execute various types of tasks.

Today speaking with intelligent agents does not require physical embodiment and voice but can take place through text. The creation of "chatbots assistants" is another trendy development in today's digital commercial space.³ Google Trends points out that in the last five years the interest in chatbots has led to nineteen times the increase in associated searches. Coupled with the statement that 80% of e-commerce companies either currently use, or plan to

¹ Emily McArthur. "The iPhone Erfahrung". In: *Design, Mediation, and the Posthuman*. Ed. by Dennis M. Weiss, Amy D. Proppen, and Colbey Emerson Reid. Lexington Books, 2014, pp. 113–128.

² Aoife White and Bloomberg. "Siri and Alexa are at the center of the European Union's probe into the 'Internet of things'". en. In: *Fortune* (July 2020). URL: <https://fortune.com/2020/07/16/siri-alexa-voice-assistants-european-union-antitrust-inquiry/>.

³ Stephanie Burns. *How To Use Chatbots To Grow Your Business*. Forbes. 2020. URL: <https://www.forbes.com/sites/stephanieburns/2020/08/05/how-to-use-chatbots-to-grow-your-business/>.

implement chatbots by the end of 2020,⁴ there are elements to believe that chatbots constitute an important area of development in the present and future of digital commerce. Chatbots are computer programs that simulate human languages with the aid of a text-based dialogue systems. Through pre-programmed chat dialogue structures and natural language understanding, companies can communicate with individual consumers in a highly personalized and interactive.⁵ Companies are building chatbot sections or pop-ups windows into both websites and social networks.

From the rise of digital technologies, business have been confronted with a daunting number of communication channels to reach their customers: from direct marketing communication through email, e-commerce websites and app devices, to paid advertising in social networks, podcasts, game applications. The means have been varied, but all in all, they have been largely relied on visual and click-based interactions. The rise of chatbot and voice assistants provide marketers with a new meaningful modality of interaction with customers: real-time automated conversation.⁶ Dialogue has been the go-to way of dealing with customers since the dawn of marketing: buyers would visit shops and they would interact face-to-face with clerks who would assists their requires and suggest products. The code of the skilled salesperson teaches to have a friendly, relevant and empathic conversation with customers and to make the customer feel involved in the buying experience, trying to guess from gestures and words desires, needs, information about socio-cultural background. Today, thanks to new NLP technologies, such a mode of interaction is possible anywhere, 24/7, any time-zone, without human effort, potentially having access to a vast catalogue of information about the individual consumer, without having to rely on intuition or gut feeling. Conversational agents allow to grasp a fine-grained knowledge of customers in their environments, listening to their needs which can now freely expressed by text and voice; when based on machine learning, the systems learn over time how to better adapt to the conversation with the user and constantly improve their response, thus providing increased personalization.⁷

⁴ Digital Marketing Institute. *Chatbots: Will 80% of Companies Really be Using Them By 2020*. 2020. URL: <https://digitalmarketinginstitute.com/blog/chatbots-will-80-of-companies-really-be-using-them-by-2020-chatb>.

⁵ Lauren Kunze. *On Chatbots*. 2016. URL: <https://social.techcrunch.com/2016/02/16/on-chatbots/>.

⁶ Miri Heo and Kyoung Jun Lee. "Chatbot as a new business communication tool: The case of naver talktalk". In: *Business Communication Research and Practice* 1.1 (2018), pp. 41–45; Valerie K Jones. "Voice-activated change: Marketing in the age of artificial intelligence and virtual assistants". In: *Journal of Brand Strategy* 7.3 (2018), pp. 233–245.

⁷ MarTech Series. *5 Predictions About the Future of Conversational Commerce*. Post by Pankaj Malviya. Sept. 2018. URL: <https://martechseries.com/mts-insights/guest-authors/5-predictions-about-the-future-of-conversational-commerce/>.

Someone says that "conversational commerce" will be the future of business-consumer interactions because it is a win-win.⁸ Consumers will have the most complete, efficient and exciting shopping experience possible.⁹ Consumer will no longer have to browse through the many pages of the website and search for the products available, and no longer be frustrated if they do not get timely information about products and cannot proceed with the purchase without great efforts. Thanks to the new conversational skills of chatbot, consumers can now enjoy constant support and precise answers to all kinds of questions they have and be accompanied in their purchasing process with only the effort of typing the relevant keywords. Moreover, the idea of being able to communicate with the brand without having to pick up an electronic device seems to be the ultimate experience in conversational commerce. In marketing parlance, this sees a philosophical shift from interrupting and selling, to serving in-the-moment needs and guiding people to a purchase decision. Consumers want quick answers and real-time help from their assistants in home management, leisure time fulfilment and professional scheduling. For that, voice searches and smart home assistants must be able to live in the background of their "masters'" routine lives, to know them in advance, and serve their needs, possibly even before they materialize in the voice command. Conversational companies will succeed if they are able to imprint their brand in the mind of each consumer through experiential and engaging conversation, working on the uniqueness of the products or services they promote.

In the following pages, we look in more detail at new conversational applications to better understand how the business-consumers relationship develops through these technologies.

6.1.1 Chatbots

Looking at chatbots as a commercial practice means explaining how and for what purposes they are created and integrated into relationships with customers.¹⁰

In order to develop chatbots, today businesses can either develop the code from scratch or pay for third-party service or platforms. Specialized software vendors offer standard packages and integrated features that allow the creation of a chatbot without writing a line of code.¹¹ Otherwise, platforms like

⁸ Sven Tuzovic and Stefanie Paluch. "Conversational commerce – A new era for service business development?" In: *Service Business Development*. Ed. by Manfred Bruhn and Karsten Hadwich. Springer, 2018, pp. 81–100.

⁹ Ultimate.ai. *A Window into The Future of Conversational Commerce*. Post by Kaila Krayewski. Jan. 2020. URL: <https://www.ultimate.ai/blog/customer-experience/conversational-commerce>.

¹⁰ The review is based on the taxonomy provided in Adamopoulou and Moussiades, "An Overview of Chatbot Technology".

¹¹ Dominik Felix, How to Create a Chatbot Without Coding a Single Line, 2016 available at <https://chatbotsmagazine.com/how-to-create-a-chatbot-without-coding-a-single-line-e716840c7245>.

IBM Watson, ManyChat or Google Cloud Dialogflow provides business customers solutions to develop customized chatbot project.

Chatbots applications can be based on rule-based dialogues. These are the most rudimental which allow user navigates through the conversation flow by clicking on pre-defined buttons, menus, carousels and answering questions. In this case, users cannot ask their own questions but can only enter details when the bot asks for it (contact details, details pertaining to the use case and more). The most advanced applications driving current the success of chatbots, however, are those based on natural language processing techniques. NLP allows to build chatbot that can understand the structure of sentences and process information leaving the user free to express themselves as if they were talking to a human persona. The chatbot is able to understand the intent behind the user's question and return the most appropriate answers. NLP techniques, which today are largely based on deep learning, also allow the chatbot to improve over time its ability to understand the language, and thus offer better answers to the user's question.

Besides enabling integration with first-party website or developing chatbot apps which can then be downloaded by customers in app stores, one of the most preferred routes to get chatbots running is to integrate them into social media or instant messaging applications.¹² Customers are reluctant to install new apps and inclined to use services within most common messaging applications to directly connect with the brand. Business can thus create conversational agents directly in the chatbot API provided by companies such as Facebook Messenger, WhatsApp, Telegram or Slack. For example, through the AI-powered computational platform offered in Facebook for developers, marketers can build their own chatbot which is then hosted onto Facebook platform, in the company's profile page, and available for conversation with customers and webpage followers.¹³ When customers converse with the bot, Facebook server sends webhooks to the URL of the business server which automatically respond directly on the Facebook platform. In a quite similar way, WhatsApp API allows business to develop software that runs on encrypted WhatsApp platform to directly converse with customers which have installed WhatsApp Business on their phone.¹⁴

Regardless of their integration, chatbot applications can be developed to manage different aspects of consumer interaction. Most common applications are in after-sales service, where chatbots assists the customer in the management and use of the product purchased and processes requests in case of complaints. Chatbots can be also deployed in the phase prior to the conclusion of a contract during which they may carry out different tasks.

¹² SocialBee, How to integrate Chatbots in your Social Media Marketing Strategy, 2020, available at <https://socialbee.io/chatbots-social-media/>.

¹³ Facebook For Developers, 2020, <https://developers.facebook.com/docs/messenger-platform/>.

¹⁴ WhatsApp, API for Business, 2020, <https://www.whatsapp.com/business/api/?lang=en>.

1. *Product information*: the chatbot provides information about specific products and services offered by the brand, such as details about product's features, stock availability, price and shipping time. Chatbots can be also programmed to deliver alerts and notify regarding available inventory and trigger customers' interests.
2. *Brand information*: these chatbots interact with users with the purpose to give a positive image of the brand, for example by providing information about the company or services that can entertain customers. They can direct client on the first-party webpage to trigger navigation on products or engagement with content.
3. *Selling*: the chatbot can help customers to find the offer that best suits their interest based on text analysis. They can lead a fully-fledged conversation with the customer, providing details over different products, comparing prices, deals, and lead her to the finalization of the contract directly on the dialogue interface. Booking.com, for example, uses a chatbot application integrated into Facebook to help users find apartments based on keywords that stand for location and price range.
4. *Customer profiling and content personalization*: through this category of chatbots, it is possible to profile users and customize content based on their text responses. Every user conversation is recorded, analysed and translated into actionable information that can be used in subsequent interactions with that user in order to suggest the product or service best suited to his interests.
5. *Advertising chatbot*: chatbots can be programmed and used to send sponsored messages to people that previously contacted a company through a chatbot or via live chat support. Facebook Messengers describes this advertising format as "sponsored messages". Chatbot advertising is thus meant to "re-engage" customers and prospects in a conversational way.¹⁵ WhatsApp Business forbids marketing and promotional messages.

Chatbots' conversational capabilities provide companies with a new means to better listen and understand customers, their needs and preferences, and also have a designated platform through which to supply these on demand, in a way that is not only natural in user experience terms, but also strategic, non-cynical, and offering mutual benefit.¹⁶ Chatbot are therefore said to become prerequisite in matching the digital demands of the new age of consumers, and offer companies the benefit of engaging with users in a way that

¹⁵ Evert Van den Broeck, Brahim Zarouali, and Karolien Poels. "Chatbot advertising effectiveness: When does the message get through?" In: *Computers in Human Behavior* 98 (2019), pp. 150–157.

¹⁶ Christian Hildebrand and Anouk Bergner. "AI-Driven Sales Automation: Using Chatbots to Boost Sales". In: *NIM Marketing Intelligence Review* 11.2 (2019), pp. 36–41.

meets expectations, offering enhanced capabilities in 24/7 customer service and personalised cross-selling based on data gathered through interaction as leading advantages.

6.1.2 Voice assistants

Today, Amazon's Alexa, Google's Assistants, Apple's Siri, Microsoft's Cortana, Samsung's Bixby are among the most famous voice assistants.¹⁷ These are in-house AI cloud-based software with natural language understanding capabilities. Each of these virtual assistants powers a wide range of software or hardware products sold by the native company or by third-party producers. For example, Google's Assistants is available in Android OS for mobile phones and smart TV, in Google's smart home assistant Nest (previously Google Home) and in Wear OS, i.e., the operating system of the Google's smartwatch and other wearables. Amazon's Alexa is inbuilt in various Amazon's smart home assistants (e.g., Amazon's Echo, Echo Plus, Echo Dot, Echo Look etc.), in Amazon's Fire Smart TV and tablet.

Each assistant has its own unique features, but the core functions are the same. Each smart device is equipped with audio sensors and microphones and functions as a voice interface connected to the Internet: the user activates the conversation with certain wake words and gives commands to the voice assistant. The sentence uttered are immediately transmitted to the company's central computing systems, which process it in real time and respond to the user through microphones in spoken language.

Although each currently available voice assistant has unique features, they share some similarities and are able to perform the following basic tasks:

1. send and read text messages, make phone calls, and send and read email messages;
2. answer basic informational queries ("What time is it? What's the weather forecast? How many inhabitants are in Florence?");
3. set timers, alarms, and calendar entries;
4. set reminders, make lists, and do basic mathematical calculations;
5. control media playback from connected services such as Amazon, Google Play, iTunes, Pandora, Netflix, and Spotify;
6. place purchase order on online marketplace such as in Amazon for Alexa and Google Shopping for Google's Assistants
7. control Internet-of-Things-enabled devices such as thermostats, lights, alarms, and locks; and
8. tell jokes and stories.

¹⁷ Other known virtual assistant applications are Samsung's Bixby and Huawei's Celia.

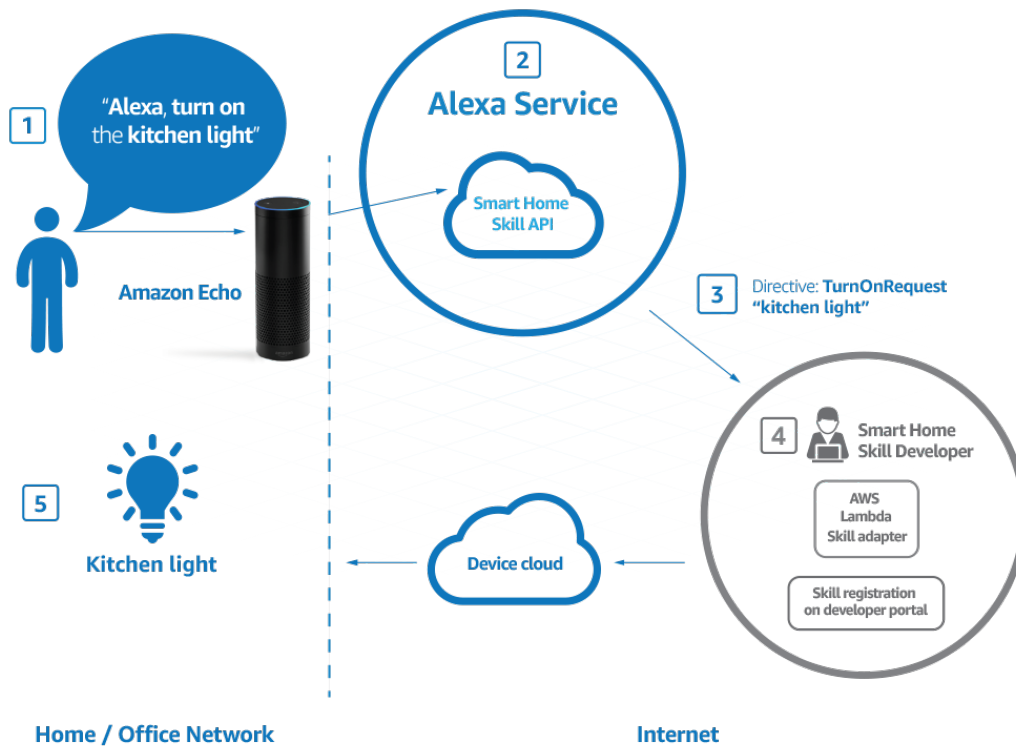


FIGURE 6.1: Amazon's Alexa architecture

Source: *How Amazon Alexa works? Your guide to Natural Language Processing (AI)*. Post by Alexandre Gonfalonieri. 2018 11. URL: <https://towardsdatascience.com/how-amazon-alexa-works-your-guide-to-natural-language-processing-ai-7506004709d3> (visited on 12/12/2020).

In addition to these native tasks, voice assistants can add other features, e.g., called "skills" in Amazon's Alexa and "actions" in Google Assistants, that expand their abilities by interfacing with other programs via voice commands. For instance, in Alexa's app or Amazon's store, users can download Alexa's "skills" related to various categories of services (e.g., styles and trends, food and drink, games and quizzes, movies and TV, utilities, kids, smart home, etc.). By downloading smart home skills, for example, Alexa can interact and control, individually or in groups, several connected third-party home automation devices. Via Amazon Echo, the user can ask to Alexa to activate the skill of the home light bulbs producer and ask to activate the kitchen lights (6.1).

The implications of the emergence of voice-based assistants for marketing are far-reaching, as one operator says:

"Think about it: You likely don't care from where you get the weather when calling out to Alexa, just that you get an accurate report... Furthermore, when you're calling out for Alexa to add milk to your shopping list, she may simply respond confirming

the best options based on price. But when you're using text to Google a question, you are met with pages upon pages of options... This means that brands must now focus on making it easy for consumers to search and shop for products using voice commands. And brands will need to be able to track and understand voice interactions in the same way as other interactions to provide the right experience to the right customer at the right time."¹⁸

Marketing in the age of voice assistants requires a shift in mentality.¹⁹ Smart assistants normally do not have screens and customers cannot longer see their products advertised. Brands are starting to work on conversational strategies to engage with customer through-voice. If companies view smart speakers as a new touchpoint with consumers, they can succeed in engaging consumers within their homes and acquire more insights into preferences and purchase intentions and improve their relationships with customers. Amazon's Echo store, for example, has already over 400 skills for numerous brands, such as Best Buy, Expedia, and Weight Watchers. Skills activations remain under users' control, both because the user must download the app on her device and must explicitly ask the voice assists to connect to that app.²⁰ However, when the conversation starts, marketing initiatives can find their way into conversations in multiple ways (Table 2 – Type of commercial interaction on smart assistants). For example, once the user has asked Alexa to connect with the exercise skill, during the exercise session, the voice assistant can promote a product.

Marketing messages can also be delivered during users' usage of smart in speakers not directly related to product information search. In 2017, a newspaper article reported that while Google publicly declared to not serve third-party ads, at the moment of saying "OK, Google, tell me about my day", the user did not just hear the usual information about the weather and their upcoming appointments. Google capped the message with an oh-so-chill aside: "By the way, Disney's live action 'Beauty and the Beast' opens today." After this emerged in public media, Google said this was not an ad – it was a mere initiative where the company invites its "partners to be our guest and share their tales."²¹ But the ads may not necessarily appear through the digital assistants. A user might ask Google Home for the best hotels in Paris and

¹⁸ K. Cronin, Alexa: How will voice impact my mobile marketing, 2017, <https://martechtoday.com/alexa-will-voice-impact-mobile-marketing-208766>.

¹⁹ Niraj Dawar and Neil Bendle. *Marketing in the Age of Alexa*. Harvard Business Review. May 2018. URL: <https://hbr.org/2018/05/marketing-in-the-age-of-alexa>.

²⁰ Heejun Lee and Chang-Hoan Cho. "Uses and gratifications of smart speakers: modelling the effectiveness of smart speaker advertising". In: *International Journal of Advertising* (2020), pp. 1–22.

²¹ Chris Welch, "Google Home is playing audio ads for Beauty and the Beast", <https://www.theverge.com/circuitbreaker/2017/3/16/14948696/google-home-assistant-advertising-beauty-and-the-beast>.

advertisement for Mandarin Oriental might appear across Google's expanding platform of expanding free services, or other media.

Another way to reach targeted audience through digital assistants is by leveraging "voice search optimisation". Amazon, Google, and Apple give the possibility to pay to become "prime members" and market "product with choice designation, which is given to the top brand in each product group". Just like in any popular search engine, where paid sponsored links are shown at the top of search results, in offering the various options available to the user, the voice assistant produces as results certain brands or communicates certain information in a preferential position. For example, when the user utters a voice search, the digital assistant provides customers with lists of search results based not only on the semantic matching of the command, but also considering websites and brands that have competed for sponsorship. Given the refined knowledge and the ability to channel customers purchases within one channel alone, product placements on voice assistants are said to be the next investable development in search marketing. It is crucial for companies to understand the customized purchasing criteria that the AI assistants apply on behalf of each consumer.

Besides sponsored search filtered contents can be provided also in the form of voice-based recommendations. In this case it is directly the company that develops the voice assistant which, based on the users' behaviour and the wealth of information acquired, offers the individual user a recommended choice.

Type-Explanation	Example of interaction
<p>1. Contextual ads</p> <p>The message is delivered while the user is using the voice assistant for a purpose related to the offer.</p>	<p>User: Hey Roger. Open up the "Gym home exercise" skill!</p> <p>SHA: Ok. "Gym home exercise" is opening. Please let us know which part of the body, arms, legs you would like to exercise.</p> <p>User: Arms!</p> <p>SHA: Start arm exercise course. It takes about 20 min to complete. Do you want me to start?</p> <p>User: Yes!</p> <p>SHA: "Gym home exercise" offers a new dumbbell, "Power dumbbell", you can you it for more effective arm exercise! If you want me to order please say "order", if not please say "next exercise".</p> <p>User: Next!</p>

<p>2. Non-contextual ads</p> <p>The message is delivered while the user is using the voice assistant for a different purpose.</p>	<p>User: Hey Roger. Open up the "Gym home exercise" skill!</p> <p>SHA: Ok. "Gym home exercise" is opening. Please let us know which part of the body, arms, legs you would like to exercise.</p> <p>User: Arms!</p> <p>SHA: Start arm exercise course. It takes about 20 min to complete. Do you want me to start?</p> <p>User: Yes!</p> <p>SHA: The new Vegan Life shop offers lentils soup at a discounted price of 1,99. If you want me to order please say "order", if not please say "next exercise".</p> <p>User: Order!</p>
<p>3. Search Listing</p> <p>The message is delivered as sponsored search result that correspond to user's voice command.</p>	<p>User: Hey Roger. Tell me the nearest Greek restaurant for delivery!</p> <p>SHA: Here are the Greek restaurant for delivery within 5 km. There are 6 restaurant including Zorbas, Mykonos, and Greek Taverna. If you want to place an order, please tell me the name of the store and say "order"</p> <p>SHA: Order Mykonos!</p> <p>User: Yes!</p> <p>SHA: If you want Greek salad, please say "salad order". If you want to order something else, please say "order inquiry"</p> <p>User: Salad order!</p> <p>SHA: Which of the following would you like: Greek Salad classic, Greek salad with green leaves, Greek salad without onions?</p> <p>User: Greek salad classic!</p> <p>SHA: You ordered the Greek Salad classic. The price is 6.99. If you have additional menu items to order, please say "extra menu", if not, please say "order".</p> <p>User: Order!</p> <p>SHA: You order is complete! The user proceeded to purchase following search listing sponsored by the voice assistants.</p>

<p>4. Recommendations</p> <p>The message is delivered as a sponsored recommended result that correspond to user voice command.</p>	<p>User: Hey Roger. Tell me the nearest Greek restaurant for delivery!</p> <p>SHA: Recommend this! Zorbas Greek Restaurant. They are selling Greek salad at a 10% discount. Please say "order" if you want to place an order at that restaurant. If you want to check out another Greek restaurant, say "next."</p> <p>User: Order!</p> <p>SHA: If you want Greek salad, please say "salad order". If you want to order something else, please say "order inquiry"</p> <p>User: Salad order!</p> <p>SHA: Which of the following would you like: Greek Salad classic, Greek salad with green leaves, Greek salad without onions?</p> <p>User: Greek salad classic!</p> <p>SHA: You ordered the Greek Salad classic. The price is 6.39. If you have additional menu items to order, please say "extra menu", if not, please say "order".</p> <p>User: Order!</p> <p>SHA: Your order is complete! The user proceeded to purchase following restaurant recommended by the voice assistants.</p>
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TABLE 6.1: Types of commercial conversational interactions on voice assistants

Amazon and Google want to "establish AI ecosystems" with "widespread device and developer support."²² For example, Amazon Echo is designed to continuously add new capabilities. The Amazon Skill Kit (ASK) and Alexa Voice Services (AVS) enable any developer interested in creating new Echo capabilities (also known as skills) to do so. This helps the ecosystem grow and helps "ensure their virtual assistants stay relevant." If they do, they will gather more and more data about users, becoming more personalized, embedded in daily life, and relevant, and also increasing their ecosystem of connected/compatible products. Brands are slowly integrating in their app developing team, computer scientists that develop voice-based apps that can be integrated into most popular smart speakers. Through apps, companies can respond to the needs and wants of the user.

Each generation of digital assistants is expected to make it even easier for people to have personalized brand experiences without having any actual direct human interaction. By 2020, the digital disruption associated with AI

²² FastCompany. *It's On! 2017 Is The Year The Virtual Assistant Wars Get Real*. Post by Jared Newman. Dec. 2016. URL: <https://www.fastcompany.com/3066831/its-on-2017-is-the-year-the-virtual-assistant-wars-get-real?> (visited on 08/11/2020).

is expected to enable the average person to have more conversations with digital assistants and other AI applications than with their immediate family²³ Consumer awareness of the smart home assistants is increasing in EU as Amazon and Google expand the reach of their virtual assistant offerings. Forrester research forecast that by 2024, 57.5 million of households in the UK, Germany, France, Italy, and Spain will use smart speakers. Currently, 20% of Google searches are done through voice commands. The percentage is that to grow to 50% by 2020.²⁴

6.2 Interface effect

The focus of academic literature on smart devices has been largely devoted for their status as consumers products and new source of information. In this respect, it is often observed that new assistants build the new "buyer power" allowing consumers to access the desired information and products through a single channel through an easy and immediate experience.²⁵ Consumers delegate tasks to their chatbot or virtual assistants and by willing to lose part of their autonomy, gain in greater efficiency for smoother information acquisition, product purchasing and home management, and more pleasant experiences.²⁶ However, together with the status of "assistants", there is an increased appraisal of these new instruments as marketing tools and "communication channels"²⁷. Behind the relationship between the user and her assistant,²⁸ the new digital devices are gateways to cloud-based information and resources administered by private companies, which provide the possibility for companies to market their products through proprietary and third-party voice-apps, to be listed for sponsored search, and to be selected for recommended contents. Besides enabling easier access to information and streamline the process towards consumption, e-commerce chatbots similarly constitute a new method to communicate the brand with consumers, establish social connection, activate behaviour change, and lead clients towards the purchase decisions.

As in Chapter 4, it is again useful here to refer to the concept of interface, with the distinction that here the interface is no longer visual and based on the arrangement of information on a screen but based on natural language

²³ Cognizant, *The Coming Intelligent Digital Assistants Era and Its Impact on Online Platforms*, 2017, available at <https://www.forrester.com/report/By+2024+575+Million+EU5+Households+Will+Have+Smart+Speakers/-/E-RES158859>.

²⁴ Marketing Charts. *As Smart Speaker Usage Grows, Voice Increasingly Replaces Swiping and Typing*. 2017. URL: <https://www.marketingcharts.com/digital/non-mobile-connected-devices-81361>.

²⁵ Gal and Elkin-Koren, "Algorithmic Consumers".

²⁶ *Ibid.*, p. 323.

²⁷ Shanyang Zhao. "Humanoid social robots as a medium of communication". In: *New Media & Society* 8.3 (2006), pp. 401–419.

²⁸ The assistant is often a "she" (!). See below.

conversations via written or spoken language. Following Galloway's *Interface effect*, interfaces shall not be considered as things, but as relations mediated by objects.²⁹ The conceptual move departs from an object-centred approach, for which objects are technological extensions of the human life, and look as chatbot and virtual assistants as new practices of mediation afford by autonomous conversational agents. Following this approach, the focus shift from the object to the interfaced processes that takes place between the trader mediated by the object and the consumers. Under this light, the new digital tools highlight two fundamental aspects that characterize the relationship between business and consumer in the algorithmic business, which need some additional consideration.

6.2.1 Entering the home

The interface effect powered by voice assistants is more relevant than ever when it comes to the different array of smart objects through which brands can today interact with customers. What is significant about these interfaces is that they are positioned to be the gateway to one of the most resourceful pool of consumers' information: the home.³⁰

While the market of smart home devices is growing and is not limited to voice assistants, IoT can help in reducing the consumption of resources associated to homes, as well as improving the satisfaction level of the people living in them. Benefits of using IoT in homes can lead to reduced operational expenditures and carbon footprints. Yet, to provide comprehensive consumers assistance in the management of the home, IoT applications make use of aural and visual sensors which monitor an extensive array of information about consumers behaviours, attitudes, lifestyle.³¹ Virtual assistant and other smart objects need to process and exchange a large amount of data with another smart object. Voice assistants' providers that offer IoT networks infrastructure allow third-party smart product manufacturers to connect to the APIs and access a wide array of analytics tools to study consumers' data collected from home environments, to detect consumption patterns, and resources management. For example, Google Cloud for IoT solutions is a platform that allows third-party business to connect, store, and analyse data in the cloud. Using those data, marketers can assess connected products' quality, behaviour and improve service feedback, and better understand trends in products usage and fulfilling unmet consumers' desire. At the same time, "smart home analytics" can provide marketers with previously unobtainable

²⁹ Alexander R. Galloway. *The interface effect*. Polity, 2012.

³⁰ Jones, "Voice-activated change: Marketing in the age of artificial intelligence and virtual assistants".

³¹ Daniele Miorandi et al. "Internet of things: Vision, applications and research challenges". In: *Ad hoc networks* 10.7 (2012), pp. 1497–1516.

information about how consumers interact with devices and products, understand consumption patterns and trends, and develop new personalized strategies based on single smart home information.

For example, in a famous 2017 case brought before the Federal Trade Commission against the Television manufacturer Vizio, it was alleged that the company continuously tracked whether consumer where watching TV programme. Over then million Vizio television transmitted information about what the viewer was watching "on a second-by-second basis". Vizio was selling the consumer's television viewing history to third party. One purpose for the viewing data was to analyse advertising effectiveness. With the Vizio TV data, third parties could analyse a household's behavior across devices, for example, "(a) whether a consumer has visited a particular website following a television advertisement related to that website, or (b) whether a consumer has viewed a particular television program following exposure to an online advertisement for that program."³² Another purpose for the viewing data was to better target the household members on their other digital devices.

An incredible amount of data that connected objects generate is already available to all industry advertising partners.³³ There is a peculiar aspect in IoT advertising: marketers no longer target customer, but the smart object.³⁴ Objects are now new "touchpoint" to reach consumers. An IoT washing machine manufacturer is the "new media", which upon tracking washing load information from a load sensor in the machine entered by the customer, may sell the information to IoT advertisers, that are those businesses interested in reaching IoT products to sponsor their products (in this case, a producer of detergents). Advertising exchanges could be done virtually with any smart products.³⁵ For example, food retailers can connect to smart refrigerators to advertise their product, energy suppliers interested in placing price discounts on energy supply directly on smart grids. The management of the variety of smart devices and possible categories of smart products are leading to the emergence of IoT advertising networks, where new IoT intermediaries coordinate demand and supply of targeted communications.³⁶ Smart assistants device's companies such as Google and Amazon are best positioned

³² **noauthor_smart_nodate-1.**

³³ Victor Luckerson. *Google Wants to Put Ads in Your Refrigerator* | Time. Time. 2014. URL: <https://time.com/107593/google-ads-nest-refrigerator-internet-of-things/> (visited on 12/09/2020) (noting Google's expectation "that users will be using [its] services and viewing [its] ads on an increasingly wide diversity of devices in the future, and thus [its] advertising systems are becoming increasingly device-agnostic"). See also Lothar Determann and Bruce Perens. "Open cars". In: *Berkeley Technology Law Journal* 32.2 (2017), pp. 915–988 (describing "behavioral data" that smart car developers "can monetize for advertising and other purposes").

³⁴ Hidayet Aksu et al. "Advertising in the IoT era: Vision and challenges". In: *IEEE Communications Magazine* 56.11 (2018), pp. 138–144.

³⁵ Maschable. *Samsung Smart Fridge Dishes Up Recipe Ideas and Coupons*. Post by Andrea Smith. 2013. URL: <https://mashable.com/2013/01/12/samsung-smart-fridge-recipes/?europe=true>.

³⁶ QuanticMind. *IoT is Changing Advertising: Here's How to Get in the Game*. Nov. 2018. URL: <https://quanticmind.com/blog/iot-changing-advertising/>.

to play this role, but other operator may emerge, which will aggregate visual and aural data, profile smart objects based on typology and consumption patterns or needs and provide the infrastructure to dispatch ads, such as the "more traditional" online advertising networks.³⁷ For example new sophisticated media agency may emerge that provide assistance with specification for supported browser, responsible design characteristics, or supported scripts for interactive features that have to be agree upon between the agency and the IoT device manufactured. For example, media agency may have to specify the form, place and frequency of smart TV spots, the time of the day where to reach consumer.

IoT devices also extend to the body: an extensive array of smart wearable is emerging including smartwatches, fitness tracker, smart clothing, smart jewellery. For example, Samsung has filed a patent for smart shirts capable of diagnosing respiratory disease and smart shows that monitor running steps.³⁸ Among the many smart clothes, consumers can purchase Siren Socks (smart socks that can detect developing foot ulcers), Nadi X smart pants by Wearable X (yoga pants that vibrate to improve form during yoga exercises), and Naviano smart swimsuits that provide alerts when the user should apply sunscreen.

Through new plethora bodily-connected smart devices, data about GPS-based location, skin-conductance, heart rate, or more advanced brain activities, can be collected and similarly exchanged within "wearable advertising networks". As see in the previous chapter, these devices allow their manufacturers to remote control users' activities and potentially engage them with emotional triggers in real time. An example in the field of health and fitness devices are different performance awards granted immediately after a bike ride linked to the advertiser's brand. Context awareness can also be used to communicate the benefits of a product or service. For example, the smartwatch Fitbit can propose a certain nutrition supplement linked to the morning run when the consumer enters a grocery store. Due to the increase in the advertiser's information about the consumer's actual context, algorithmic businesses can strongly reduce the amount of inappropriate messages with regards to content as well as location and time where it is offered.

6.2.2 The power of human

In the previous chapter, we looked at how cognitive and sensing capacities of machines, including wearables and voice assistants, are enabling new forms of empathic relationships, allowing brands to make inferences about

³⁷ Kristina Irion. "Your digital home is no longer your castle: how cloud computing transforms the (legal) relationship between individuals and their personal records". In: *International Journal of Law and Information Technology* 23.4 (2015), pp. 348–371.

³⁸ Cathy Russey. *Samsung Smart Shirt Can Detect Lung Disease | Wearable Technologies*. en-US. Feb. 2019. URL: <https://www.wearable-technologies.com/2019/02/samsung-might-launch-a-sensor-covered-smart-shirt-that-detects-breathing-problem-and-lung-disease/> (visited on 12/31/2020).

emotional-loaded signals from the consumer. In conversational commerce applications, however, empathy seems to have an additional meaning. It is not only about the company's ability to acquire and use information about the psychology or emotions of consumers through the algorithmic apparatus. It also concerns the design of the digital medium in order to instil a sense of human in its interlocutor. Consumers may feel frustrated by the anonymity, remoteness and coldness of new digital transactions. So companies are encouraged to embrace human-like skills when deploying their products or voice-apps for responding to consumers' need for meaningful social interactions with their smart objects.³⁹ The "customer journey on the internet of things" must be as social as possible.⁴⁰

For example, companies in the customer robotics market seem quite transparent about their reasons for infusing a sense of the human in their products to make the consumer experience more pleasant and emotionally-engaging. For example, Jibo.inc.'s website details the design processes underpinning his cute appearance, explaining how the team of designers drew from Disney animation principles create his look and personality.⁴¹ As Breazeal and Foerst have articulated: "for our purposes as robot designers, it seems reasonable [to] construct a robot with an infant-like appearance, which could encourage people [to] switch on their baby-scheme and treat it as a cute creature in need of protection and care"⁴².

To instil a sense of human in personal assistants it is not necessary to act on the physical design. Amazon Echo, integrating Alexa, for example, is a cylindrical box with the shape of a speaker which does not evoke anything human in its appearance. Anthropomorphic physical cues seem not to be the preferred route also by Google. This is the underlying message of Danielle Krettek, former Empathy Lab of Google, when she observed that Big tech "is chasing a false grail if it thinks creating 'humanoids' is the best way forward for humanity..."⁴³. In her words, Google should spend its empathic efforts in designing empathic "products, not presences". Inspired by competitor's offer, she said: "Alexa is meant to be like the family dog in the room along

³⁹ Boldly. *How a Virtual Assistant Can Rock Your Online Engagement*. Post by Sandra Lewis. 2014. URL: <https://boldly.com/blog/how-a-virtual-assistant-can-rock-your-online-engagement/>; O'Brien, *Customers Demand Personalization — However They Define It*.

⁴⁰ Thomas P. Novak and Donna L. Hoffman. "Relationship journeys in the internet of things: a new framework for understanding interactions between consumers and smart objects". In: *Journal of the Academy of Marketing Science* 47.2 (2019), pp. 216–237; Luigi Atzori, Antonio Iera, and Giacomo Morabito. "From "Smart Objects" to "Social Objects": The Next Evolutionary Step of the Internet of Things". In: *Communications Magazine, IEEE* 52 (2014), pp. 97–105.

⁴¹ Robotics Business Review. *11 Principles of Animation Bring Jibo to Life*. 2015. URL: https://www.roboticsbusinessreview.com/rbr/11_principles_of_animation_bring_jibo_to_life/ (visited on 12/23/2020). See on the description of Jibo on the Jibo.inc company website at <https://jibo.com/2015/07/15/jibo-the-worlds-first-living-character-property/>.

⁴² Catherine Caudwell and Cherie Lacey. "What do home robots want? The ambivalent power of cuteness in robotic relationships". In: *Convergence* 26.4 (2019), pp. 956–968.

⁴³ Elly Strang, Google Empathy Lab founder Danielle Krettek on why it's time for businesses to reflect humanity and match their EQ to their IQ, 2018, available at <https://www.linkedin.com/pulse/google-empathy-lab-founder-danielle-krettek-why-its-time-elly-strang/>.

for the ride, supporting people's most human moments". Empathy from a machine is not actually possible, Krettek said, but her hope is that assistants can someday achieve a kind of "empathic leap" whereby an assistant with intelligence and a personality created by the Google Assistant team achieves a connection that makes it feel more like a co-pilot at your side. It may not be human, but it would be closer to you and more understanding than a sterile robot. The world's biggest companies are on a quest to make their artificial intelligence assistants empathise with the human condition, from Google's AI assistant, to Apple's Siri, to Microsoft's Cortana. But the woman at forefront of Google's Empathy Lab, Nike and Apple design alumni Danielle Krettek, does not want to give AI a literal human face. There are other avenues to generate empathy in consumers.

The research on empathic leap in virtual assistants is today mostly focused on conversational cues based on voice. For example, today Amazon offers its business partners new Alexa's capabilities that "can help create a more natural intuitive voice experience for [their] customers"⁴⁴. Thanks to neural text-to-speech technologies, business can have Alexa respond in a happy/excited tone when a customer answers a trivial question correctly or wins a game. Similarly, Alexa can respond in a disappointed/empathic tone when a customer asks for the sports score and their favourite team has lost. Also, Alexa is not built in with new human-like "idiosyncrasies" such as pausing for emphasis, taking a breath, and changing her pitch.⁴⁵ In the 2018 Google launched the extension of Google Assistants, Google Duplex, that is now able to make restaurant reservation and calling the cinema to pay for a movie ticket mimicking completely female human voice. As shown in the famous 2018 keynote by CEO Sundar Pichai, Duplex speaks in a more natural-paced tone and language by incorporating speech disfluencies such as filler words like "hmm" and "uh" and using common phrases or slang such as "mhm" and "gotcha", along with more human-like intonation and response latency. Mimicking human voice is said to enhance user perception of the assistants and feel more connected to the assistants.

Besides human-likeness in voices, other conversational cues can be embedded in conversation agents.⁴⁶ For example, voice assistants are programmed to choose kind words to instil a sense of politeness in the interaction. Alexa now includes "a 'frustration mode'" that detect when the user is frustrated because Alexa got the command wrong, after which she is designed to apologize. Other social cues regard cultural status and regions: messages are said

⁴⁴ TechCrunch. *Amazon launches Amazon AI to bring its machine learning smarts to developers*. Post by Frederic Lardinois. 2016. URL: <https://social.techcrunch.com/2016/11/30/amazon-launches-amazon-ai-to-bring-its-machine-learning-smarts-to-developers/> (visited on 08/11/2020).

⁴⁵ Peon, L. (2017). Voice technology demands to be heard. Campaign. Retrieved January 14, 2018, from <https://www.campaignlive.co.uk/article/voice-technology-demands-heard/1438482>.

⁴⁶ Jasper Feine et al. "A taxonomy of social cues for conversational agents". In: *International Journal of Human-Computer Studies* 132 (2019), pp. 138–161.

to be more palatable coming from a personal assistant if the voice is adapted to different dialects and accents. For example if you're an English speaker you can have Alexa speaking in the accents of the US, UK, India, and Australia. Business are also experimenting different voice strategies to make their virtual assistants' messages more appealing depending on the smart assistant's user.⁴⁷ In September 2019, Amazon's announced new improvements to Alexa's voice that now include new celebrity guest voice skill featuring Samuel L. Jackson's voice. The Hollywood star's voice is no longer based on pre-recorded phrases, but it flows naturally from any users' requests: users can, now, directly talk with *Pulp Fiction's* Jules or *Star Wars's* Mace Windu asking him to tell a story, to set the alarm, to ask for the restaurant in the nearby. Amazon is also promising that more celebrities will arrive next year, too.⁴⁸ Some already say that the s.c. "match-up hypothesis" will be the rule: conversation on smart speakers will be delivered not just the personal assistant but by real people. A scenario may arise where Adidas may develop a voice-app where Roger Federer directly speaks to their customers suggesting a pair of new tennis shoes; Starbucks may install a new skill where it provides coupons through the voice of Kim Kardashian etc. and everyone will be able to talk with its own preferred celebrities. The development of emotional bonds between consumers and digital assistants also leverages identity cues. Some will remember Samantha, Theodore Trombley's voice assistance in Spike Jonze's film *Her*. Who would not want to have a voice assistant at their service (and at the service of 1000 other users) and imagine that a Scarlett Johansson is at your service? The corporate culture of personal assistants represents the voice as a character or an individual person with varying degree of "humanness" (Alexa, Cortana, Siri, Google Assistants) that, although not human, can be imagined and interacted as such.

While no one would be persuaded of the actual human nature of virtual assistants, the question has emerged regarding chatbots. As chatbots are more and more capable to pose as humans, consumers may be led to believe that across the interface there is a human being talking with them. New strategic questions arise for companies which have to decide whether or to what degrees reveal the non-human identity of their chatbots.⁴⁹ While identity disclosure seems to be the intuitive approach as it promotes transparency and business ethics, there seems to be an exciting field of application

⁴⁷ Katherine Taken Smith. "Marketing via smart speakers: what should Alexa say?" In: *Journal of Strategic Marketing* 28.4 (2020), pp. 350–365.

⁴⁸ Chaim Gartenberg. *All the new features coming to Alexa, including a new voice, frustration mode, and Samuel L. Jackson*. The Verge. Sept. 2019. URL: <https://www.theverge.com/2019/9/25/20883751/amazon-alexa-voice-languages-natural-bi-lingual-frustration-support-new-features>.

⁴⁹ Xueming Luo et al. "Frontiers: Machines vs. humans: The impact of artificial intelligence chatbot disclosure on customer purchases". In: *Marketing Science* 38.6 (2019), pp. 937–947.

in the development of human-like personalities that can be perceived as human as possible.⁵⁰ This is, for example, what the Polish company Lekta does. Working with psychologists, they employ OCEAN model is used to parametrize the characteristics of the bot. For example, a low-scoring extraversion chatbot will engage Sara, being a returning customer on the website, saying "Good morning Sara. What can I do for you today?". A chatbot high-scoring on extraversion will start "Hiya, we haven't talk for ages – good to hear you. What can I do for you today"⁵¹. Google also has approached the question not merely building personality, but an entire persona, with identity, storytelling capabilities, childhood memories, and even vulnerability. In 2018, Google recruited a team of creative writers from Pixar, the Onion and elsewhere to help develop early versions of the Google Assistant. Capital One put a former film-maker in charge of building the character behind Eno, its virtual banking assistant.

6.3 Consumers to the test of algorithmic companionship

So far, the buzz is that consumers are satisfied with their new enhanced capabilities provided by conversational devices. Nevertheless, when considering together the social capabilities and intrusive features of these new smart products and connected marketing efforts, critical questions emerge that affect how consumers build trust in these technologies. The relatively separate literature on human-computer interactions and IoT privacy suggests an interesting interplay between the technological invasion of physical privacy and anthropomorphism, which deserve some mention in this last section.

6.3.1 Algorithmic social persuasion

Marketing is no new to exploit anthropomorphic design pattern for products and has long engaged in studies of the psychological consequences for consumers in using with anthropomorphic products.⁵² Anthropomorphic versions of consumer products have, for example, been shown to elicit greater moral care from consumers and greater trust in non-human technological

⁵⁰ Bernard Marr. *Why AI And Chatbots Need Personality*. Forbes. Aug. 2019. URL: <https://www.forbes.com/sites/bernardmarr/2019/08/02/why-ai-and-chatbots-need-personality/>.

⁵¹ Lekta AI. *Lekta's Guide to Bot Design: Part 2, Chatbot Personality* | by Lekta AI | Medium. Mar. 2020. URL: https://medium.com/@Lekta_AI/lektas-guide-to-bot-design-part-2-chatbot-personality-abc3757219f5 (visited on 12/23/2020).

⁵² Clinton D. Lanier Jr, C. Scott Rader, and Aubrey R. Fowler III. "Anthropomorphism, marketing relationships, and consumption worth in the Toy Story trilogy¹". In: *Journal of Marketing Management* 29.1-2 (2013), pp. 26–47.

products such as vehicles.⁵³ Additionally, the literature has revealed that consumers develop greater trust in anthropomorphized products by establishing an emotional relationship to non-human agents.⁵⁴

Scholars have also explained that anthropomorphism is rooted in sociality motivation, which describes humans' fundamental need for social approval, social connectedness, and social contact with other humans and with non-human agents.

Today, conversational technologies represent a new interesting nexus between anthropomorphic marketing and computer-mediated interaction. Following to the paradigm of "computers are social actors" (CASA) developed within the field of persuasive technologies, a growing stream of research is highlighting how the design of human-like features in conversational commerce can stimulate consumers response and increase the likelihood of persuasion. For example, some scholars from the emerging field of "cute studies" have argued that anthropomorphism has become one of the most pervasive aesthetics design principle of consumers digital goods. Dale explains that "cute objects" can help alleviate feelings of loneliness and isolation by causing comforting and childish emotional states.⁵⁵ Neurologists have confirmed that interactions with anthropomorphic objects release dopamine into the brain and activate the same neurological pathways as gambling, cocaine and sex.⁵⁶ This short-term "hit", based on the reward provided by cuteness, was further linked to indulgent consumption and impulsive spending.⁵⁷

Other studies reinforce these findings indicating that anthropomorphic cues can affect consumers psychology also when agents are disembodied. In chatbot interactions, research have showed that attaching a photo of real person in conversational dialogue system, might increase acceptance of the interaction and trigger coping behaviours, especially if present some degree of similarity in the outlook.⁵⁸ Another research has showed that chatbot that self-disclose information about enhance perception of anthropomorphism

⁵³ Pankaj Aggarwal and Ann L. McGill. "Is That Car Smiling at Me? Schema Congruity as a Basis for Evaluating Anthropomorphized Products". In: *Journal of Consumer Research* 34.4 (2007), pp. 468–479.

⁵⁴ Maferima Touré-Tillery and Ann L. McGill. "Who or what to believe: Trust and the differential persuasiveness of human and anthropomorphized messengers". In: *Journal of Marketing* 79.4 (2015), pp. 94–110.

⁵⁵ Aggarwal and McGill, "Is That Car Smiling at Me? Schema Congruity as a Basis for Evaluating Anthropomorphized Products".

⁵⁶ Sianne Ngai. *Our Aesthetic Categories: Zany, Cute, Interesting*. Harvard University Press, 2015.

⁵⁷ Nadia de Vries. "Under the yolk of consumption: Re-envisioning the cute as consumable". In: *The Aesthetics and Affects of Cuteness*. Ed. by Joshua Paul Dale et al. Routledge, 2016, pp. 263–283.

⁵⁸ Theo Araujo. "Living up to the chatbot hype: The influence of anthropomorphic design cues and communicative agency framing on conversational agent and company perceptions". In: *Computers in Human Behavior* 85 (2018), pp. 183–189.

and lower privacy concerns of customers, thus facilitate disclosure of personal information.⁵⁹ Conversations with chatbot have also proven to increase customers' enjoyment and facilitate product recommendation adherence.⁶⁰

Similarly, when dealing voice-based cues, Wagner and Schramm-Klein have showed how consumer can be more easily persuaded if the voice assistant shows socially adapted behaviour and embodies a certain role, as well as through the implementation of personality, independence and interaction.⁶¹ In addition, a study show that users are more likely to be persuaded if the voice is tuned to linguistic and cultural features of its listeners. Similarly, the same study points to the fact that virtual assistants are more persuasive when their voice traits match personality traits of the interlocutor. If a person is confident and extroverted, a conversational agent can then be programmed with strong voice always replying, with a high degree of confidence to be perceived as dominant.⁶²

At the same time, cognitive psychologists have emphasized the importance of category-based perceptions activated by identity cues assigned to individuals or objects, arguing that individuals tend to use major attributes attached to labels in order to minimize cognitive effort when making judgments or in forming impressions of others.⁶³ Such labels, then, evoke certain stereotypes or perceptions from one's schema, allowing one to make heuristic judgments based on available cues. Studies have indeed revealed that giving human name to smart home assistants or bot may evoke particular heuristic called "helper heuristic"⁶⁴. By adopting a human name may influence trust and credibility and even give users the feeling that they are privileged in an otherwise technology-centred medium. Generally, the character is that of a woman ("Siri", "Alexa", "Cortana"), which, as pointed out by some authors, it dramatically exploits the stereotyped vision of a mother, janitor, housewives serving the man.⁶⁵ Research on human-computer interaction has highlighted that customers engaging with chatbot are more willing to disclose personal information, especially if the chatbot discloses (fictional) information about

⁵⁹ Carolin Ischen et al. "Privacy concerns in chatbot interactions". In: *International Workshop on Chatbot Research and Design*. Springer, 2019, pp. 34–48.

⁶⁰ Carolin Ischen et al. "'I Am Here to Assist You Today': The Role of Entity, Interactivity and Experiential Perceptions in Chatbot Persuasion". In: *Journal of Broadcasting & Electronic Media* (2020), pp. 1–25.

⁶¹ Katja Wagner and Hanna Schramm-Klein. "Alexa, Are You Human? Investigating Anthropomorphism of Digital Voice Assistants—A Qualitative Approach". In: *ICIS 2019 Proceedings*. 2019.

⁶² Julia Cambre and Chinmay Kulkarni. "One Voice Fits All? Social Implications and Research Challenges of Designing Voices for Smart Devices". In: *Proceedings of the ACM on Human-Computer Interaction* 3 (2019), pp. 1–19.

⁶³ Gail D. Heyman and Susan A. Gelman. "The use of trait labels in making psychological inferences". In: *Child development* 70.3 (1999), pp. 604–619.

⁶⁴ Hilde AM Voorveld and Theo Araujo. "How Social Cues in Virtual Assistants Influence Concerns and Persuasion: The Role of Voice and a Human Name". In: *Cyberpsychology, Behavior, and Social Networking* 23.10 (2020), pp. 689–696.

⁶⁵ Heather Suzanne Woods. "Asking more of Siri and Alexa: feminine persona in service of surveillance capitalism". In: *Critical Studies in Media Communication* 35.4 (2018), pp. 334–349.

them. For example, people are found to provide more high-quality self-disclosure data when using chatbots than through web surveys.

The persuasive dynamics of conversational agents in commerce is acknowledged in one of the research propositions by recent studies on impact on decision-making: they argue that AI-powered virtual assistants increase consumer susceptibility to seller influence compared to traditional online purchase environments.⁶⁶ Emily MacArthur has pointed out that a tool such as Siri "restores a sense of authenticity to the realm of Web search, making it more like a conversation between humans than an interaction with a computer". One wonders, however, if such a "sense of authenticity" is a way for AI voice assistants to appear at the service of the users, to make us forget that they also service the companies that developed them and the intricate network of commercial interests behind them. In spite of their imagined personae, "Alexa," "Siri" and "Google Assistant" never exist on their own. They exist only as embedded within a hidden system of material and algorithmic structures that guarantee market dominance to companies such as Amazon, Apple and Google, and a new interaction channel to the network of marketers that have access to the devices. They are gateways to the cloud-based resources administered by these companies, eroding the distinction between the Web and the proprietary cloud services that are controlled by these huge corporations. This erosion is achieved through close interplay between the representation staged by the digital persona embodied by each assistant and its respective company's business model.

6.3.2 The private/public divide

Consumer privacy and security issues are the major concern for voice assistant and smart devices.⁶⁷ By their very nature, these devices must be monitoring consumers behaviours and listening at all times so that they can learn about consumers' daily lives and respond to users providing what consumer needs. Amazon, Apple, Google, and Microsoft insist that their devices are not recording unless users speak the command to wake the assistant, and even install new functionalities to allow users to instantly delete their voice recordings, but there has been at least one case where a malfunctioning device was recording at all times and sending those recordings back to Google's servers.⁶⁸

Compliance with actual data protection laws and security measures is serious challenges in consumer IoT, and indeed are represented often as a concern for consumers, as well as as a barrier to the adoptions to new smart

⁶⁶ Benedict GC Dellaert et al. "Consumer decisions with artificially intelligent voice assistants". In: *Marketing Letters* 31.4 (2020), pp. 335–347.

⁶⁷ Jan Henrik Ziegeldorf, Oscar Garcia Morchon, and Klaus Wehrle. "Privacy in the Internet of Things: threats and challenges". In: *Security and Communication Networks* 7.12 (2014), pp. 2728–2742.

⁶⁸ Matthew B. Hoy. "Alexa, Siri, Cortana, and more: an introduction to voice assistants". In: *Medical reference services quarterly* 37.1 (2018), pp. 81–88.

devices.⁶⁹ However, the need for data privacy should not distract the attention from the broader implications that characterize new business-consumer interactions through networked smart devices. Companies already today have the ability to reach consumers within their private environments and put brand names in front of consumers where they live. One can expect that as smart home takes hold together with new IoT advertising networks, the ability to reach consumers in the most private moments will increase ever more. Consumers' life in the IoT will make almost any in-home electronic object a carrier for commercial messages. These new developments should not be regarded merely as data protection glitch or simple nuisance but are the result of a commercial invasion into physical private space, which should be legitimately a source of concern.

The research on identity formation in networked "infosphere" shows the importance of spaces where consumers can be free to enjoy their private life in order to develop an independent sense of self without being reached by market stimuli. Political scientist Michael Sandel maintains that there are certain places where "market values and commercial sensibilities" are not appropriate because these places stand for something else, a preserve of personal contemplation or an environment meant to communicate civic values.⁷⁰ In a similar vein, David Marquand writes of the need to "carve out from the encircling market and commercial domain a distinct, self-conscious and vigorous private domain governed by non-market and non-private norms."⁷¹ When marketing never stops, it becomes normalized, invisibly influencing the consumer. A world where marketing can be expected anywhere and anytime is a world where our abilities to recognize and defend ourselves against marketing become less effective. Marketing's infiltration of private spaces changes their character, narrowing their capacity to instil non-market-based values. By limiting the ability to escape to market-free zones, marketing can more directly influence our efforts at self-definition. With nowhere to hide, we lose alternative, non-commercial means of telling our own stories.

The home, for example, has long been described not simply as the physical barriers to outer space, but also the "symbolic abstraction of one's own identity development in safe and private environments"⁷². On the outside is the public space, where people encounter danger and must engage with and respect social norms. On the inside are the private domains of the household, with associations of family, reproduction and security. Marketing in the IoT

⁶⁹ Serena Zheng et al. "User perceptions of smart home IoT privacy". In: *Proceedings of the ACM on Human-Computer Interaction* 2.CSCW (2018), pp. 1–20; Ronald Leenes and Silvia De Conca. "Artificial intelligence and privacy – AI enters the house through the Cloud". In: *Research Handbook on the Law of Artificial Intelligence*. Ed. by Woodrow Barfield and Ugo Pagallo. Edward Elgar Publishing, 2018, pp. 280–306.

⁷⁰ Michael J. Sandel. *What money can't buy: the moral limits of markets*. Macmillan, 2012.

⁷¹ David Marquand. *Decline of the public: The hollowing out of citizenship*. Blackwell Publishing, 2004.

⁷² Anne Buttimer. "Home, reach, and the sense of place". In: *The human experience of space and place* 3 (1980), pp. 166–187.

emerges in the context of longer standing patterns in defining and imposing market control over the home. Already traditional media technologies such as newspapers, radio, television, and the telephone brought the market into the home. In each case, however, from phone calls to the front door, there have been some sort of rituals and protocols that needed to be followed in order for crossing the threshold to the private domain. For example, door-to-door selling left individuals free not to open the door to sellers or to kick them out by showing no interest in their offerings. Likewise, telemarketing, however annoying, leaves the freedom for targets to hang up the phone. During a commercial break, TV viewers can turn it off or turn the volume down. In the smart home, not only is it difficult to "defend the castle" from outside intrusion, but apparently the forms of protection are the same technologies, such as walls, locks and front doors, which, if they participate in the commercial circuit, represent the pass to enter. The concrete possibilities of obscuring the screens on the object and sheltering from the commercial voice tend to diminish. It is in the logic of this development to allow users greater comfort in their consumption and home management experiences, to have in return the access to the private moments of our own's lives.

With regard to IoT, Allen contrasts the current great emphasis on informational privacy and data protection with a return to "physical privacy" (sometimes called "spatial privacy") - the famous right to be left alone, at least when it comes to the home and to the body.⁷³ She observes that physical privacy is violated "when a person's efforts to seclude or conceal himself or herself are frustrated"⁷⁴ and clearly the new algorithmic companionships, embedded into our daily routine, represent a clear threat. To be sure, it is an individual choice to install smart products in our homes and to live our daily life with virtual assistants. But this should not be a bad decision and indeed one might need to carefully think about the trade-off at stake here. The use of smart devices for self-tracking can enhance our abilities to engage in daily activities and promote our self-awareness, e-health products have clear positive impact on populations, as well as smart home can be of paramount importance for resource management and green transition. What is contentious is however, not being able to enjoy these objects without the risk of falling back into what represents the very latest expansion of the surveillance capitalism. It is Shoshanna Zuboff herself, who at the end of her book, calls upon a "right to a sanctuary": "the human need for a space of inviolable refuge has persisted in civilized societies from ancient times but is now under attack as surveillance capital creates a world of "no exit" with profound implications for the human future at this new frontier of power"⁷⁵.

⁷³ Anita L. Allen. "Coercing Privacy". In: *Faculty Scholarship at Penn Law* 40.3 (1999), pp. 723–757.

⁷⁴ *Ibid.*, p. 725.

⁷⁵ Zuboff, *The age of surveillance capitalism: the fight for the future at the new frontier of power*, p. 26.

6.4 Conclusions

Still few people still bristle at marketers' commodification of social/private life through new AI-powered virtual assistants and IoT devices. AI voice assistants activate an ambivalent relationship with consumers, giving them the illusions of control in their interactions with the assistant while at the same time withdrawing them from actual control over the computing systems that lie behind the interface. This is made possible at the interface level by mechanisms of projection that expect users to contribute to the construction of the assistant as a persona, and this construction ultimately conceals the networked computing systems administered by the powerful corporations who developed these tools.

From this intricate arrangement, clear issues of privacy emerge, not so much understood as the loss of control over private information, but as the ability of each one of us to retreat to safe places, not visible to the market and not exposed to commercial triggers, and at the same time to relate to computers in a dynamic of social persuasion artfully created to make interaction easier, more human, but also more persuasive. As we will say in the next chapter, regulation has been put in place to restore a balance and create safe zones where citizens can retreat, knowing that they will not be subject to commercial exploitation. The incorporation of anthropomorphic design techniques and the ability to employ commercial devices which overstep raises key concerns and presents fundamental challenges to the rationality of consumers as a legal paradigm of protection.

Part III

EU CONCEPTS OF FAIR TRADING LAW

Chapter 7

EU law on fair trading

7.1 Commercial practice on trial: EU law on fair trading

This is not the first time that technology threatens to disrupt business-consumer relationships. We live in a technology-driven commercial world, whether it was the machinery of mass production, the new electronic communication media, or the creation of the Internet, technological upheaval is inevitable and so is its immediate appropriation by companies. Sometimes technological innovation in business practice has proved socially beneficial. Railways and industrial machinery enabled the sale of basic necessities and medicines throughout the country, newspapers print has enabled new products to be spread like refrigerators and dishwashers, that gave people more opportunities for leisure. Radio and especially TV advertising has enabled interested buyers to know about products without waiting to go to the supermarket to read the directions for use. The construction of the Internet has introduced a huge advantage for citizens in terms of extended access to commercial products and information, convenient services and facilitated communication with business. It has led to the possibility of enjoying digital content instantly on one's own laptop and has made possible the creation of new collaborative services. Artificial intelligence, together with big data, is one of the latest technological innovations in marketing. The potential is great: consumers can receive more specific information on products, have access to personalised services, receive immediate assistance. At the same time, each time a technology was being integrated into business organisation, society began to question the potential pitfalls associated with new commercial practice. And when the risks were too unbearable, the law stepped in to regulate the relationship between business and consumers.

Indeed, with the industrialisation and of mass consumption society, laws on consumer protection have formed a backdrop to limit commercial initiatives and set the lines between a scam and a sale contract, between fraud and commercial honesty, between legitimate persuasion and unfair influence. Sometimes citizens can protest overzealous selling tactics by voting with their wallets. Sometimes, the invisible hand of the market appears to be sufficient to give consumers the means to evaluate different choices and

look elsewhere in case of sub-optimal deals. Markets are not a cure-all, however. History shows that with the increasing pervasiveness of commerce in consumer society, legislators have begun to set limits. Mass production has carried the risk of commercialization of new defective or unhealthy products which triggered bans (e.g., dangerous chemicals or pirated goods), as well as special rules on sales goods and product liability. With mass distribution, products could be distributed across cities and nations with no information on the characteristics of the products or with misleading labels. TV advertising is tolerated but not without ensuring limits to product placement, protection of minors, and inappropriate content. E-commerce has created a large space for commercial ventures where the risks of anonymous or non-existent traders, fraud or counterfeit products have become much higher and rules of transparency and requirement for good exchanges have been adopted.

However, when it comes to the latest round of technological developments in commerce, consumer law has largely remained still. To understand why, we must first briefly outline the roots of consumer protection law, particularly in the area of marketing law.

In European legal systems, the first set of rules governing the relationship between business and their clients emerged in a series of national provisions relating to fair play in commerce. These rules reflected a national dimension of trade and were variously integrated into existing private law systems. Their precise objective was not directly concerned with client protection but rather to shield the "honest businessman" from unfair competition from his business rivals. For example, such rules would prohibit traders from making use of confusing trademarks in the marketing of its products, as this would cause unfair harm to the trademark owner. Similarly, advertisement was not to contain any misleading information to clients, as this would adversely affect bona fide marketers. Depending on the different legal traditions, then the interests protected by these provisions were declined also to the direct benefit of the client. For example, in Germany and Austria for example, the scope of protection was relatively easily extended by the courts to citizens who were the target of marketing practices, that would then be able to start a litigation against the trader. In other countries, such as Italy and France, protection was provided on the basis of tort law as a pure individual right of competitors, while consumers were left with general contractual remedies.¹

In the 1960s, the divergences among European legal systems soon set the EU on motion to create the condition for a system of harmonized rules on fair trading.² The progressive uptake of market freedoms enshrined in the EU Treaties, sustained by judicial harmonisation of the European Court of

¹ Frauke Henning-Bodewig et al. *International Handbook on Unfair Competition*. CH Beck, 2013.

² An exhaustive comparative assessment of fair trading legislation before the process of harmonization of national fair trading law can be found in Bert Keirsbilck. *The new European law of unfair commercial practices and competition law*. Hart Oxford, 2011.

Justice often concerned with national bans on fair trading, triggered the initial interest of EU Commission in laying the ground for common rules on marketing. The aim was to balance market freedoms with a generalized duty to trade fairly to the benefit of rivals operating in a different Member state. Following the legal tradition of the nation states, the original project was to consider competitors as the protective target of regulation and leaving consumer protection in the hand of national regulation.

In the 1970s, however, under the influence of trans-Atlantic dialogue with US, consumer protection movement started to emerge in Europe too. The first consumer protection programme was released by the EU Commission in 1975 in which a catalogue of "consumer rights" were developed: the right to protection of health and safety, the right to protection of economic interests, the right of redress, the right of information and education, and the right to representation (the right to be heard). These rights were derived from the economically weaker positions of the consumers and from the overwhelming bargaining strength on the suppliers in the new expanded markets. In the Preliminary Programme, one can read:

*"As market conditions have changed, the balance between suppliers and customers has tended to become weighted in favour of the supplier. The discovery of new materials, the introduction of new methods of manufacture, the development of means of communication, the expansion of markets, new methods of retailing — all these factors have had the effect of increasing the production, supply and demand of an immense variety of goods and services. This means that the consumer, in the past usually an individual purchaser in a small local market, has become merely a unit in a mass market, the target of advertising campaigns and of pressure by strongly organized production and distribution groups."*³

The attention to consumers information and free decisions in the market resulted in a redirection of fair trading regulation towards consumer protection. The shift was clearly explained in the programme

*"practices which were once regarded in many countries as unfair solely in terms of competition between producers (misleading advertising, for example) are now also considered from the point of view of relations between producers and consumers."*⁴

In particular, in order to realise the protective aim of consumers in this area, a tighter control of advertising and commercial practice was warranted with a series of EU level harmonisation measures, such as "establishing principles for assessing the extent to which an advertisement is false, misleading

³ Council Resolution of 14 April 1975 on a preliminary programme of the European Economic Community for a consumer protection and information policy: OJ C 92, 25.4.1975, p. 1.; Preliminary programme of the European Economic Community for a consumer protection and information policy: OJ C 92, 25.4.1975, p. 2–16.

⁴ Ibid.

or generally unfair"; "taking steps to prevent the consumer's economic interests from being harmed by false, misleading or unfair advertising" and by controlling unfair commercial practices in areas such as door-to-door sales, premium offers, unsolicited goods and service, and information on labels and packaging. Following this program, the Commission produced a first draft proposal in 1979 for a directive including misleading and unfair advertising.⁵ The proposal was discussed at length in the Council and highlighted the difficulties in developing a common denominator for legal and consumers policy concepts concept of fairness. Especially, UK was strongly opposed to the introduction of a legislative clause on fairness, which was rather distant from the common law tradition and from its traditional approach of regulating advertising through self-regulatory authorities.

An agreement was found in 1984 when the Directive 84/450/EEC on misleading advertising was approved.⁶ The Directive aimed at approximating national laws on misleading advertising for the protection of consumers, but traders and public in general too were kept as beneficiary of the regulation. The rules covered only misleading advertising, leaving outside the regulation generally unfair advertising. The Directive was designed as minimum harmonisation directive, so that national exceeding provisions in favour of the interested beneficiaries remained unaffected. The directive was amended in 1997 so as to include comparative advertising. Comparative advertising was declared as an act of unfair competition and permissible only when communication that explicitly identified a competitor or his goods was regarded as unfair. The Directive 97/55/EC on comparative advertising claimed complete harmonisation.⁷ In those years, others directive concerning specific types of advertising or sales techniques were introduced, including the Directive on distance contracts,⁸ the Directive on indication of the price of products offered to consumers,⁹ Directive on certain aspects of the sale of goods and

⁵ Unfair advertising was defined as "any advertising which (a) casts discredit on another person by improper reference to his nationality, origin, private life or good name, or (b) injures or is likely to injure the commercial reputation of another person by false statements or defamatory comments concerning his firm, goods or services, or (c) appeals to sentiments of fear, or promotes social or religious discrimination, or (d) clearly infringes the principle of the social, economic and cultural equality of the sexes, or (e) exploits the trust, credulity or lack of experience of a consumer, or influences or is likely to influence a consumer or the public in general in any other improper manner."

⁶ Council Directive 84/450/EEC of 10 September 1984 relating to the approximation of the laws, regulations and administrative provisions of the Member States concerning misleading advertising: OJ L 250, 19.9.1984, p. 17–20 (also Misleading Advertising Directive).

⁷ Directive 97/55/EC of European Parliament and of the Council of 6 October 1997 amending Directive 84/450/EEC concerning misleading advertising so as to include comparative advertising: OJ L 290, 23.10.1997, p. 18–22 (also Comparative Advertising Directive).

⁸ Directive 97/7/EC on the protection of consumers in respect of distance contracts; OJ 1997 L1444/19.

⁹ Directive 98/6/EC of the European Parliament and of the Council of 16 February 1998 on consumer protection in the indication of the prices of products offered to consumers: OJ 1980 L80/27.

guarantees.¹⁰

At the turn of the millennium, the increased emergence of electronic communication and e-commerce has prompted the EU legislator to introduce new rules to protect citizens in this area. Crucially, however, the discussion only partially took place within the traditional remit of business-to-consumer context and more broadly in the field of information society service providers and recipients. In 2000, the E-commerce Directive was introduced in a national legal vacuum with the purpose of facilitating the development of Internet society services, including commercial ones, which were regarded as an important tool to establish an area of trade without border in which the free movements of goods, services and the freedom of establishment can be ensured.¹¹ The Directive aimed at approximating national law in this field to remove any barrier to information society service and ensure Internet providers with the legal certainty to fully benefit from the internal market. At the same time, recipients of the service were to be given information to meaningfully benefit from the services and actually trust the providers. Consumer protection featured when information society services have a commercial nature. Following the tradition with misleading advertising and selling techniques, the rules are centred on transparent commercial communications which must be clearly identifiable as such and with regard to the natural or legal persons on whose behalf the commercial communication is made.¹² Transparency must be ensured also when unsolicited commercial communication are made, which should always allow the consumer to opt-out. Rules are also established in the phase prior to the conclusion of contract, including the different technical steps to follow to conclude the contract.

In the same strand – thus out of the remit of fair trading law – new rules were also taken in the field of electronic communication with the Directive 2002/58/EC, as a *lex specialis* of the 1996 Data Protection Directive, then amended by the Directive 2009. The Directive prohibits any interference with the confidentiality of communications and the related traffic data by persons other than users, without the consent of the users concerned, except when legally authorised to do so (Article 5). The Directive requires data controllers to also obtain consent from the consumer prior to storing or accessing information (such as cookies) on the consumer's terminal equipment (Article 5.3.). In addition to the confidentiality of communications (Article 5), the Directive establishes that service providers shall inform the consumer on the types of traffic data that is being recorded (when consent has been given)

¹⁰ Directive 1999/44/EC on certain aspects of the sale of goods and associated guarantees: OJ 1999 L171/12.

¹¹ Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market ('Directive on electronic commerce'), OJ L 178, pp. 1–16 (also e-Commerce Directive).

¹² "Commercial communication" is defined by Article 2(f) as "any form of communication designed to promote, directly or indirectly, the goods, services or image of a company, organisation or person pursuing a commercial, industrial or craft activity or exercising a regulated profession".

while consumers' consent can only be given for the provision of value-added services addressed to them (Article 6).

It has taken almost twenty years since the first European Community legislative instrument to achieve a general horizontal regulation of commercial practices. This eventually occurred with the adoption of Directive 2005/29/EC concerning unfair commercial practices (henceforth, also referred to as UCPD) which introduced a comprehensive legal regime to regulate commercial practices imposing a general standard of fairness.¹³ It thus included misleading advertising, comparative advertising,¹⁴ and also and more broadly, unfair advertising (see below). The UCPD repealed the Directive 84/450/EEC on misleading advertising, but only for the purpose of business-to-consumer transactions. Competitors are target only of indirect protection.¹⁵ The specific set of rules for competitors have been reorganized in the Directive 2006/114/EC concerning misleading and comparative advertising, which apply in the B2B and not in the B2C.¹⁶

When discussing commercial practice from the perspective of consumer protection, the Unfair Commercial Practices Directive is undoubtedly the most important legislative instrument of EU fair trading law. The Directive includes any commercial act by traders directly connected to promotion, sale and supply of products, thereby including advertising and marketing practices¹⁷ The general aim of the Directive is to ensure a high level of consumer protection while also harmonising national law on unfair commercial practices which harm consumers economic interests.¹⁸ In harmonising national legislation, the Directive provides a maximum standard, thereby requiring Member States to implement the provisions without exceeding the level of protection granted by the EU laws. Despite dealing with matters of contract law, the Directives explicitly states that it "is without prejudice to contract law and, in particular, to the rules on the validity, formation or effect of a contract"¹⁹.

The specific purposes of protection of the UCPD concern the protection of freedom of decision, market transparency and information of consumers. This can be deduced from the content of the substantive rules lying in Article 5-9, which together flash out a three-layered unfairness test for commercial practice. The first level is represented by the general unfairness clause according to which

¹³ .

¹⁴ Article 6(2)(a) UCPD.

¹⁵ Recital 7 UCPD.

¹⁶ Directive 2006/114/EC of the European Parliament and of the Council of 12 December 2006 concerning misleading and comparative advertising, OJ L 376 del 27.12.2006, pagg. 21–27. Though it must be noted that the provision on misleading advertising in the MCAD is very important as it is often actioned by competitors also to the indirect benefit of consumers. See Norbert Reich et al. *European consumer law*. Intersentia, 2014, p. 104.

¹⁷ Article 2(d) UCPD.

¹⁸ Article 4 UCPD.

¹⁹ Article 3 UCPD.

*"a commercial practice shall be unfair if: (a) it is contrary to the requirements of professional diligence, and (b) it materially distorts or is likely to materially distort the economic behaviour" with regard to the product of the average consumer whom it reaches or to whom it is addressed, or of the average member of the group when a commercial practice is directed to a particular group of consumers."*²⁰

Hence Article 5(2)(b) UCPD provides that if a commercial practice targets a specific group then the assessment of the average consumer should be of the average consumer of a member of the group. This is further supplemented in Article 5(3) UCPD which stipulates that attention should be given to vulnerable consumers and states that:

*"commercial practices which are likely to materially distort the economic behaviour only of a clearly identifiable group of consumers who are particularly vulnerable to the practice or the underlying product because of their mental or physical infirmity, age or credulity in a way which the trader could reasonably be expected to foresee, shall be assessed from the perspective of the average member of that group."*²¹

On the second level, the Directive deals with those marketing practices that for their character are particularly unfair. Articles 6 and 7 deal with misleading practices. A practice is considered misleading action

*"if it contains false information and is therefore untruthful or in any way, including overall presentation, deceives or is likely to deceive the average consumer, even if the information is factually correct, in relation to one or more [of the following] elements, and in either case causes or is likely to cause him to take a transactional decision that he would not have taken otherwise"*²².

A misleading omission is defined as the practice which

*"in its factual context, taking account of all its features and circumstances and the limitations of the communication medium, it omits material information that the average consumer needs, according to the context, to take an informed transactional decision and thereby causes or is likely to cause the average consumer to take a transactional decision that he would not have taken otherwise."*²³

²⁰ Article 5(2) UCPD.

²¹ Article 5(3) UCPD.

²² Article 6 UCPD

²³ Article 7 UCPD. The prohibition of misleading omission is tied to other European consumer protection directives which require traders to provide certain information to consumers in the stage prior the conclusion of contracts. Annex II provide a list related EU provisions setting out rules for advertising and commercial communications which are regarded as material.

Article 8 prohibits aggressive commercial practices which are defined as those that

*"by harassment, coercion, including the use of force, or undue influence, it significantly impairs or is likely to significantly impair the average consumer's freedom of choice or conduct with regard to the product and thereby causes him or is likely to cause him to take a transactional decision that he would not have taken otherwise."*²⁴

Article 9 specifies the contextual criteria for assessing the aggressiveness of a practice (e.g., timing, abusive language, non-contractual barriers).

The third level of the Directive is represented by the Annex I which contains a list of thirty-one specific practices that are always regarded as misleading or aggressive, thereby being unfair per se. The CJEU confirmed that practices that are not enumerated in Annex I can only be prohibited on a case-by-case basis under the general or one of the two small general clauses.²⁵ Moreover, it is to be noted that, in contrast with the construction in the Directive (general clauses, small clauses, blacklist), the practical application should reverse the order. This means that the general unfairness clause should be regarded as a "safety net", were first the blacklist and then the two small clauses are not suitable to position the alleged unfair practice.²⁶

An important separate provision is contained in Article 10, which states that Member States may encourage the use of codes of conduct to control commercial practices.

Article 11-13 deal with procedural issues. Enforcement is limitedly addressed by the Directive, which only strives to make sure that (un)fairness of commercial practices can be challenges before courts, that Member States define who is responsible for the enforcement, whether a public body, consumers or trade organisation, that remedies to set an end to unfair practices are determined, especially with a view to injunction and interim reliefs. A recent amendment also inserted Article 11a, which include among consumer redress the possibility to ask for compensation and, when relevant, price reduction or termination of the contract. Under Article 13, Member States are obliged to lay down penalties for infringements of national provisions which must be effective, proportionate and dissuasive. Article 12 deals with substantiation of claims. Finally, Articles 15–16 deal with consequential amendments to other Directives, while Articles 17–20 deal with some other matters related to Directive adoption, i.e., information, review, transposition, entry into force, member states as addressees.

²⁴ Article 8 UCPD

²⁵ Case C-540/08, *Mediaprint*, ECLI:EU:C:2010:660, para. 97, Case C-206/11, *Köck*, ECLI:EU:C:2013:14.

²⁶ Geraint Howells, Hans-W. Micklitz, and Thomas Wilhelmsson. *European fair trading law: The unfair commercial practices directive*. Routledge, 2006, p. 119.

Since its entry into force in 2007, the Directive has generated a substantial number of case law before the European Court of Justice²⁷, especially regarding matter of national laws approximation and interpretation of consumer protection provisions. The Directive has been followed by two communications of the European Commission: the EC communication on the application of the unfair commercial practices directive achieving a high level of consumer protection²⁸ and the Guidance on the implementation/application of Directive 2005/29/EC on unfair commercial practices.²⁹ As we will see later on, this latter document has a high value for our discussion as it partially addresses how to apply the rule on unfair commercial practices in the online sector. Finally, the Directive has recently been amended by Directive (EU) 2019/2161 on better enforcement and modernization of Union consumer protection rules.³⁰ These provisions modernise different aspects of the UCPD, together with other three consumer protection directives (namely, the Unfair Contract Terms Directive, the Price Indication Directive, the Directive on Consumer rights) and include different aspects related to digital economy, which are relevant to algorithmic business practices. Member State are required to implement the new rules in their national legal systems by November 2021, which will then be binding by 28 May 2022.³¹

An adequate description of the current EU system of fair trading law cannot be limited to reviewing the legislative framework. More than specific regulation, the EU law on fair trading is said to be a "general framework" that allow for controlling commercial fairness in EU.³² The system is flexible, highly complex, and mirrors the very essence of EU consumer protection policy. Many actors are involved in controlling unfair trade. Underlying the decisions of these actors is a set of policy frameworks that further complicate the issue of consumer protection in marketing and provide some decisive elements to understand the shortcoming in dealing with algorithmic business

²⁷ From the entry into force of the Directive to 2020, the cases decided by the European Court of Justice concerning the UCPD are 47, of which 29 concerning approximation of laws and 4 related to substantive consumer protection issues. CJEU's judgments concerning the Misleading and Comparative Advertising Directive are 4, all concerning approximation of laws. Prior to the entry into force of Misleading and Comparative Advertising Directive, cases decided by CJEU related to misleading advertising (Directive 84/450/EEC) are 26, while those concerning Directive 97/7/EC are 12.

²⁸ Communication from the Commission to the European Parliament, the Council and the European Economic and Social Committee on the application of the Unfair Commercial Practices Directive Achieving a high level of consumer protection Building trust in the Internal Market, COM/2013/0138 final.

²⁹ Commission Staff Working Document Guidance on the Implementation / Application of Directive 2005/29/EC on unfair commercial practices accompanying the document Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions A comprehensive approach to stimulating cross-border e-Commerce for Europe's citizens and businesses: SWD/2016/0163 final (hereafter, the UCPD Guidance).

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³¹ Article 7 Omnibus Directive.

³² Hugh Collins. "Harmonisation by example: European laws against unfair commercial practices". In: *The Modern Law Review* 73.1 (2010), pp. 89–118.

practices.

7.2 Assessing the business-consumer relationship

There are four main stakeholders when it comes to control market fairness in consumer relationships: on matters of substance, companies that trade and sell products and services in the EU and are limited in their initiatives by a, and consumers who are the recipients of high level of protection. On a matter of competence and enforcement, the EU legislator which has the power to amend current or develop new rules and the European Court of Justice who controls its interpretation, and Member States which beside transposing the Directive into national legislation, have to enforce the law through courts and administrative authorities. It is essential to analyse these interest groups and how they relate to each other because these very relations guide current regulatory responses to market practices and continue to influence this policy domain today. Three fault lines can be identified.

7.2.1 Market-driven fairness

As said in the previous section, the Unfair Commercial Practice Directive was adopted as a maximum harmonisation. Its elaboration and final adoption have taken place during a period when the EU changed its approach to consumer protection laws emphasising less the role of consumer protection per se and giving much more importance to the legal intervention through harmonisation law measures to boost the Single Market.³³ The shift from minimum harmonisation to maximum harmonisation fits this trend: maximum harmonisation implies that Member States cannot regulate commercial practices in a manner which deviates from the standard of regulation adopted by EU directives. The UCPD makes this clear in Article 4: free movement of goods or services cannot be restricted "for reasons falling within the field approximated by this Directive"³⁴. This means that, on the one hand, national legislators cannot introduce stricter or more lenient rules to regulate business-consumer practices within the field approximated by the Directive.³⁵ On the other hand, national authorities in Member States cannot challenge the conduct of a trader whose commercial practices are not unfair

³³ Giuseppe B Abbamonte. "The Unfair Commercial Practices Directive: an example of the new European consumer protection approach". In: *Colum. J. Eur. L.* 12 (2005), p. 695.

³⁴ Article 4 UCPD.

³⁵ Article 3 UCPD excludes from its scope of application: rules on the validity, formation and effect of a contract (par. 2), health and safety aspect of product (par. 3), specific Community rules regarding specific aspects of unfair commercial practices in respect of those aspect (par. 4), conditions of establishment or authorization regimes for regulated professions (par. 8), financial services as defined in Directive 2002/65/EC, and immovable property (par. 9). Until 12 June 2013, it was possible to maintain stricter national provisions where these rules were aimed at implementing European community directive based on a minimum harmonization standard (par. 5).

within the meaning of the UCPD, both in the case of purely internal situation and when the trader is based in another Member State.

The role of maximum harmonisation provides a key to understand the fundamental character of the UCPD and more generally EU regulatory initiative in the field of marketing legislation. This has famously been expressed by one of the first commentary on the legislative instrument, "confidence through fairness"³⁶. The ambition of EU legislator is to create a set of single rules on commercial practices applicable throughout the Single Market in order to stimulate business to advertise and sell product across borders, and consumers to actually make cross-border transaction, thus both contributing to the completion of the Internal market. This in the design of the Directive is to be achieved through the elimination of existing divergences in unfair trading practices and consumer protection law. Consequently, advertising and cross-border marketing practices becomes easier for business, which must not deal with the diversity in national consumer protection regimes, which, in turn, benefits consumers who, given the increased cross-border competition, may be offered more products and at a better price. At the same time, the rules prohibiting practices that unfairly distort consumers' decision-making will also result in the removal of distortion of competition, because traders acting unfair will no longer be in a position to win business away from competitors who play by the rules. Thus, the Commission supports the internal market, for the realization of which the consumer protection is used as an instrument.³⁷ This is clearly expressed in the Article 1 of the Directive, according to which "the purpose of the UCPD is to contribute to the proper functioning of the internal market and achieve a high level of consumer protection by harmonizing the laws of the Member States on unfair commercial practices harming consumers' economic interests". The tension between these two policy objectives is crucial to understand the EU initiative in this field. It mirrors a historical shortcoming of the EU's competence in the field of consumer protection, which for the majority of its provisions has always been promoted through Article 114 TFEU on the harmonisation of the laws of the member states for establishment and functioning of the internal market. At the same time, the protective rationale is clear, and the references to a more constitutionalised dimension of consumer protection are visible. Indeed, the very first Recital in the Directive's Preamble highlights that the Treaty – then Article 153(1) and (3)(a) EC, now Article 12 and 162 TFEU – provides that the EU "is to contribute to the attainment of a high

³⁶ Jules Stuyck, Evelyne Terryn, and Tom Van Dyck. "Confidence through fairness? The new Directive on unfair business-to-consumer commercial practices in the Internal Market". en. In: *Common Market Law Review* 43 (2006), pp. 107–152.

³⁷ Hans-W. Micklitz. "The consumer: marketised, fragmented, constitutionalised". In: *The Images of the Consumer in EU Law : Legislation, Free Movement and Competition Law*. Ed. by Dorota Leczykiewicz and Stephen Weatherill. Bloomsbury Publishing, 2016, pp. 21–42.

level of consumer protection" by the measures it adopts pursuant to the competence to introduce market-making legislative instruments.³⁸ Today Article 38 of the Charter would add further support to the constitutional linkage between market-making and the protection of the consumer.³⁹

The effect of internal market purpose is immediately visible looking at the concept of fairness purported by the Directive. Unfair practices can be challenged only as far as they affect consumers economic interests: an unfair outcome is given only in so far as the company distorts the behaviours of consumers causing her to take a transactional decision that she would not make otherwise, because not responding to its preferences, thus inefficient according to personal preferences.⁴⁰ This entails that the maximum harmonisation applies only to those practices that are directly connected with the promotion, sale or supply of products and service are regulated by the Directive and results that practices must somehow affect consumers decision with regard to economic transactions with traders. As made clear in Recital 7, matters of taste and decency in marketing materials are excluded from the maximum harmonisation effect and scope of application of the Directive, thus remaining in the hands of Member States that can limit business practices on such grounds.⁴¹ Also, beyond taste and decency, regulation of marketing practices on other grounds (e.g., moral, culture etc.) falls beyond the harmonized field in so far this is not directly related to consumers economic interests. Interests such as safety and health, and fields such tobacco advertising or health-related advertising, are not touched upon by the Directive. Therefore, the concept of fairness is reduced to market-driven interests, which illustrates, according to Micklitz, the difficulties to integrate non-economic values into the European legal system. However, as we shall see later on, the distinction only works at a superficial level, as referring to market-related values are impossible without reflecting on moral issues.

The confidence approach and internal market orientation explain the great belief of the Directive in the information paradigm. The provisions of the Directive are essentially based on the idea that only informed choice leads to efficient choice ensuring maximization of consumers' collective interests, resulting in information being the main instrument to ensure consumer protection. At the same time, information is the battleground where in most cases the possible misconduct of a business practice is determined. Whether traders are providing misleading information or not offering the information necessary to make an informed decision, transparency in business-consumer relations represent the main method of consumer protection. At the same

³⁸ Consolidated version of the Treaty on the Functioning of the European Union, OJ C 326, 26.10.2012, po. 47–390 (also Treaty on the Functioning of the European Union), Article 162.

³⁹ , Article 38.

⁴⁰ Fernando Gomez. "The unfair commercial practices directive: A law and economics perspective". In: *European Review of Contract Law* 2.1 (2006), pp. 4–34.

⁴¹ Howells, Micklitz, and Wilhelmsson, *European fair trading law: The unfair commercial practices directive*, pp. 91–96.

time, however, it should be noted that the emphasis on information is accompanied also by the possibility of unfairness of the advertising or marketing that does not carry information, but for its specific nature implies a restriction of the freedom of decision-making.

Many authors have criticised the maximum harmonisation approach in this area as a vulnus to national consumer protection. The Court of Justice of the European Communities formally holds the power to interpret the law, while national courts and authorities have the duty to apply the law to the specific case. However, there have been cases where the dividing line between the respective responsibilities has become blurred, with the CJEU indicating to national courts a very strong orientation on how the relevant provisions of the UCPD can be applied to the facts of the case that led to a referral.⁴² At the same time, however, the use of general clauses and vaguely defined concepts has prompted authors to put maximum harmonisation into a perspective as it is noted that a truly harmonised approach to fair trading law is highly unlikely to be achieved.⁴³ General clauses often require case-by-case application by national enforcement authorities which in turn is shaped by different national legal traditions and culture. In this respect, concerns have arisen about potential divergences in the way national authorities interpret and apply the prohibitions in different ways.⁴⁴ There is at least a theoretical risk that a commercial practice could be considered unfair by the authorities of one Member State, but not in another. Such a result could be seen as an obstacle to the objective of maximum harmonisation pursued by the UCPD. At the same time, it is alleged that maximum harmonisation is an attack on some higher levels of protection that historically exist in some Member States and forces to abandon measures of consumer protection.⁴⁵ Not only, by imposing a common universal fairness standard to all business-consumers practices, the UCPD risks to create a mechanisms that hinder the evolution and the political discussion of the evolution of fair trading law and the development of consumer protection policies.⁴⁶ This conservative attitude has arguably contributed to the creation of a suboptimal environment to discuss at national and European level the challenges posed by algorithmic marketing practices and the potential reaction of consumer policy.

⁴² Jules Stuyck. "The Court of Justice and the unfair commercial practices directive". In: *Common Market Law Review* 52.3 (2015), pp. 721–752.

⁴³ N. Reich. "From minimal to full to "half" harmonisation". In: *European Consumer Protection Theory and Practice*. Ed. by James Devenney and Mel Kenny. Cambridge University Press, 2012, pp. 3–5.

⁴⁴ Georgios Anagnostaras. "The Unfair Commercial Practices Directive in context: from legal disparity to legal complexity?" In: *Common Market Law Review* 47.1 (2010), pp. 147–171.

⁴⁵ Geraint Howells. "Unfair Commercial Practices Directive - A missed opportunity?" In: *The Regulation of Unfair Commercial Practices under EC Directive 2005/29*. Ed. by Stephen Weatherill and Ulf Bernitz. Hart, 2007, pp. 103–114.

⁴⁶ This is explained by Micklitz with regard to circular economy and consumer policy. Any revision is subjected to a political majority in the European Parliament. Hans-W. Micklitz. "Squaring the circle? Reconciling consumer law and the circular economy". In: *Journal of European Consumer and Market Law* 8.6 (2019).

7.2.2 The average and the vulnerable consumer

The great emphasis of the UCPD unfair commercial practice law is counter-balanced by the development of a solid consumer image against which consumer behaviour with respect to that information and consumer practices generally can be judged. As a standard model, Article 5 requires national authorities to assess the unfairness of a practice from the perspective of the "average consumer whom it reaches or it is addressed"⁴⁷.

The figure of the average consumer has progressively emerged from the case law of the CJEU in relation to cases involving the free movement of goods, labelling and misleading advertising.⁴⁸ Already before positive harmonisation of fair trading law, the CJEU was willing to develop a consistent approach in evaluating national restrictions to free trade on the ground of national consumer protection. In the judgment *Gut Springheide GmbH*, the Court famously indicated to the referring court that it "must take into account the presumed expectations which it evokes in an average consumer who is reasonably well-informed and reasonably observant and circumspect"⁴⁹. At the same time, the Court has been willing to accept that certain practices may be judged for the actual expectation of certain groups of consumers being misled by certain commercial practices, according to national diversity and cultural sensitivity.⁵⁰ Often this compromise produced reasonable results, but the headlines have been generally for a very liberal image of the consumer, in the sense of less protectionist and more free-market oriented approach to consumer protection.⁵¹ The UCPD takes on this root too, and crystallises it into positive law, even if it does so in the Recital 18. The Directive takes as a benchmark the average consumer "who is reasonably well-informed and reasonably observant and circumspect, taking into account social, cultural and linguistic factors, as interpreted by the Court of Justice"⁵². The average consumer standard is used also in the prohibition of misleading practices, both actions and omission, and in the prohibition on aggressive practices.

The question of judging commercial practices looking at the average consumer as well-informed and circumspect has raised quite a few issues. There

⁴⁷ Article 5 UCPD

⁴⁸ Howells, Micklitz, and Wilhelmsson, *European fair trading law: The unfair commercial practices directive*; Stephen Weatherill. "Who is the 'Average Consumer'?" In: *The Regulation of Unfair Commercial Practices under EC Directive 2005/29*. Ed. by Stephen Weatherill and Ulf Bernitz. Bloomsbury Publishing, 2007, pp. 115–138, pp. 9–19.

⁴⁹ Case C-210/96, *Gut Springenheide and Tusky v Oberkreisdirektor des Kreises Steinfurt*, ECLI:EU:C:1998:369.

⁵⁰ Case C-220/98, *Estée Lauder*, ECLI:EU:C:2000:8.

⁵¹ Other cases in which the CJEU has developed the image of the informed consumers are Case C-362/88, *GB-INNO-BM v Confédération du Commerce Luxembourgeois*, ECLI:EU:C:1990:102, Case C-126/91, *Schutzverband gegen Unwesen i.d. Wirtschaft v Rocher*, ECLI: EU:C:1993:191, Case C-470/93 - *Verein gegen Unwesen in Handel und Gewerbe Köln v Mars*, ECLI:EU:C:1995:224.

⁵² Recital 18 UCPD

is a considerable difference between seeing the consumer as the rational person who is capable of navigating the marketplace benefiting from signals from advertising and choosing which signals maximize his or her welfare, and the consumer as the subject who is susceptible to influences of marketers. In the first case, one would be more reluctant to intervene in the market on the grounds that the consumer is able to help himself with the tools of reason. Conversely, understanding the consumers as incapable of discerning truthful information and crafty persuasion would admit a more stringent control of business practices. Traditionally, national consumers laws of some important European countries have worked with this less buoyant image of consumers. For example, Germany was famous for judging practices from the perspective of the gullible consumers, sometime accused of being over-protective of its citizens. Similarly, marketing and advertising law of Scandinavian countries tended to assume that consumers read advertising materials at a casual glance, rather than considering every small detail. Thus, the development of the average consumer as a subject can be considered as normative standard.⁵³ As noted by Weatherhill, the project of harmonising legislation on fair trade required "an attempt to navigate a course between the rich diversity of actual consumer behaviour and the need for an operational regulatory benchmark"⁵⁴ in order to ensure that harmonisation could proceed at all.

The UCPD itself tempers the concept of the average consumers with two alternative benchmarks against which assessing the unfairness of a commercial practice. The first is set by the same Article 5(2) when it establishes that an unfair practice may materially distort the economic behaviours of consumers also having regard to "the average member of the group when a commercial practice is directed to a particular group of consumers." This benchmark allows for a more focused assessment of the fairness of a practice which is targeted to a specific group of consumers, but it does not clarify whether the average targeted member should be attributed the same characteristics of the average consumers (reasonably informed, observant, and circumspect). This is not the case, when considering the third standard defined in Article 5(3). The latter allows to test the unfairness of a practice from the perspective of the average vulnerable consumers, provided that the practice is likely to only materially distort the economic behaviours of consumers groups that qualify as vulnerable and that this is reasonably foreseeable by the trader. The standard of the vulnerable consumers aims to less the rigidity of the average consumers, whereby it takes into consideration categories of consumers such as mental or physical-ill people, children or credulous consumers which are regarded as having difficulty to cope with marketing practices. The Directive does not sufficiently elaborate the concept and refers to a limited number of grounds for which consumers may be

⁵³ Thomas Wilhelmsson. "The average European consumer: a legal fiction?" In: *Private law and the many cultures of Europe*. Ed. by Thomas Wilhelmsson. Kluwer Law International, 2007, pp. 243–268.

⁵⁴ Weatherill, "Who is the 'Average Consumer'?", p. 135.

considered vulnerable. Nevertheless, the Directive clearly introduces in the concept of market-oriented fairness an element of social policy, which open a margin for appreciation in determining the need for protection of weaker parts of the consumer population.⁵⁵

In addition to the tension between market-oriented versus socially-loaded values enshrined in the image of consumers, in the last decade the average consumer has been heavily tainted for fabricating a rather distorted image of how consumers actually make decisions.⁵⁶ The critics generally appeal to behavioural science, particularly behavioural economics, which in the past several years has progressively contributed to erode the rationality paradigm in classical economics with an idea of human decision-making heavily influenced by cognitive bias and heuristics. Above all, it is observed that the consumer has limited faculties in managing and processing information as they tend to disregard information altogether or select information that confirm their beliefs. Moreover, it is suggested that when making decisions consumers rarely operate a cost-benefit analysis, but rather are inclined to focus on short-term rewards and dismiss potential long-term negative consequences. In this regard, stressing the ability to deal with information and process it in order to select the option for maximising gain, the average consumer purports an image of consumers completely opposite to the one portrayed by behavioural sciences. Consumers are expected to dedicate a large amount of time and attention reading instruction in booklets and warning on products, they are expected to ponder on the meaning of advertising claims and refrain from impulsive behaviours. The findings have a double value for EU fair trading law: on the regulatory side, showing how an insistence on the information paradigm limits the effective protection of the consumer.⁵⁷ On the other hand, it proposes an interpretation of consumer behaviour more easily influenced by external influences, thus marketing practices, able to exploit the irrationality of the consumer.⁵⁸ The penetration of behavioural sciences into the consumer protection policy represent one of the hottest topics under

⁵⁵ Howells, Micklitz, and Wilhelmsson, *European fair trading law: The unfair commercial practices directive*, p. 111.

⁵⁶ Rossella Incardona and Cristina Poncibò. "The average consumer, the unfair commercial practices directive, and the cognitive revolution". In: *Journal of Consumer Policy* 30.1 (2007), pp. 21–38; Jan Trzaskowski. "Behavioural Economics, Neuroscience, and the Unfair Commercial Practices Directive". In: *Journal of Consumer Policy* 34.3 (2011), pp. 377–392.

⁵⁷ Geraint Howells. "The Potential and Limits of Consumer Empowerment by Information". In: *Journal of Law and Society* 32.3 (2005), pp. 349–370; Anne-Lise Sibony and Geneviève Helleringer. "EU consumer protection and behavioural sciences". In: *Nudge and the Law: A European Perspective*. Ed. by Alberto Alemanno and Anne-Lise Sibony. Publisher: Hart Publishing. Hart Publishing, 2015, pp. 51–69; Kai Purnhagen. "Why Do We Need Responsive Regulation and Behavioural Research in EU Internal Market Law?" In: *European perspectives on behavioural law and economics*. Ed. by Klaus Mathis. Springer, 2015, pp. 51–69; Gert Straetmans. "Misleading practices, the consumer information model and consumer protection". In: *Journal of European Consumer and Market Law* 5 (2016), p. 199.

⁵⁸ Anne-Lise Sibony. "Can EU consumer law benefit from behavioural insights? An analysis of the Unfair Practices Directive". In: *European Review of Private Law* 22.6 (2014), pp. 901–941.

discussion at present.⁵⁹ There are many behavioural studies proposed by the European Commission, but still no legislative agenda of behaviourally-informed policy-making has been presented. As it will be detailed in the next chapters, the extent to which the CJEU is willing to follow behavioural findings in interpretation of the concept of the average consumers is somewhat unclear.⁶⁰

A sure thing is that the normative value of the average consumer standard is greatly criticized for being detached from reality and from the advancement of a new consumer behavioural anthropologies. Moreover, a similar comment to the one concerning the effectiveness of maximum harmonisation can also be made on the average consumer. It is observed that national courts which have to concretely apply the average consumer in marketing practice will rarely follow the same patterns across the EU.⁶¹ The Directive itself explicitly recognise that "social, cultural and linguistic factors" can influence the determination of the average consumers, so it may be the case that national and local situations can be taken into consideration to instantiate more social protection⁶² and include behavioural insights.⁶³

7.2.3 Professional diligence and self-regulation

While the prohibition of misleading and aggressive practice demand only a distortive effect on the economic behaviour of the average consumer, the general clause on unfairness requires that a marketing practice for being unfair must be also contrary to the requirements of professional diligence.⁶⁴ This is defined by the Article 2(h) as "the standard of special skill and care which a trader may reasonably be expected to exercise towards consumers, commensurate with honest market practice and/or the general principle of good faith in the trader's field of activity"⁶⁵.

⁵⁹ Lucia A. Reisch and Min Zhao. "Behavioural economics, consumer behaviour and consumer policy: state of the art". In: *Behavioural Public Policy* 1.2 (2017), pp. 190–206. See in general on consumer protection and behavioural law, Hans-W. Micklitz, Anne-Lise Sibony, and Fabrizio Esposito. *Research methods in consumer law: a handbook*. Edward Elgar Publishing, 2018.

⁶⁰ H Schebesta and K Purnhagen. "An Average Consumer Concept of Bits and Pieces: Empirical Evidence on the Court of Justice of the European Union's Concept of the Average Consumer in the UCPD". in: *The Transformation of Economic Law – Essays in Honour of Hans-W. Micklitz*. Ed. by Luica De Almeida, Marta Cantero Gamito, and Mateja Durovic. Hart Publishing, 2019, pp. 13–27.

⁶¹ Howells, Micklitz, and Wilhelmsson, *European fair trading law: The unfair commercial practices directive*, pp. 46–93.

⁶² Rasmus Dalgaard Laustsen. "Putting the Average Consumer into Perspective". In: *The Average Consumer in Confusion-based Disputes in European Trademark Law and Similar Fictions*. Ed. by Rasmus Dalgaard Laustsen. Springer, 2020, pp. 369–387.

⁶³ Hanna Schebesta and Kai P. Purnhagen. "Is the 'behavioural turn' in consumer law taken by Dutch courts?" In: *Tijdschrift voor Consumentenrecht en handelspraktijken* (2017), pp. 272–278.

⁶⁴ Article 5(2) UCPD.

⁶⁵ Article 2(h) UCPD

There has been a great debate regarding the role that professional diligence plays in the system of fair trading law. The first draft of the proposal referred to "normal market practices"; a reference that was criticized because it would have resulted in commercial customs becoming the benchmark.⁶⁶ Now, the mention to "honest" and "good faith" clearly imposes a normative significance to professional diligence, meaning that the evaluation of unfairness cannot be based on how business generally behave towards consumers ("diligence"), but how they ought to behave.

With regard to this normative dimension, however, Micklitz observes that the Directive has failed to project the requirement of professional diligence into a concrete European consumer protection dimension. First, the UCPD has not created the structure to provide for guidance on the implementation of what constitute "honest market practices" at EU industry level. This idea was initially contemplated by the European Commission, but it soon waned as the institution saw few chances for the adoption of many significant European codes and was afraid that the idea of endorsing codes would then carry a presumption of conformity with the Directive.⁶⁷ Second, it is not clear what role should actually play consumer protection interests in the meaning of professional diligence: consumers are not in a position to establish what constitute honest market practices in the industry; their interest only counts indirectly as a normative corrective of standard set by the traders, if at all. The doubts are further exacerbated by the fact that the Directive has failed to give consumers associations a formal role in the elaboration of codes of conducts implementing the fairness standard, which would have been the case if the Commission had taken on a co-regulation strategy rather than self-regulation. As a result of this failure, it could therefore be assumed that the standards of marketing practices set by the commercial sector, to the extent that they are invoked, should take full account of the interests of consumers; something of which, though, it is reasonable to suspect. The conclusion is that the legal substance of the professional diligence requirement is virtually void, allowing the ruling on unfairness to incline towards the level of material distortion.

The refraining from establishing some legal mechanisms to develop EU code of practices has left ample room for self-regulatory initiatives. This is particularly relevant in the field of marketing and advertising where self-regulation has a long tradition.⁶⁸ The powerful role of private regulation in advertising results from the fact that consumers result in advertising is an essential prerequisite for making profit and not losing credibility in their ability

⁶⁶ Howells, Micklitz, and Wilhelmsson, *European fair trading law: The unfair commercial practices directive*, pp. 114–118.

⁶⁷ Follow-up Communication to the Green Paper on EU Consumer Protection' (Communication) COM (2002) 289 final, p. 11.

⁶⁸ Paul Verbruggen. "Enforcing transnational private regulation: a comparative analysis of case studies in advertising and food safety". PhD Thesis. European University Institute, 2013. URL: <https://cadmus.eui.eu/handle/1814/32331>, Mateja Durovic and Hans W. Micklitz. *Internationalization of consumer law: A game changer*. Springer, 2016, pp. 25–48.

to persuade.

A key role in advertising self-regulation has traditionally been carried out by the International Chamber of Commerce (ICC). The institution periodically publishes versions the ICC Marketing Code, which applies to both direct marketing and media advertising and act as the most significant marketing self-regulatory instrument globally. The Code is designed to protect consumers against fraudulent or misleading advertising but also non-economic harms relating to the taste and decency of the advertising messages. It contains an entire article on data protection and privacy norms, specifically for data collection and privacy notice, data usage, and security of processing. The code also dedicates an ample section to digital marketing communication and online advertising (called "interest-based advertising"). Although the ICC Code targets the harmonisation and coherency of its rules and has seen widespread adoption across the EU Member States, the ICC does not have any power to require national self-regulatory organisations to implement the requirements in a uniform manner.

To overcome the challenges to the internal market posed by various national level codes, in the 1990s, the EU commission pushed for the creation of a network of national advertising self-regulation authorities. The European Advertising Strategy Alliance (EASA) started its works in the early 1994 with the mandate to promote and develop self-regulation in the advertising sector and support of existing advertising self-regulatory systems. Unlike the ICC, however, the EASA does not establish substantive norms for advertising practices but include a set of performance standards for its self-regulatory members organisations. Their purpose is to optimise the regulatory activities of the SROs and enhance their impact and effectiveness. The EASA's Best Practice Recommendations for advertising practices are divided into, (1) operational recommendations, which offer guidance regarding the operation, structure and procedures of self-regulatory organisations, and; (2) blueprint recommendations which provide guidance on the remit and codes of semi regulatory organisations. Among the blueprints, the EASA has developed best practices recommendations on online behavioural advertising,⁶⁹ as well as recommendations on digital marketing communications.⁷⁰

Aside from the EASA, there are two other organisations that issue self-regulatory guidance at the EU level worthy of mention. First, the Federation of European Direct Marketing (FEDMA) which represents direct marketing associations at the EU level that has issued the Code of Conduct for e-commerce and interactive marketing. This Code aims "[...] to contribute to

⁶⁹ European Advertising Standard Alliance. *Best Practice Recommendation on Online Behavioural Advertising*. 2016. URL: <https://www.easa-alliance.org/sites/default/files>.

⁷⁰ European Advertising Standard Alliance. *Digital Marketing Communications Best Practice Recommendation*. 2015. URL: <https://www.easa-alliance.org/sites/default/files/2015>.

the growth of an e-commerce environment conducive to online direct marketing and at the same time protective of consumer interests"⁷¹. The Code reflects the requirements contained in the e-Commerce Directive and in particular the information and transparency requirements and aims to set the standard for ethical business conduct for online marketers selling goods or services or providing information as part of or following up to a sale. The Code forms part of FEDMA's trust mark system (i.e., the "Ring of Confidence" for e-commerce) with the companies adhering to the Code allowed to display a Guarantee Seal on their website. Secondly, the Interactive Advertising Bureau (IAB) Europe which is the European branch of the trade association representing advertising companies in the US and EU. The institution is especially active in the field of digital advertising and has published guidance documents on how to comply with EU law, in particular data protection and e-commerce laws.⁷²

The relationship between these self-regulatory initiatives and the systems of unfair practice law is not settled. Charlotte Pavillon speaks about a "stick and carrot" approach.⁷³ Most of existing EU self-regulatory initiatives that focus on B2C commercial practices have integrated the UCPD provisions.⁷⁴ There is, however, a considerable variation in the way and extent to which the UCPD norms have been internalized by code owners. Some codes of conducts include a general duty to trade fairly or a prohibition on misleading practices. In the field of advertising, self-regulatory bodies have been keen to ensure the respect of the standard of fairness enshrined in the regulation. The UCPD indeed appears to favour the elaboration of private regulation. Article 10 contemplates that the Directive "does not exclude the control, which Member States may encourage, of unfair commercial practices by code owners"⁷⁵. If adopted, and the adherence of a trader to the code is non-aspirational, firm, verifiable, and is made clear to the public, a violation would lead to unfair misleading practice. However, rather than igniting a virtuous mechanism, observes Pavillon, this particular provision has been perceived as disincentive for voluntary adherence to self-regulatory mechanisms as it has been argued that the provision in fact puts adoptee traders' commercial practices at risk of unintended non-compliance due to a requirement in a code which may represent a higher standard of protection than actually mandated by the UCPD itself.⁷⁶

⁷¹ Federation of European Direct Marketing (FEDMA). *European Code of Practice for the use of personal data in direct marketing*. 2020. URL: <https://www.eesc.europa.eu/sites/default/files/resources/docs/57-markt-2003-fedma-personal-data-in-direct-marketing.pdf>.

⁷² Interactive Advertising Bureau Europe. URL: <https://iabeurope.eu/our-focus/> (visited on 02/05/2020).

⁷³ Charlotte Pavillon. "The Interplay Between the Unfair Commercial Practices Directive and Codes of Conduct". In: *Erasmus L. Rev.* 5 (2012), p. 267.

⁷⁴ For example, EASA Best Practices on Online Behavioural Advertising refers to Unfair Commercial Practices.

⁷⁵ Article 10 UCPD

⁷⁶ Pavillon, "The Interplay Between the Unfair Commercial Practices Directive and Codes of Conduct", p. 273.

The current situation is that, albeit more harmonized via EASA recommendations and other SROs initiatives, much of the control over advertising is ensured by non-binding standard and implementation by SROs. This is, on the one hand, profitable for protecting consumers. With self-regulation, marketers can ensure that the rules introduced are actually achievable and can be implemented in as user friendly a manner as possible, with consumers benefiting from a flexible and rapid enforcement. EU policymaker also has always supported self-regulation, in which they see the chance of passing on much of the cost to industry and appearing to promote the freedom of economic partners to exercise their own autonomy. It is not clear, however, to what extent self-regulatory organisation can actually ensure a high level of consumer protection. Verbruggen notes that the level of procedural transparency of code drafting is very low and the involvement of supposed beneficiaries (e.g., NGOs and consumers associations) is not strongly developed yet. Monitoring of code compliance and enforcement is also a complicated matter.⁷⁷ These take largely place at local context, where only a small part of national SROs has actually developed their own monitoring policies and programs,⁷⁸ and where limited competencies and enforcement instruments (i.e., legally binding sanctions) exist. There is an additional, crucial aspect which affects digital advertising ecosystems and undermines the effectiveness of self-regulation in this field: weighty players in the digital media industry (e.g., ISPs, search engines, online ad networks, auction websites and social network communities) resist to pledge to existing self-regulatory organisation practices. These players are fairly new to the scene and do not yet have an established tradition of private regulation. In their search for a bigger share in the online advertising market, they have so far preferred not to (fully) submit themselves to the current private systems for the control of advertising practices.⁷⁹

7.3 Regulatory disconnection: plotting the legal analysis

Tensions between external control and marketing self-regulation, paternalistic intervention and consumer's self-help, and economic efficiency and social protection fundamentally shape the debate on the law of fair marketing. The framework has been differently declined over the last decade by the EU Commission and CJEU and there is no doubt that such balance has tilted towards the less restrictive solutions of the economic freedom of marketers with a

⁷⁷ Verbruggen, "Enforcing transnational private regulation", pp. 76–132.

⁷⁸ Howells, Micklitz, and Wilhelmsson, *European fair trading law: The unfair commercial practices directive*, pp. 209–232.

⁷⁹ For example, Google has joined the EASA only in October 2020, representing the very first online digital advertising company member. *Google Joins the European Advertising Standards Alliance – the First Digital Pure Play Company Member of the Alliance*. EASA Press Release. Oct. 2020. URL: <https://www.easa-alliance.org/news/easa/google-joins-easa>.

view to greater integration in the internal market. However, from the outset, the need for a balance between the different interests has been accepted as part of the law of marketing to ensure a high level of consumer protection, and now it is alleged as a general principle of EU private law.⁸⁰

Unfortunately, so far, there has been a limited discussion on role of EU fair trading law in the protection of consumers in the context of new algorithmic business practices.⁸¹ Some phenomena are certainly new and are increasingly emerging as source of concern, others have been gone unnoticed but have been with us for years. There is a general proclivity to regard data-driven and AI uses in marketing issues as a matter of data protection law and leave reflection to privacy lawyers. Yet, while privacy lawyers have realized that contemporary data practices do not merely pose a problem to privacy in up-stream data collection but also in the downstream usage of data and have indeed contributed to broader discussion of privacy in the digital marketplace, still only a few numbers of consumer lawyers have looked how Big data and AI transition in marketing practice affect consumer protection laws. A discussion on consumer protection law in the digital information economy has only recently emerged alongside privacy, but little has yet been said about the specific role of fair commercial practice law. This is bizarre given that consumer protection issues too are clearly at stake when it comes to algorithmic business practice. Data-driven surveillance environments imply a new an opaque relationship between businesses and consumers, whereby the former study consumer behaviours and the latter are dispossessed from the ability to control the flow of information. If consumer protection actually strives for an informed consumer, to what extent EU fair trading law should take a stance with regard to new information practices beyond the remit of personal data protection? Predictive personalization practices subject the consumer to a subtle but effective influence on consumers' behaviours steering towards the preferred options by their choice architects. How does the law whose goal is limiting business practices to protect consumers from undue influence should respond to the ubiquitous modulation of choice interface? Psychographics analytics and new empathic practices provide new

⁸⁰ Norbert Reich. *General principles of EU civil law*. Intersentia, 2013.

⁸¹ The potential role of unfair commercial practices law in the context of algorithmic practices has not gone unnoticed in current literature on law and technology. Arguably, however, it has often been treated peripherally. The role of the unfair practice law in regulating algorithmic practice has been only mentioned in: Gerhard Wagner and Horst Eidenmüller. "Down by Algorithms: Siphoning Rents, Exploiting Biases, and Shaping Preferences: Regulating the Dark Side of Personalized Transactions". In: *U. Chi. L. Rev.* 86 (2019), p. 581; Giovanni Comandé. "Regulating Algorithms' Regulation? First Ethico-Legal Principles, Problems, and Opportunities of Algorithms". In: *Transparent Data Mining for Big and Small Data*. Ed. by Tania Cerquitelli, Daniele Quercia, and Frank Pasquale. Springer, 2017, pp. 169–206. A more detailed discussion is contained in: Helberger, "Profiling and targeting consumers in the Internet of Things – A new challenge for consumer law"; Helberger, Borgesius, and Reyna, "The perfect match? A closer look at the relationship between EU consumer law and data protection law"; Federico Galli. "AI and consumers manipulation: what the role of EU fair marketing law?" In: *Católica Law Review* 4.2 (2020), pp. 35–64; Galli, "Online behavioural advertising and unfair manipulation between GDPR and UCPD".

means to engage with consumer's emotional sphere. How does EU fair trading law respond to the transition towards algorithmic neuromarketing? While relieving from mundane decision-making tasks, algorithmic assistants and digital devices also subject to a penetrating and potentially deceptive, 24/7 commercial engagement. Will be the new conversational commerce on the Internet of Things caught by the law, or should consumers be left alone to detect human-like commercial come-ones? In most quarters, the rise of a new pervasive, invasive and persuasive marketing space appears to be taken for granted; a fee that must be paid for innovations and efficiency gains in the new digital world. But it does not have to be this way. A discussion on the regulatory connection between the EU system of fair-trading law and new trends in marketing practices in the era of smart machines appears urgent.

The idea of a "regulatory connection" is presented by Roger Brownsword as a long-standing issue on the relationships between technology, technology-related practices and the law. This implies the acknowledgement of "a lack of correspondence or fit"⁸² between technological transformations and the law. The author makes a distinction between descriptive and normative disconnection. The former means that the descriptions employed by certain regulation no longer correspond to the technological apparatus of social practices. The latter instead highlights the problem that technologies and its applications "raise doubt as to the value compact that underlies the regulatory scheme – for example, because a known technology is now being applied for a different and questionable purpose or because a new technology raises question of principle or policy that are not clearly settled by the regulatory scheme". In both cases – Brownsword suggests – that the credibility of the regulatory framework is compromised, and remedial steps are required to realign the legal framework with the socio-technical reality.

With regard to the two types of disconnection highlighted by Brownsword, some preliminary observations can be made regarding the current states of EU fair trading law when evaluated from the perspective of algorithmic business practices. Take the Directive on unfair commercial practices. The wording of the text of the Directive does not seem to place any limits on the technological tools used in and for commercial initiatives towards consumers. The Directive regulates "any act, omission, course of conduct or representation, commercial communication including advertising and marketing, by a trader, directly connected with the promotion, sale or supply of a product to consumers"⁸³. Already, the EU Commission in the Explanatory Memorandum of the first proposal admitted that the broad formulation of the general

⁸² Roger Brownsword. *Law, Technology and Society: Reimagining the Regulatory Environment*. Routledge, 2019.

⁸³ Article 2(d) UCPD

unfairness clause would "ensure that Directive can adapt to changing technologies and market developments"⁸⁴. The technology-neutral character has been confirmed by the 2013 Communication and the 2016 Guidance in which the legal general framework on fair trading is presented as "technology neutral" and applicable to online and offline transaction, with the effect that is applied "regardless of the channel, medium or device used to implement a business-to-consumer commercial practice."⁸⁵ Indeed, that current EU rules are able to accommodate commercial practices related to online commerce has been confirmed recently, as we will see, by a legislative intervention in which the EU legislator has included new commercial practices implicitly referring to digital marketing.

Nevertheless, the regulatory fit must be evaluated not only in terms of a descriptive disconnection, but also a normative one. In this regard, it can be assumed -and indeed proven in the course of the next chapters- that although the current rules do not make explicit reference to specific technologies, the legal instrument presupposes a certain socio-technical, economic context in which rules and policies were introduced. EU rules on fair trading dates back to first half of the 2000s and are the result of a legislative evolution that began in the 1980s. Since this period, profound transformations have occurred in business practice, such as the progressive digitalization of business processes, the massive datafication of consumer behaviours, and lastly, the progressive automation of data analytics and decision-making. This new socio-technical context fosters a new corporate algorithmic culture of surveillance and a behavioural, cognitive and socio-psychological approach to consumers relationships, resulting in a substantial relocation of power between the two sides of the market. It might be then that current legal rules on fair trading, both in terms of content and form, do not necessarily best suit the challenges of algorithmic business practices. New commercial practice in the time of algorithmic-driven marketing may be governed by the provisions of the UCPD – no descriptive disconnection. However, new practices are influencing the normative concepts that are implicit in regulation, and it is therefore necessary to question the normative disconnection between practices and the law.

In the third and final part of the thesis, various assessments will be made regarding the normative fit of current EU legislation on fair trading in the context of algorithmic commercial practice. One way to do that would be to review the provisions of the existing law. It is indirectly done so, by reviewing three general normative concepts underlying the standard of fairness in current law, analyse their entanglements with EU consumer protection objectives, and critically analyse their role in the context of developments in

⁸⁴ Proposal for a Directive of the European Parliament and of the Council concerning unfair business-to-consumer commercial practices in the Internal Market and amending directives 84/450/EEC, 97/7/EC and 98/27/EC (the Unfair Commercial Practices Directive) SEC (2003) 724, COM/2003/0356 final - COD 2003/0134.

⁸⁵ UCPD Guidance, p. 109.

algorithmic business practice. The categories around which the analysis is built are:

- Manipulation (substantive) broadly refers to the rules that express consumers' entitlements not to be misled or unduly influenced by commercial practices to make choices that do not reflect informed and free decisions.
- Vulnerability (conceptual) is a concept related to the image of consumer that EU law protects, and which forms the benchmark against which measuring market fairness.

Chapter 8

Manipulation

8.1 Introduction

Of all the potential concerns that emerge from algorithmic business practice, the problem of consumer manipulation is increasingly regarded as the new "elephant in the room"¹. This is, in fact, not difficult to see: the ability to monitor consumers' traits, infer and predict personal traits and detect emotional states in real-time, while also design novel varieties of algorithms-mediated personalized interactions, ultimately suggests that marketers have increased in their power to study consumers behaviours and influence their behaviours at scale.

The debate on influence on consumers' decisions in digital marketing has increasingly developed within a strand of literature that goes under the heading of "digital market manipulation"². In 2014, Professor Ryan Calo was one of the first to discuss how emerging technologies would soon "empower corporations to discover and exploit the limits of each consumer's ability to pursue his or her own self-interest"³. Calo rightly pointed to new extensive data gathering and analytics systems that coupled with ubiquitous connected and smart devices mediate consumers' interaction with the marketplace and allow to personalize every aspect of the transaction. The author borrowed and built on the theory of market manipulation by Hanson and Kysar, who already in the late 1990s revealed the possibility that market outcomes be influenced, if not determined, by the ability of marketers to exploit psychological irrationalities in consumers decision-making. By controlling the format

¹ Klaus Wertenbroch. "From the Editor: Manipulation and Marketing: The Elephant in the Room?" In: *Journal of Marketing Behavior* 1.3-4 (2016), pp. 209–212. URL: <https://EconPapers.repec.org/RePEc:now:jnljmb:107.00000024>. Significantly that the need to address consumer manipulation and autonomy is also felt in academic marketing circles. For further discussion see: André et al., "Consumer choice and autonomy in the age of artificial intelligence and big data"; Klaus Wertenbroch et al. "Autonomy in consumer choice." In: *Marketing Letters* (2020), pp. 1–11.

² Among the most relevant publications, see, e.g., Calo, "Digital Market Manipulation"; Tal Z Zarsky. "Privacy and Manipulation in the Digital Age". In: *Theoretical Inquiries in Law* 20.1 (2019), pp. 157–188; Daniel Susser, Beate Roessler, and Helen Nissenbaum. "Online Manipulation: Hidden Influence in a digital world". In: *Georgetown Law Technology Review* 1 (2019); Shaun B Spencer. "The Problem of Online Manipulation". In: *U. Ill. L. Rev.* (2020), pp. 959–1006

³ Calo, "Digital Market Manipulation", p. 999.

of information, the framing and presentation of choice, and more generally, the setting within which market transaction occurs, companies would draft contract, minimize perception of risks, and otherwise attempt to extract as much profit as possible from consumers interactions. The two authors spoke about a new market failure and called for legislative intervention.⁴

In the past few years, the concern for market manipulation, both digital and non-digital, has moved into the mainstream. The intellectual impulse comes from behavioural scientists and in particular from behavioural economists within the already mentioned nudge theory. The general debate on ethics of this new appealing regulatory intervention has in fact led the supporters of the theory to become increasingly interested in the providing clearer definition of manipulation, to facilitate understanding of ethical nudging. Cass Sunstein, for example, suggests that an action can be counted as manipulative if "it does not sufficiently engage or appeal to their capacity for reflection and deliberation"⁵. Sufficiently refers to the degree of reflection and deliberation involved, not to the justification for the manipulation. Such ambiguity is intentional, he points out, because one cannot determine whether an attempt influence constitutes manipulation "without asking about sufficiency of people's capacity to deliberate on the question at hand"⁶. Following this definition, he holds that that not all nudges are manipulative. For example, information disclosure should not consider as manipulative because they appeal to people's deliberative capacities. The same is true for reminders which may counteract the selective attention or procrastination. Warning may be manipulative sometimes, but if they only "give people an understanding of risk", they are not. When nudges are manipulative, they may be so with different degrees ("it has least fifty shades") depending on the extent to which the manipulator effectively impairs deliberation. For example, he says, subliminal advertising bypasses deliberation all together and it clearly account as manipulative. But other forms of manipulation may only influence it by triggering certain form of automatic processing. For example, framing a problem so as to provoke the desired response may be manipulative.⁷

In a discussion on the limits of traditional privacy theories in dealing with the problem of online manipulation,⁸ Tal Zarksy also adopts Sunstein's definition of manipulative practices and elaborates why digital manipulation is particular problematic. He notes that in digital environments:

"(1) manipulation will involve the ability to tailor unique responses to every individual on the basis of previously-collected data, and (2) the

⁴ D Hanson and Douglas A Kysar. "Taking behavioralism seriously: The Problem of market manipulation". In: *New York University Law Review* 74 (1999), p. 630.

⁵ Cass R Sunstein. *The ethics of influence: Government in the age of behavioral science*. Cambridge University Press, 2016, p. 82.

⁶ *Ibid.*, p. 82.

⁷ *Ibid.*, p. 83.

⁸ Zarsky, "Privacy and Manipulation in the Digital Age".

*ability to adapt and change the tailored response in view of ongoing feedback from the user and other peers, thus rendering manipulation an ongoing process, as opposed to a one-time action; (3) manipulation will often occur while the individual is oblivious to the noted processes (or, in other words, in a non-transparent environment); and (4) the manipulation will be facilitated by the availability of advanced data analytics tools (including those that apply data mining), which allow the system designer to acquire deep insights as to what forms of persuasion are proving effective over time."*⁹

In a previous work, the same author identified two potentially harmful forms of online persuasion. The first is deceptive advertising, which has greatly drawn most of the regulatory attention; the second is marketing which is "manipulative and impedes the relevant consumer's autonomy". In particular, Zarsky describes the potential harm from manipulative advertising: "[W]hen consumers are bombarded with specially tailored marketing pitches and advertisements that will capitalize on their vulnerabilities and take advantage of their weaknesses, their subsequent actions might not be those that they would have chosen, should they have had the opportunity to reflect on these matters in solitude."¹⁰

The difference between manipulation, deception and other form of influence is also taken on in the analysis of Susser, Roessler, Nissenbaum. Here manipulation is located along a spectrum of influence techniques whereby the least troubling is persuasion, followed by manipulation, deception, and coercion.¹¹ Distinguishing manipulation from coercion appears to be straightforward: coercion is defined "the restriction of acceptable options from which another personal might choose"¹². By contrast they argue that manipulation exploits "the manipulatee's cognitive (or affective) weaknesses and vulnerabilities"¹³. Contrarily, deception as "to cause [someone] to hold false belief" and manipulation is not a require element of deception. The most challenging distinction is between persuasion and manipulation. Persuasion is said to have a double meaning: in the broader sense, it means "change someone's mind"; in the stricter sense means "changing someone's mind by giving reasons he or she can reflect on and evaluate". Persuasion is thus different from manipulation because it is a "rational persuasion" and may be perfectly morally acceptable. Manipulation in contrast, by-passes the subject's decision-making powers entirely. Moreover, in the view of the authors, manipulation also includes another element that does not appear in previous definition in that it must exert "hidden influence".

⁹ Ibid., p. 163.

¹⁰ Tal Z. Zarsky. "Online Privacy, Tailoring, and Persuasion". In: *Privacy and Technologies of Identity: A Cross-Disciplinary Conversation*. Ed. by Katherine J. Strandburg and Daniela Stan Raicu. Springer US, 2006, pp. 209–224.

¹¹ Susser, Roessler, and Nissenbaum, "Online Manipulation: Hidden Influence in a digital world".

¹² Ibid., p. 3.

¹³ Ibid., p. 3.

Responding to Cass Sunstein, Eric Posner offered yet another definition of manipulation in his response to Sunstein's definition discussed above. He begins with a dictionary definition of manipulation: "to control or play upon artful, unfair, or insidious means especially to one's own advantage"¹⁴. According to Posner, the manipulator knows that the individuals' "incorrect assumptions to a transaction and does not correct them, or else anticipates and takes advantage of people's propensity to make incorrect inferences."¹⁵ Again, Posner's definition shares much in common with the targeting and exploiting vulnerabilities elements of Susser et al.'s definition.

Different arguments have been proposed to justify a regulatory focus on market manipulation. First of all, manipulation harms autonomy, as it undermines people's decision-making agency. The purpose of marketers is to sell products, and there exists purely factual presentations, many advertisements do not appeal to reflection or deliberation at all. They try to create certain moods and associations; the affect heuristic looms large.

Market manipulation also poses regulatory concerns when opting for less focus on autonomy, and more on welfarist perspective. In this vein, manipulation leads to inefficient outcomes leading consumers to make choice that are inconsistent with their preferences. This argument flows from the liberal perspective according to which the individual is the only one in a position to decide what is best for him or herself. Certainly, being manipulated might provide efficient outcomes and leads for more pleasure experience. Personalization practices might indeed facilitate choice and increase efficiency, but the argument assumes that algorithmic traders know exactly what consumers preferences are and have always an interest in satisfying them. As we have seen satisfaction as defined in algorithmic terms is very ambiguous, moreover preferences are biased and do not consider values and context. It should also be noted that the use of emotions could generate more appealing consumer experiences. But even here, one would neglect the arguments derived from behavioural sciences that illustrate how emotions stimulate certain irrational behaviours in consumers which might lead to inefficient choices. If consumers are manipulated, they are deprived of the (full) ability to make choices on their own, simply because they are not given a fair or adequate chance to weigh all possible variables. In this vein, personalization should raise an alarm considering the ever-refined modulation and restriction of choice that it can generate. If someone wants to help people to make better choices, his obligation is to inform them, so that they can themselves engage in such weighing.

The welfarist objection to regulate manipulation generally appeals to the

¹⁴ Eric A Posner. *The Law, Economics, and Psychology of Manipulation*. Coase-Sandor Working Paper Series in Law and Economics 725. University of Chicago, 2015. URL: https://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=2420&context=law_and_economics.

¹⁵ *Ibid.*, p. 1.

argument that market itself is suitable to protect consumer welfare via competition. Competitive pressure on digital marketers ensure that they afford the best products and experience in order to satisfy consumers, so that unfair traders will be pushed out to the market by the consumers' voting with their choice. The argument hardly holds up, though. In a recent book, Nobel Prize winners George Akerlof and Robert Shiller argue that in free markets, "phishermen" prey on the ignorance or the biases of "phools" (laypeople).¹⁶ Akerlof and Shiller contend that the invisible hand ensures that phishermen will be plentiful, and succeed, because companies that do not prey on ignorance or biases will be at a competitive disadvantage. The invisible hand rather than self-correcting manipulative behaviours, promotes certain kinds of manipulation. The world of algorithmic business is certainly a point in favour of Akerlof and Shiller's argument. The algorithmic business today competes with extracting an increasingly fine-grained array of consumer information to design personalized and targeted commercial communication for maximise efficiency.¹⁷ Competition does no longer take place in an overt manner through public advertising and price: firms do not know what kind of information rivals have about consumers, nor how they use this to reach for consumers over their personal device or smart assistants. If potential customers have been diverted from one vendor to another through hyper-nudging strategy, competitors cannot know about it. Any business adopting algorithmic means is therefore incentivised to be a "phishermen" and following Akerlof and Shiller, there are indeed grounds for stronger regulatory controls on manipulation by commercial actors; the invisible hand is not promoting people's welfare.

8.2 Manipulation and autonomy in EU law

In the past few years, the normative concerns around market manipulation and consumer autonomy, have moved into the mainstream and has also entered the field of EU consumer protection, through the intellectual impulse coming from behavioural economics. Inspired by the work of behavioural economists such as Tversky and Kahneman, Dan Ariely, and most notably Thaler and Sunstein, a thriving research stream has emerged to contest the normative assumptions and methodologies of current consumer protection rules and policy with the evidence that consumers do not always behave rationally in their own interest as traditional economic models assume. The object of investigation is to what extent EU law is or should be permeable

¹⁶ George A. Akerlof and Robert J. Shiller. *Phishing for phools: The economics of manipulation and deception*. Princeton University Press, 2015.

¹⁷ Ariel Ezrachi and Maurice E Stucke. *Virtual competition*. Oxford University Press, 2016.

to findings from behavioural science in order to better frame the development of more effective consumer protection rules.¹⁸ In this regard, in their edited book *Nudge and the Law*, Alemanno and Sibony have convincingly suggested to distinguish the field of consumer law and behavioural science between public nudging and private nudging. The former regards active policy-making and includes regulators and public authorities which seeks to steer behaviour in the public interests, taking into consideration behavioural findings and different nudging (e.g., framing, defaults, etc.). The latter include the legislative reaction to the exploitation of biases by market forces through the regulation of such strategies.¹⁹

The problem of digital market manipulation clearly fits into this latter strand of discussion and has a special meaning for algorithmic business practice. Here, behavioural findings intersect with the broader data-driven context in which business-consumer relationships unfold: marketing initiatives are not simply based "consumers' bias", they are driven by surveillance of datafied "behaviours"²⁰ and adopt a radical behaviourist and socio / psychological approach to shaping the context of decision-making. Therefore, if algorithmic marketers base their conduct on how consumers behave, then arguments exists that also the law that strive to protect consumer behaviours should acknowledge and indeed make use both of behavioural findings as filtered by its socio-technical context. As seen in the previous chapter, EU fair trade law, notably the UCPD, with its great emphasis on consumers' decision-making powers, represent the primary legal instrument combating manipulative commercial practices,²¹ and – as many authors have acknowledge – it clearly plays a role in the debate regarding manipulation.²² In particular, a new approach to this field of the law require to (re)consider the dividing line between permissible influence and prohibited distortion of consumer behaviour in the light of the behavioural turn in marketing practice. An answer to such a question is concerned with defining the desirable level

¹⁸ In particular, for behavioural findings in EU in general, see Alberto Alemanno and Anne-Lise Sibony. *Nudge and the law: A European perspective*. Bloomsbury Publishing, 2015. For behavioural economics and consumer law, see, Micklitz, Sibony, and Esposito, *Research methods in consumer law*.

¹⁹ Alemanno and Sibony, *Nudge and the law: A European perspective*, p. 11.

²⁰ As highlighted in Chapter 4, and as far as the purposes of current analysis are concerned, the notion of "behaviour", as it includes anything that can be digitally monitored.

²¹ Obviously, here, the term "manipulation" is used with a normative connotation rather than with its (still very much unclear) descriptive account. Indeed, it is assumed that EU consumer law has already its own view on what constitutes manipulation, i.e. an unfair distortion of consumers' economic behaviours.

²² Trzaskowski, "Behavioural Economics, Neuroscience, and the Unfair Commercial Practices Directive"; Avishalom Tor. "Some Challenges Facing a Behaviorally-Informed Approach to the Directive on Unfair Commercial Practices". In: *Unfair commercial practices: the long road to harmonized law enforcement*. Ed. by Tihamér Tóth. Pázmány Press, 2013; Sibony, "Can EU consumer law benefit from behavioural insights? An analysis of the Unfair Practices Directive"; Jan Trzaskowski. "Behavioural innovations in marketing law". In: *Research Methods in Consumer Law*. Ed. by Hans-W. Micklitz, Anne-Lise Sibony, and Fabrizio Esposito. Edward Elgar Publishing, 2018, pp. 296–333.

of consumer protection in new contexts where intimate information about consumer is available and requires a careful balancing between limitation of businesses' freedom of contract and consumers' ability to make autonomous choice. The question requires first to understand the value the EU legal system puts on autonomy as a legal concept, as this allows to explain whether and on what grounds the EU legislator intervenes or may intervene in the market to regulate digital manipulation to protect consumers decisions.

The importance of personal autonomy in the discussion about democratic rights and personal freedom is undisputed.²³ As observed by Reich, "every liberal legal order has the autonomy of private parties as its basic philosophy"²⁴. National legal systems rest on the fundamental assumption of autonomous decision-making of individual agents in contract law, tort law, company law etc. Those legal individuations of autonomy are closely connected, both in their historical genesis as well as in their content, to philosophical conceptualizations of autonomy.

Especially in contract law, despite the remarkable difference between national concepts of private autonomy,²⁵ the philosophical liberal tradition confers private autonomy a dual dimension. First, through law of contract, private parties are free to pursue their self-interests without restriction of their interests without state intervention (active private autonomy). In this first meaning, private autonomy constitutes a fundamental embankment of individual freedom from public power. Second, private autonomy is said also to a freedom not to enter into a contract (passive private autonomy): the theory of will require that individual should be free to decide whether and on what terms stipulate bargain and for that need to express their consents. This applies both to the public power which, as a general rule, shall not force the private individuals to enter into contracts against her will, and to the contractual counterpart, whose only limit to his (active) autonomy is to respect the autonomy of the counterpart. There is in fact an inevitable tension between the right to pursue one's interests and the need to respect the autonomy of others.

Every jurisdiction navigates these tensions through different legal figure incorporated in common law doctrines (e.g., misrepresentation, mistake or undue influence), or the civil law norms (e.g., error, violence, and fraud), which are regarded as a problem of defective consent. Thus, the interests of national contract law in manipulative practices stems from the principle of party autonomy according to which, in order for a contract to be valid and enforceable, the agreement between the parties requires that the party has given her consent of the party, which cannot be extorted through misconducts. Provided that the prevailing objective theories of the contract does

²³ For an overall review of the concept, see Robert Young. *Personal autonomy: Beyond negative and positive liberty*. Taylor & Francis, 2017.

²⁴ Reich, *General principles of EU civil law*, p. 18.

²⁵ Hans-W. Micklitz. "On the intellectual history of freedom of contract and regulation". In: *Penn St. JL & Int'l Aff.* 4 (2015), p. 1.

not require subjective, the absence of consent can therefore give the party manipulated a number of tools to make the agreement ineffective.

As far as EU (private) law is concerned, things get a bit more complicated.²⁶ Primary European Union law originally did not expressly guarantee the autonomy of economic actors, but it presupposes it in its legal rules. Article 3(3) TFEU requires as the basis for the internal market "a highly competitive social market economy"²⁷. A functioning internal market can indeed only exist if actors can freely decide whether to enter into a contract or not and if they can take that decision in informed way. Freedom of business to decide whether and on what conditions to enter into the market is considered fundamental to the functioning of market economies, as is the freedom of the consumers to choose the products and services and the conditions on which they are willing to enter into legal relationships without undue restriction on freedom of choice. Freedom of decision for active market citizens and freedom of choice for consumers are two of the governing principles of a liberal market system. In that, EU builds on the private legal systems of Member States.²⁸ It has not been, therefore, necessary for EU to define autonomy explicitly as a fundamental principle, but it presupposed it in its legal rules.

Simultaneously, the European Court of Justice recognizes that EU law may legitimately restrict personal autonomy,²⁹ as fundamental individual rights are not granted without limits,³⁰ and moreover must be viewed, as the CJEU notes with respect to the freedom to conduct a business, in relation to their "social function".³¹ Indeed, the role of personal autonomy in the system of EU law is said to be best understood as "framed" or "regulated autonomy".³² In this vein, Micklitz and Comparato suggest that in the EU legal order private autonomy is a "regulated autonomy". The EU private law

²⁶ Stephen Weatherill. "The elusive character of private autonomy in EU law". In: *The Involvement of EU Law in Private Law Relationships*. Ed. by Dorota Leczykiewicz and Stephen Weatherill. Bloomsbury Publishing, 2013, pp. 9–28.

²⁷ In full, Article 3(3) reads "The Union shall establish an internal market. It shall work for the sustainable development of Europe based on balanced economic growth and price stability, a highly competitive social market economy, aiming at full employment and social progress, and a high level of protection and improvement of the quality of the environment. It shall promote scientific and technological advance."

²⁸ Reich, *General principles of EU civil law*, pp. 17–36.

²⁹ Harms, C-434/08, para 36.

³⁰ Article 52(1) of the EU Charter of Fundamental Rights provides that "any limitation on the exercise of the rights and freedoms recognised by this Charter must be provided for by law and respect the essence of those rights and freedoms. Subject to the principle of proportionality, limitations may be made only if they are necessary and genuinely meet objectives of general interest recognised by the Union or the need to protect the rights and freedoms of others".

³¹ Case C-283/11, Sky Österreich GmbH v Österreichischer Rundfunk, ECLI: EU:C:2013:28, para. 45.

³² Guido Comparato and Hans-W. Micklitz. "Regulated autonomy between Market Freedoms and Fundamental Rights in the Case Law of the CJEU". in: *General Principles of EU Law and European Private Law*. Ed. by Ulf Bernitz, Xavier Groussot, and Felix Schulyok. Kluwer Law International, 2013, pp. 121–154; Guido Comparato, Hans-W. Micklitz, and Yane Svetiev. "The regulatory character of European private law". In: *Research Handbook on*

protect autonomy but instrumentalises it in order to achieve its policy objectives, notably the fulfilment of the internal market.³³ This is clearly visible in the limits imposed to business freedom by EU law. The first results in a series of limits on commercial action imposed to ensure fair competition (such as, provisions against restriction, contractual effect of nullity in case of unfair concerted agreement between undertakings). The second deals with the rule that limit commercial freedom and freedom of contract to ensure that consumers are sufficiently protected.

With regard to the second, it is noteworthy that, while national private law protects freedom of contract autonomy assuming relations between equals (where equality is taken to be legal equality, not economic equality), EU conception of private autonomy has developed to ensure that also economic factors play a role. Indeed, as we shall say in the next chapter, the weaker party protection represents the principle which justify the restriction of party autonomy of the business, considered by default the stronger party, with a view to balance the position between the parties and in order to allow consumers to the exercise their autonomy through freedom of choice.³⁴ In this case too, however, autonomy is "framed" and instrumentalised to the fulfilment of the internal market.³⁵ As we will say in more detail in the next chapter, the development of the protection of the weaker party starts from the specific assumption that consumers are in a disadvantaged position vis-à-vis traders, specifically with regard to the information and bargaining power. In this sense, information obligations constitute the fundamental element that limit autonomy of traders and guaranteeing that of consumers, through informed decisions.

Despite problems that may emerge from its approach when dealing with the underlying concept of autonomy, this brief reconstruction immediately allows to put the argument of paternalism into perspective. EU law "provide for an extension of private autonomy for actors", but "simultaneously imposes a set of conditions on that extended autonomy"³⁶. The traditional

EU Consumer and Contract Law. Ed. by Christian Twigg-Flesner. Edward Elgar Publishing, 2016, pp. 35–67.

³³ In this vein, Comparato and Micklitz, "Regulated autonomy between Market Freedoms and Fundamental Rights in the Case Law of the CJEU", pp. 121–122 observe that, "[e]xpressing the individual's autonomy to freely organize their social and economic life, private autonomy – together with the recognition of private property – is the foundation of the free market economy. But this link to certain political and economic ideology is a hint to the fact that behind the generic definition of private autonomy lurks a wide range of understandings, ideologies and designs."

³⁴ Reich analyses the principle of the weaker party as the main principle counterbalancing (framing) the principle of autonomy. Reich, *General principles of EU civil law*, pp. 37–58. See also, Hans-W. Micklitz. "The principles of European contract law and the protection of the weaker party". In: *Journal of Consumer Policy* 27.3 (2004), pp. 339–356.

³⁵ Vanessa Mak. "The consumer in European regulatory private law". In: *The Image of the Consumer in EU Law: Legislation, Free Movement and Competition Law*. Ed. by Dorota Leczykiewicz and Stephen Weatherill. Hart Publishing, 2016, pp. 381–400.

³⁶ Hans-W Micklitz, Yane Svetiev, and Guido Comparato. *European Regulatory Private Law – The Paradigms Tested*. EUI Working Papers LAW 31 ERPL-1. EUI, 2012, p. 3.

division between private autonomy and public intervention, between the freedom of the individuals to determine their legal relationship in accordance with their free will and the state regulation that promote social and economic policies, appears to be blurred in EU conception of regulated autonomy. Such an impression— together with the recognition that different legal norms may affect autonomy of the particular market actors to a different degree – sheds a more nuanced light on the classical debate about the extent to which state intervention can limit private autonomy. In other words, EU intervention in limiting or expanding autonomy of its citizens shall not be merely understood as an act of paternalistic, and exclusively aimed at promoting the self-interest of the individuals. Clearly, paternalism is something that is inherent in the weaker parties (the political arguments against paternalism come mainly from the United States which historically has regarded intervention in the market as less justifiable for general welfare purposes). However, the importance of intervening into the market in order to ensure autonomy of citizen-consumers shows something more than paternalism, as it is deeply rooted in the very vision of a market society promoted by the EU.

The overall balance implied in the idea of regulated autonomy is also reflected beyond pure contract law, notably in the concept of fairness promoted in EU law on commercial practices.³⁷ As seen in the previous chapter, given the maximum harmonization approach, the law on fair trading enhances private (economic) autonomy of traders in that it allows them to market their products within the EU without sensible differences in national consumer protection bans. At the same time, the EU frames traders' autonomy in order to protect consumers and allow them the exercise of theirs.³⁸ Crucially, however, consumers' autonomy too is "framed", in the sense that regulation protects its reflection in economic behaviours. At regulatory level, this balance is translated into the definition of "material distortion of the economic behaviour" of the average consumer contained in the general unfairness clause. A "material distortion of economic behaviour" is defined by the Directive as:

*"using a commercial practice to appreciably impair the consumer's ability to make an informed decision, thereby causing the consumer to take a transactional decision that he would not have taken otherwise;"*³⁹

Therefore, it is not the consumers' behaviour per se which is of concern of EU law but their behaviour in the market (economic behaviour). This can only be affected if the consumer does not merely "behave", that is, examines

³⁷ Hans W. Micklitz. "Unfair Commercial Practices and European Private law". In: *The Cambridge Companion to European Union Private Law*. Ed. by C Twigg-Flesner Christian. Cambridge University Press, 2010, pp. 229–242.

³⁸ The principle of the weaker party has been invoked by the EU Court of Justice in different areas of the consumer law *acquis*. With regard to the Unfair Commercial Practice Directive, a reference to the concept can be found in Case C-59/12, *Zentrale zur Bekämpfung unlauteren Wettbewerbs*, ECLI:EU: C:2013:634; Case C-388/13, *UPC Magyarország*, ECLI:EU:C:2015:225.

³⁹ Article 2(e) UCPD.

advertising and marketing materials that surrounds her, but also and as long as she is willing to take a transactional decision.⁴⁰ For that, she requires information. Only an informed decision of consumer can contribute to a fair competition in the market. This is why the decisions must be regarded as transactional decisions. As we will see shortly below, the space of manoeuvre to influence a transactional decision is very broad, but in the pre-transaction stage it clearly must be related to the act of purchasing.

The UCPD shows an additional entanglement with consumer autonomy. This is reflected in the prohibition of aggressive practices which states that

*"... if, in its factual context, taking account of all its features and circumstances, by harassment, coercion, including the use of physical force, or undue influence, it significantly impairs or is likely to significantly impair the average consumer's freedom of choice or conduct with regard to the product and thereby causes him or is likely to cause him to take a transactional decision that he would not have taken otherwise."*⁴¹

Many of the practices considered aggressive by the same directive imply a nuanced conceptual approach to the relationship between freedom of choice and autonomy. Despite the various terminology (Tables 8.1 and 8.2), it can be drawn a direct line between economic behaviour, informed and free transaction decisions, and personal autonomy. The rules of unfair trade can therefore ultimately be seen as an intervention in the market aimed at protecting consumers' decision-making in the market, ensuring informed decisions and preventing undue limitations of the freedom of choice. Reading this intervention in a strictly paternalistic sense (the state knows best what is best for the consumer) is reductive. The intervention in the autonomy of the parties is functional to the economic and socio-political objectives of the EU, i.e., the construction of the internal market and the protection of consumers.⁴²

In the remainder of the chapter, the concepts that define unfair distortion will be analysed and discussed in light of the socio-technical context that we have analysed in the second part and we will highlight some critical issues when it comes to shield potential forms of unfair influence in the algorithmic business. We shall first look at the effect of manipulative practices by considering a) the concept of material distortion. Then, we shall review causes and look at the norms that define b) deception, c) coercion, and specifically d) the use of emotions.

Unfair practices	Means	Effects	Test
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⁴⁰ Howells, Micklitz, and Wilhelmsson, *European fair trading law: The unfair commercial practices directive*, p. 121.

⁴¹ Article 8 UCPD.

⁴² Howells, Micklitz, and Wilhelmsson, *European fair trading law: The unfair commercial practices directive*, p. 186.

Misleading actions Article 6	False information (regarding e.g. products characteristics, price and calculation)	Transactional decision that he would not taken otherwise (likely)	Average consumer
Misleading omissions Article 7	Omission of material information needed for informed decision	Transactional decision that he would not taken otherwise (likely)	Average consumer
Aggressive Article 8	Harassment, coercion (including physical force), undue influence	Significantly impair freedom of choice (likely) Transactional decision that he would not taken otherwise (likely)	Average consumer
General unfairness Article 5	Any practices contrary to the requirement of professional diligence	Materially distort the economic behaviour of consumers)	Average, targeted, vulnerable consumer

TABLE 8.1: Manipulation-related provisions in the UCPD

Concept	Relevant definition in the UCPD
Material distortion of economic behaviour Article 2(e)	Using a commercial practice to appreciably impair the consumer's ability to make an informed decision, thereby causing the consumer to take a transactional decision that he would not have taken otherwise
Transactional decisions Article 2(k)	Any decision taken by a consumer concerning whether, how and on what terms to purchase, make payment in whole or in part for, retain or dispose of a product or to exercise a contractual right in relation to the product, whether the consumer decides to act or to refrain from acting

Undue influence Article 2(j)	Exploiting a position of power in relation to the consumer so as to apply pressure, even without using or threatening to use physical force, in a way which significantly limits the consumer's ability to make an informed decision
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TABLE 8.2: Manipulation-related definitions in the UCPD

8.3 Distortion

Though using different terminologies, the general clause on unfairness (Article 5) and the small clauses on misleading actions/omission (Articles 6 and 7) and aggressive practices (Article 8) all require that for establishing unfairness, traders must carry out a practice that is *likely to cause* some sort of *meaningful distortion* in consumers behaviours *as reflected into a transactional decision*. Let us proceed backwards to understand what counts as a distortion for Community law.

8.3.1 Transactional decision or customer experience

As mentioned above, the idea of manipulative conducts advanced by the current discipline is limited to its manifestation in a transactional decision, that is a decision concerning a transaction. The concept is in line with the corresponding notion of commercial practices, which does not include all commercial behaviours, but acts, omissions, and conducts "directly connected with the promotion, sale, or supply of a product to consumers"⁴³. The wording used in the Directive to describe a "transactional decision" seems to encompass a broad spectrum of decisions as it includes "any decision taken by a consumer concerning whether, how and on what terms to purchase, make payment in whole or in part for, retain or dispose of a product or to exercise a contractual right in relation to the product, whether the consumer decides to act or to refrain from acting"⁴⁴. The broad reach of the definition has been accepted by the CJEU stating that a transaction decision "covers not only the decision whether or not to purchase a product, but also the decision directly related to that decision, in particular the decision to enter the shop"⁴⁵. The UCPD Guidance too has clarified on this point, where it states that a varied type of pre-purchase decisions taking place in the online marketplace can be considered transactional decisions "a decision to travel to a sales outlet or

⁴³ Article 2 UCPD.

⁴⁴ Article 2(k) UCPD.

⁴⁵ Case C-281/12, Trento Sviluppo and Centrale Adriatica, ECLI:EU:C:2013:859, paras. 35-38.

shop as a result of a commercial offers"; "a decision to agree to a sale presentation by a trader"; "a decision to click through a website as a result of a commercial offer"⁴⁶.

Despite its broad interpretation, the legal concept of the "transactional decision" as the fulcrum of influence, is largely at odds with existing notions of consumer behaviours in the context of algorithmic business practice. The interest in consumers behaviours is today regarded as part of an overall idea of "customer experience". This approach was already developed by early marketing scholars with the idea that "what people really desire are not products but satisfying experiences"⁴⁷. The credo has carried on by experiential theories of marketing towards digital marketing which encourage a broader view of consumers' behaviours, especially recognising the role of emotional and social aspects of decision making. Indeed, Pine and Gilmore conceptualized the idea of experiences as typically distinct from goods and services, noting that a consumer purchases an experience to "spend time enjoying a series of memorable events that a company stages [...] to engage him in an inherently personal way."⁴⁸ In general scholars and marketing practitioners have come to agree that customer experience is a multidimensional construct including cognitive, emotional, behavioural, sensorial and social components.⁴⁹ The concept of customer experience is often reflected in the idea of a "customer journey" with the firm over time during the purchase cycle across multiple "touch points". The customer experience process flows from pre-purchase to post purchase, whereby the former includes behaviours such as need recognition, search and brand consideration and the latter include – covers all customer interactions with the brand and its environment during the purchase event itself (choice, ordering and payment).

It is unclear how these much more refined categories on consumer behaviours translate into the legal notion of transactional decision of a consumer. In particular, it is crucial to understand to what extent fair trading law ought to control marketing practices that influence all the stages prior customer purchase, i.e., awareness and evaluation phase of product. Takes content marketing. This is typically realised through personalized content, which is displayed on the page by hosting webpages to entice click and lead consumers towards landing webpages. The content may simply promote awareness of certain brand, but not directly lead to a conclusion of a transactional decisions. To what extent this click might entail a transactional decision is far from clear. Interestingly, the Commission only finds that a click as a result of a commercial offer might entail a transactional decision, while the CJEU include also the decision of entering into a physical shop.

⁴⁶ UCPD Guidance, p. 34.

⁴⁷ Lawrence Abbott. *Quality and competition: an essay in economic theory*. Columbia University Press, 1955.

⁴⁸ B. Joseph Pine and James H. Gilmore. *The experience economy*. Harvard Business Press, 2011.

⁴⁹ Katherine N. Lemon and Peter C. Verhoef. "Understanding customer experience throughout the customer journey". In: *Journal of Marketing* 80.6 (2016), pp. 69–96.

Combined together these two interpretations might suggest that a click on a digital content on a content webpage (say a newspaper) that lead to enter in a web shop platform, might entail a transactional decision, but probably the interpretation would run against the wording of the Directive. The same concerns are echoed by Jan Trzaskowski with regard to the concept of branding. Branding is a typical conduct whereby the company does not specifically call consumer to a purchase, but simply raise awareness in consumer mind on the firm and firm offers.⁵⁰ The author observes that although this exception does not appear to have been intended by the lawmakers, the focus on transactional decision complicates today's marketing regulation as it unwittingly appears to omit marketing that does not promote a specific product from the scope of application. This is also noted by Schebesta in her report on behavioural practice on social media, which argues that paradoxically a behavioural approach to marketing regulation should indeed recant the concept of the "transactional decision".⁵¹

One, at this point, could even question, upstream, what a commercial practice actually is in algorithmic marketing, and whether, for example, recommendation practices and other personalisation mechanism which are not specifically designed to trigger an instant purchase, but simply to enhance commercial experience by filtering, curating or accommodating commercial information, can be classified similarly. While targeted advertising, although potentially travelling across several website, is arguably directly related to a promotion, recommendation or web designing practices for modulating site content (which would not generally be considered advertising per se) actively encourage or potentially manipulate certain behaviours from consumers by mediating the flow of content to the user.

8.3.2 Material distortion or engagement

With reference to Article 5(2), Article 2(e) UCPD specifies that to "materially distort the economic behaviour of consumers" means to use "a commercial practice to appreciably impair the consumer's ability to make an informed decision, thereby causing the consumer to take a transactional decision that he would not have taken otherwise". There are at least three aspects that need to be clarified in the conceptual approach of the material distortion: 1) the distortion must result in a significant impairment (hence, "material"); 2) the impairment must not necessarily be on the decision, but on the ability to make it; 3) there is no distortion if it can be said that the consumer would have made that decision anyway. These different characteristics, which might be referred as materiality, potentiality, and causality are

⁵⁰ Jan Trzaskowski. "Unsolicited communication in social media". In: *Eur. Bus. L. Rev.* 25 (2014), p. 389.

⁵¹ H. Schebesta. *Behavioural study on advertising and marketing practices in online social media: Annex 1.5 legal assessment of problematic practices*. 2018.

also contained in the prohibition of misleading and aggressive practices.⁵²

With regard the last element, causality, Gomez describes this test as an exercise of "counterfactuals": the distortion exists if the observed decision taken by the consumer exposed to the commercial practice departs from what would otherwise have been his or her decision. Although it might not be interpreted in a strict sense,⁵³ the idea of the material distortion is clear that the distortion must somewhat been induced by the specific behaviour of the trader. The judge therefore must conclude that if the behaviours would have remained unchanged, that the law should not sanction the practice. But how should the law set up counterfactual reasoning in this case of personalized offers? Let us consider the case where an online customer who has been profiled as an ardent Catholic receives promotional content for a donation to the Church and decides to spend money. Do the ads distort her behaviours? Applying counterfactual reasoning in the UCPD, one may conclude that the likelihood is greater that the consumer already had some kind of predicament for taking that particular decision, if the product is likely corresponding with her individual needs and preferences. What if a Jane who buys garden plants receives an advertisement for an organic cosmetics product, why has the algorithmic system deduced that consumers with green thumbs tend to buy beauty products on Friday afternoons? Can the judge conclude that in the absence of the advertisement Jane would have bought the product anyway? For those who think that, "OK, at most Jane will have spent 20 euros to buy the product", one could take the reasoning to its extreme consequences and ask whether to determine bias when the system finds a correlation between young students, Facebook interactions, depressive state, and allows an advertisement to be placed on psychological counselling online course. How should the law frame the legal judgement here?

All these questions are hypothetical but reflect circumstance that may indeed happen in the algorithmic business. After all, even if these circumstances remained hypothetical, one might wonder what role the second criterion above plays. What is required for unfairness is just the existence of the ability of a particular commercial practice to materially distort the economic behaviour of an average consumer. There is no need for a consumer to have suffered real damage. Such a broadly applicable formulation provides an additional layer of protection for the consumer. Yet, when regarded from the perspective of predictive personalization, one would need to ask the actual role its play. As designed, the mechanisms of personalization techniques are potentially apt to distort the economic behaviour of consumers, as marketing communication in the algorithmic business is not based on causal mechanisms, but on probabilistic correlation between variables.

⁵² Here we shall refer to the general clause, in the next two section we shall eventually consider the concept with regard to misleading and aggressive practices.

⁵³ Howells, Micklitz, and Wilhelmsson, *European fair trading law: The unfair commercial practices directive*, p. 110.

In such a case, the third aspect, i.e., materiality, might also play a role. With regard to it, Recital 6 UCPD speaks of a "negligible" impact, which is likely to be the same as "immaterial". Further, the final sentence in Recital 6 clearly says that it is counter as non-material "accepted advertising and marketing practices, such as legitimate product placement, brand differentiation or the offering of incentives which may legitimately affect consumers' perceptions of products and influence their behaviour without impairing the consumer's ability to make an informed decision."⁵⁴ It is not clear what role this requirement might play in algorithmic practices. Does it have to be a quantitative judgement? In that case it could be accepted that Jane lost 20 euros by spending on cosmetics. Or is it a qualitative judgement? The prevailing view is that the criterion of materiality allows to exclude from the scope of unfair trading law those behaviours that do not hamper the overall competition in the market. Moreover, the material distortion is deeply tied to the standard of the consumer against which the practice is evaluated. Under this view one would be inclined to see all potential distortions caused by online transactions as irrelevant to EU law, yet the problem of potential manipulation would remain, leading to the contradiction of not considering forms of influence which, despite not being "material" in the sense of the directive, can overall be more effective than mass communications in terms of their effectiveness on consumer purchasing, given their micro-targeted, personalised, and ubiquitous nature.

Here the judgement is structured on the perspective of the average consumer. The notion of the average consumer will be explored in further detail in the next chapter together with the concept of vulnerability. Suffice here to say that, beyond the substantive meaning of this benchmark, the average benchmark also shows a structural contradiction when applied to the context of personalized marketing. As Sibony puts it, "the average consumer standard is [...] an inherent simplification function" and "the law [...] requires courts to assess whether a given practice distorts the choice pattern of the unitary average consumer"⁵⁵. This however is clearly in tension with the transformations that are taking place on the side of businesses. The nature and the intention of marketing is precisely that of breaking up with the idea of a unitary consumer, that is the product of the society of standardised consumption.

From all the above, one can conclude that the normative construction of material distortion is conceptually and practically at odds with the development of algorithmic marketing practice, with the result of being mostly meaningless. The directive bases the material distortion on the idea of a de-tour: it is assumed that the average consumer approaches the available options and take a stance towards one choice according to her pre-established preferences, but the trader's conduct prevents her from maximising their

⁵⁴ Recital 6 UCPD.

⁵⁵ Sibony, "Can EU consumer law benefit from behavioural insights? An analysis of the Unfair Practices Directive", p. 708.

preferences through unfair behaviour. Today, with personalisation algorithms, marketing works the other way around: the marketer is virtually able to anticipate customers' (potential) preferences and filter information or options based thereon. The problem that arises is not so much that of a distortion, but of an engagement into behaviours that even if (potentially) capable of reflecting preferences, they would not have been taken. The influence is thus subtle, but powerful, the harm minor, but widespread. A potential distortion is not in the offer itself, but in the way "preferences" are established behind curtains and whether they could be said to correspond to the actual preferences of the targeted customer, which is arguably something that only the customer can tell. The case where the young students are targeted with psychological help is a clear reflection of what in Chapter 4 has been called the logic of surface: the way algorithm established preference does not reflect true persons, but only statistical patterns emerging from like-minded.

8.3.3 Subjective elements or amoral manipulation

As said earlier, the material distortion means "using a commercial practice to appreciably impair the consumer's ability to make an informed decision". The word "to" might suggest that some faulty intention is needed: the trader must have the intention to distort the economic behaviour of consumers. This interpretation is not favoured by the doctrine, which tends to let the objective dimension of the conduct prevail. It is said that EU law 'demoralises' the control of commercial practices, so the need for subjective elements would hinder the effectiveness of the discipline both in terms of guaranteeing the consumer (who would need to prove intent or fault) and, more generally, in terms of securing fair competition.⁵⁶ However, normative questions concerning subjective elements cannot be settled so quickly in the context of algorithmic practices.

As detailed in the course of the second part, marketers are increasingly moving from human intelligence toward the use of artificial intelligence both to design the content of digital materials and to deliver that content to particular consumers. At some point, no human will need to be directly involved in the process. In fact, with machine learning techniques, a major characteristic of the algorithmic business is the use technical tools that will learn and adapt to optimizing the goals built-in in the system with as little human input as possible. The only discernible intent of the humans who program algorithmic marketing systems is likely to be an intent to meet maximize a business optimization goal based on relevance metrics such as click, sales, or customer engagement etc. A human looking at the correlations among, for example, keyboarding patterns, use of credit card, and webpage content that features

⁵⁶ Howells, Micklitz, and Wilhelmsson, *European fair trading law: The unfair commercial practices directive*, pp. 102–110. This interpretation has been confirmed by the Court of Justice in UPC, paras. 47–48.

a button sliding down the screen will not necessarily understand that consumers using the website are deceived into using credit. A human might not even realize that the data reflects a keyboarding pattern, never mind that it reflects a drunken keyboarding pattern, if a human looks at all. Further, the algorithm could be using hundreds of other data points simultaneously to decide which webpage format to display to which user at any particular moment. Human-controlled experiments are still a standard business practice, but as machine learning enables offers to adjust offers without human intervention, there will be less need for this. Instead, an algorithm that optimizes websites for purchases will discover on its own what placement of information produces the most sales. If disclosing key cost components "below the fold" leads to more sales, then that is where machine learning systems will place them. No human needs to intend to deceive or know that the materials are deceptive.⁵⁷

At the same time, it will be difficult to attribute some kind of responsibility to the system that perform marketing decisions. Computers have no intent to mislead or manipulate consumers. AI systems are not immoral, but a-moral, they discover and applies the most effective solutions in view of their purpose of prompting consumers to make purchases, regardless of the ethical implications of such solution.⁵⁸ This is not to say that a justification is provided not to consider truly autonomous agents with some kind of moral responsibility that they might be attributed mental states. But that AI systems as such do not possess a set of value or mental faculties that allow to understand what might constitute an unfair distortion of consumers behaviours. Unless programmed to determine whether an actual ads or design of the webpage unduly influence consumers, machines do not "know" why they are doing so. A machine might glean from available data that, for example, certain keyboarding patterns are associated with more sales. Through learning, the machine might discover that formatting a dynamic button to slide down a screen at a particular rate at a particular moment in the checkout process will increase the use of costly credit accounts to pay for those sales. If its algorithm is set to optimize credit sales, the system will deliver the checkout webpage with the dynamic button that slides down the screen when a user is keyboarding in the identified manner. The computer will not "know" that the keyboarding pattern is caused by, for example, intoxication, or that the use of credit is caused by deception, because the presence of intoxication and deception are not data points directly available to the machine. The uniqueness of marketing practices carried out through algorithmic programs that learn to maximise outcomes is that a distortion of consumers behaviours does not depend on the intent, nor necessarily from a reckless conduct of the

⁵⁷ Lauren E. Willis. "Deception by Design". In: *Harvard Journal of Law & Technology* 34 (2020), pp. 116–149.

⁵⁸ Giovanni Sartor. "Contracts in the Infosphere". In: *European Contract Law in the Digital Age*. Ed. by Stefan Grundmann. Intersentia, 2018, pp. 263–278; Giovanni Sartor. "Cognitive automata and the law: electronic contracting and the intentionality of software agents". In: *Artificial Intelligence and Law* 17.4 (2009), p. 253.

trader but admit that the algorithmic system itself learn how to better tunes its action possibly exploiting consumer weaknesses.

8.4 Deception

The basic purpose of regulation in fair trading law is to ensure that commercial practice do not deceive consumers by misrepresenting facts about products. The recurring concerns of consumer activists and regulators has always been that advertising, products labels and sale techniques can be legitimate to the extent they transport truthful and relevant information for the buyer. If marketers mislead or deceive consumers, such as by claiming false features in the product or boasting certain absent qualities, a false belief is generated into consumers who may be thus induced to make choices that do not fit their preferences. In this sense, regulation of deception is perfectly fit the approach to private autonomy of EU law.⁵⁹ To sustain the internal market project, consumers must be able to make efficient decisions, and for that they need information that is truth and material to the decision at hand. If traders retain information or make false statements about products, they distort consumers economic behaviours, hampering the fair competition and market efficiency.

At regulatory level, the normative concept of deception is substantiated in three ways. The first is through ensuring that marketers do not provide consumers with untruthful information about products and service. In the UCPD, this is the first small clause on "misleading actions" (Article 6), which prohibits those practices that contain false or untruthful information and are likely to deceive the average consumer causing a transactional decision that the consumers, absent deception, would not have taken. Different types of information are related to this prohibition. For example, the trader must not provide untruthful information with regard to the existence of nature of the product; its main characteristics (e.g., availability, benefits, after-sale assistance etc.); the trader's commitments and the motive for the commercial practice; the price and the manner in which the price is calculated; the nature and attributes of the traders and his agents, etc.⁶⁰

The second dimension of deception is contained in Article 7, which stipulates the prohibition to omit material information that the average consumer needs in order to make an informed decision. Although formulated

⁵⁹ Stefan Grundmann, Wolfgang Kerber, and Stephen Weatherill. "Party Autonomy and the Role of Information in the Internal Market - An Overview". In: *Party autonomy and the role of information in the internal market*. Ed. by Stefan Grundmann, Wolfgang Kerber, and Stephen Weatherill. De Gruyter, 2001, pp. 3–38; Stefan Grundmann. "Information, party autonomy and economic agents in European contract law". In: *Common Market Law Review* 39.2 (2002), pp. 269–393.

⁶⁰ The list is provided in Article 6. Despite its wording seem to provide an exhaustive list, arguments have been put forwards to justify that other types of information, if presented in untruthful, can constitute a misleading practice. Howells, Micklitz, and Wilhelmsson, *European fair trading law: The unfair commercial practices directive*, p. 155.

as a prohibition, some authors tends to regard the provision as laying down a universal duty of information, thereby developing information rights for consumers.⁶¹ Following this line of thinking, the prohibition of misleading omission would require marketers to disclose any material information and to do so in a clear and understandable manner.⁶² The obligation is further increased where the practice does not represent a general form of commercial communication, but a targeted invitation to purchase. In this situation, the consumer is closer to make a transactional decision, so she needs additional information to actually make an informed decision.⁶³ Nevertheless, the generalized duty to inform is tempered by the fact that it applies only when information is considered material in order to take an informed transactional decision. Abstractly, this should cover only information that is of central relevance of consumer decision-making. *In concreto*, the "informational needs test" require an evaluation of contextual elements in order to establish what may constitute a material information. The same Article 7 makes clear that unfairness of a misleading omission should be determined "taking account of all its features and circumstances and the limitations of the communication medium". For example, while the possibility to convey information through television advertising is more limited, this is not the case through newspaper ads, and this could be a relevant factor in establishing the informational needs.

The third dimension is represented by the reference of the Directive to the Annex II which flashes out a series of information requirement in other EU laws that are to be regarded as material under the meaning of material information in the omissive practice.⁶⁴

In developing its concept of deception, the EU clearly puts much faith on transparency on product information (by imposing transparency rules on price, characteristics) and more generally on the relationships (by requiring traders to be transparent on name, the extent of the commitment). It is pertinent to ask how this concept should be applied in the algorithmic business practices. There is no doubt that a piece of targeted advertising or personalized content that is delivered through automated means may contain untruthful or otherwise misleading information regarding the products. For example, e-commerce websites that automatically optimize message offerings by relying on scarcity message (e.g., "the offer is valid for a limited period" or "only a few items still available") may be regarded as misleading practices

⁶¹ *ibid.*, p. 147, Mateja Durovic. *European law on unfair commercial practices and contract law*. Bloomsbury Publishing, 2016, pp. 110–145.

⁶² Article 7 UCPD.

⁶³ Article 7(4) UCPD. An "invitation to purchase" is defined by Article 2(i) as "a commercial communication which indicates characteristics of the product and the price in a way appropriate to the means of the commercial communication used and thereby enables the consumer to make a purchase".

⁶⁴ Among other, the Annex II contained references to information duties in Articles 5 and 6 of Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market.

if they make incorrect claim on the actual availability of items.⁶⁵ One need to think bigger, though, and ask more generally about the role of information in the algorithmic business and its relationships with the actual ability of consumers to make an informed decision. It must be acknowledged, here, that commercial communications are hyper-targeted or personalized on the assumption that business know consumer preferences. The selection of the commercial information is made upstream by the marketer himself, through an automated exercise of information filtering based on pre-established parameters. This may regard both recommendation systems, but also specific presentation of potential deals and content through adaptive interfaces. At the same time, algorithmic business requires a very specific type of surveillance whereby the consent is often given, at best, without knowing what information may be extracted through algorithmic techniques from the data collected, in the worst case scenario, with data collectors misrepresenting how they will use data collected.

8.4.1 Misleading data practices

Even before looking at the role of information in transactional decisions in the strict sense, a first reflection can be made on the relationship between information duties and data collection practices in exchange of free digital contents.

Traditionally, the collection of personal data has always been regarded as an exclusive "battleground" of data protection law on ground of fundamental right protection. As said in Chapter 3, data controllers are allowed to collect consumers' personal data only on the basis of specific legitimate grounds and provide clear information, *inter alia*, with regard categories of data collected, purposes, consumers' individual rights. Failure to comply with their information obligations or to demonstrate a legal basis for the processing of data results in a violation of the fundamental right to privacy, and substantial fines may be imposed. However, it is far from given that data protection law is the only area of law that should be concerned with data collection practices.

In the US, for example, where no comprehensive privacy regulation exists,⁶⁶ fair trading law has traditionally intervened to judge the fairness of

⁶⁵ Even when carried through automated means, the practice is indeed prohibited by the same Directive in Annex I, Point 7 "falsely stating that a product will only be available for a very limited time, or that it will only be available on particular terms for a very limited time, in order to elicit an immediate decision and deprive consumers of sufficient opportunity or time to make an informed choice.". The Netherlands Authority for Consumers & Markets (ACM) has, for example, clarified that this Draft consultation documents of the ACM. Netherlands Authority for Consumers and Markets. *Protection of the online consumer. Boundaries of online persuasion*. Draft consultation document Guidelines. 2020.

⁶⁶ US privacy law is based on sector-specific statutes, for example regarding health data, financial data, corporate data security law. Furthermore, the FTC protects the privacy of consumers on the base of (sector) specific laws including the Children's Online Privacy Protection Act of 1998.

companies' data collection practices.⁶⁷ Since 2002, under Section 5 of the FTC Act, the Federal Trade Commission has reacted to the changing marketplace protecting US consumer against unfair or deceptive commercial practices concerning their online privacy. The FTC does not take a fundamental rights approach for protecting privacy. Its perspective is market-oriented, aimed at the protection of the consumer through competition and a fair marketplace. In all of its privacy actions, the FTC's goals have remained constant: to protect consumers' personal information and ensure that consumers have the confidence to take advantage of the many benefits offered in the marketplace.⁶⁸ Most of the cases have concerned deceptive data privacy policies either because they contain false claims or omit essential information on how consumers' behaviours is monitored.

In Europe too, as the data-driven economy has evolved, the notion of personal data (and indeed also non-personal data)⁶⁹ as an economic asset has become commonplace. As extensively argued by the "data as counter-performance" doctrine,⁷⁰ personal data in the current marketplace does not merely figure as the reflection of the self in the digital space but is a tradable property that can be and is indeed exchanged for consideration. Even if some clashes are noted with data protection law,⁷¹ this has been multiple time recognize at EU level.⁷² EU consumer contract law, which has always

⁶⁷ Nico van Eijk, Chris Jay Hoofnagle, and Emilie Kannekens. "Unfair Commercial Practices: A Complementary Approach to Privacy Protection". In: *Eur. Data Prot. L. Rev.* 3 (2017), p. 325.

⁶⁸ Federal Trade Commission. *Privacy & Security Update*. 2015. URL: <https://www.ftc.gov/reports/privacy-data-security-update-2015>.

⁶⁹ Josef Drexler. "Legal Challenges of the Changing Role of Personal and Non-Personal Data in the Data Economy". In: *Digital Revolution – New Challenges for Law: Data Protection, Artificial Intelligence, Smart Products, Blockchain Technology and Virtual Currencies*. Ed. by Alberto De Franceschi and Reiner Schulze. C.H. Beck und Nomos, 2019, pp. 19–41.

⁷⁰ For a discussion see, e.g., Axel Metzger. "Data as Counter-Performance: What Rights and Duties for Parties Have". In: *J. Intell. Prop. Info. Tech. & Elec. Com. L.* 8 (2017), p. 2; Carmen Langhanke and Martin Schmidt-Kessel. "Consumer data as consideration". In: *Journal of European Consumer and Market Law* 4.6 (2015), pp. 218–223; Marco BM Loos and Chatal Mak. *Remedies for buyers in case of contracts for the supply of digital content*. Briefing Note. European Parliament, 2012. URL: <https://www.europarl.europa.eu/cmsdata/193164/20120618ATT47122EN-original.pdf>.

⁷¹ This perspective is to some extent supported by the GDPR, which at Recital 43 of the GDPR specifies that "Consent is presumed not to be freely given [...] if the performance of a contract, including the provision of a service, is dependent on the consent despite such consent not being necessary for such performance." It is also supported by the revocability of consent under the GDPR."

⁷² See also Consumer Protection Cooperation. *Common position of national authorities within the CPC Network concerning the protection of consumers on social networks*. 2018. URL: https://ec.europa.eu/info/sites/info/files/final_common_position_on_airbnb_ireland_4.6.2018_en_002.pdf. Here it is stated that "[s]ocial media operators supplying services to users residing in the European Union (and in other EEA countries) shall use terms of services in their contracts that are in conformity with Directive 93/13/EC on Unfair Contract Terms. This Directive applies to all contracts between consumers and businesses, regardless of whether they involve monetary consideration, including contracts where consumer generated content and profiling represent the counter-performance alternative to money". Cf. See also the proposal for Directive 634/2015 on certain aspects of contracts for the supply

applied only in product-for-money-payment exchanges, has also opened up to allow for consumers' contractual rights to be applied also the exchange, where personal data features as counter performance. This approach has been purposed by Article 3 Directive on digital content (EU) 2019/770 and Article 3 of Directive 2011/83 (as amended by Directive 2019/216122), according to which the same directives "shall also apply where the trader supplies or undertakes to supply digital content [...] or a digital service to the consumer and the consumer provides or undertakes to provide personal data to the trader." This norm indeed assumes that consumers may agree to provide traders with data that are not needed for delivering goods or services to such consumers. Thus, such data – unless they are meant to be used for a goal that is shared by the consumer or are collected without a real consent by consumer – must have been provided as a counter-performance for services or accessory monetary or other benefits provided by the trader.

The debate on the applicability of consumer law on data collection practices also started to touch upon the law on commercial practices.⁷³ So far, the UCPD has never been brought to the attention of the CJEU in matter relating to data collection or processing practices. Yet multiple elements allow to provide evolving interpretation.

The central element here is again to what extent the agreement of consumers to the processing of her personal data can be regarded as "transactional decision". According to the Commission, both the wording of the provision and the case law of the CJEU suggest a broad interpretation of the notion of transactional decisions, in the sense of "any decision directly related to that decision"⁷⁴. In a case concerning Facebook, The Federation of German Consumer Organisations (VZBV), on the basis of point n. 20 of Annex I UCPD, has been seeking an injunction against an internet company for its claim that its service is 'for free' or 'without charge', because the company derives its revenues from analysing users' private data and selling the information to third party traders in the form of advertising space. The Berlin Court of Appeals stated that a consumer's decision to agree to data processing as a pre-condition for being able to use a service could be considered a transactional decision in the sense of the Unfair Commercial Practices Directive. This suggests that the Directive can be used to scrutinize the fairness of the conditions under which the user is asked to agree to data processing,

of digital content, where it states that "[i]n the digital economy, market operators often and more and more tend to consider information about natural persons goods of comparable value to money."

⁷³ Catalina Goanta and Stephan Mulders. "Move Fast and Break Things': Unfair Commercial Practices and Consent on Social Media". In: *Journal of European Consumer and Market Law* 8.4 (2019), pp. 136–146; Nicolo Zingales. "Between a rock and two hard places: WhatsApp at the crossroad of competition, data protection and consumer law". In: *Computer Law & Security Review* 33.4 (2017), pp. 553–558.

⁷⁴ UCPD Guidance, p. 37, referring to C; paras. 35, 36 and 38.

whether the user has been properly informed, was not put under undue pressure, has been misled etc. According to the Berlin court, the decision to provide personal data for personalized advertising is a transactional decision of the consumer. The court argues: "The decision whether or not the consumer agrees to being subjected to advertising persuasion – and personally targeted persuasion in particular – must be part of the free autonomous choice of the consumer"⁷⁵. Accordingly, says the court, the decision to consent to personal data processing is not only relevant for data protection law, but is also a matter of consumer protection, and hence a transactional decision in the sense of the Unfair Commercial Practices Directive. Following this interpretation, the UCPD could help to assess the fairness of the conditions under which users are required to agree to the collection and use of their personal data – e.g., take-it-or-leave-it choices, misinforming about the functionality of the service if consumers do not agree, etc.

In addition, the UCPD contains a specific provision that could be applied to such "free service". According to the Annex I, it is considered unfair to "[describe] a product as 'gratis', 'free', 'without charge' or similar if the consumer has to pay anything other than the unavoidable cost of responding to the commercial practice and collecting or paying for delivery of the item."⁷⁶ The provision is broad enough to cover the payment of non-monetary forms of remuneration, seeing the lack of a direct reference to notions such as "money" or "price" in the provision. This interpretation seems to be confirmed by the European Commission which acknowledges "the economic value related to consumers' preferences, personal data, and other user-generated content" and as such "the marketing of such products as 'free'

⁷⁵ Landgericht Berlin, Case A16O341/15, Verbraucherzentrale Bundesverband/Facebook.

⁷⁶ Annex I, n. 20, UCPD.

without telling consumers how their preferences, personal data and user-generated content are going to be used could in some circumstances be considered a misleading practice."⁷⁷ This is what concluded the Italian Consumer Protection Authority (Autorità Garante della Concorrenza e del Mercato) in a recent case on unfair commercial.⁷⁸ In November 2018, the Authority imposed a EUR 10 million administrative fine on Facebook for breach of the Italian Consumer Code with two unfair commercial practices concerning the processing of personal data of users and implemented both during the activation phase of the account and during the use of the Facebook service.⁷⁹ Specifically, the first practice concerned the collection,⁸⁰ use and exchange of the personal consumer data with third-parties for commercial purposes. The practice was considered to be misleading according to Article 21 and 22 of the Italian Consumer Code, which respectively transpose the small clause on misleading actions and omission. The Authority ruled that Facebook misled consumers when registering on the platform by failing to inform them adequately on the commercial purpose of data collection and claiming the free nature of the service, thereby preventing an informed choice. The Authority acknowledged that users' data has intrinsic commercial value and constitutes

⁷⁷ UCPD Guidance, p. 97. The omnibus directive has also changed the definition of "product" contained in the Article 2 of the Directive. While previously the definition of "product" was "any goods or service including immovable property, rights and obligations", now is "any good or service including immovable property, digital service and digital content, as well as rights and obligations". The new definition of "product" then includes digital services or digital content even when the consumer does not pay for the digital service or digital content, which must be concluded that the UCPD also applies when the consumers pay with data. See Bram Duivenvoorde. "The Upcoming Changes in the Unfair Commercial Practices Directive: A Better Deal for Consumers?" In: *Journal of European Consumer and Market Law* 8.6 (2019).

⁷⁸ Autorità Garante della Concorrenza e del Mercato. *WhatsApp Fined for 3 Million Euro for Having Forced Its Users to Share Their Personal Data with Facebook*. Press Release. May 2017. URL: <https://en.agcm.it/en/media/press-releases/2017/5/alias-2380>. For instance in the AGCM's analysis of the WhatsApp change in policy and the validity of consent, the authority refused to accept WhatsApp's claim (with reference to the EDPS opinion) that personal data could not be construed as counter-performance. The AGCM found, with reference to the recent common position on the application of consumer protection in the context of social media, that consumer protection and competition law and indeed, the company itself all recognise the economic value of the data. See Zingales, "Between a rock and two hard places".

⁷⁹ AGCM PS11112 – Facebook - Condivisione dati con terzi, Provvedimento n. 27432. The practices has been considered unfair commercial practice in breach of Articles 21 and 22 of the Italian Consumer Code because it misled consumer users to register on the Facebook platform by failing to inform them adequately and immediately, when activating the account, of the account activation, of the activity of collection, with commercial intent, of the data provided by them, and, more generally, of the purposes underlying the provision of the social networking service, emphasising that it is free of charge, so as to induce them to take a commercial decision which to take a commercial decision that they would not have taken otherwise (registration to the social network, the social network, through the website and the app, and staying it).

⁸⁰ The other practices contested before the AGCM is relevant when dealing with coercion and therefore it will be treated in the next paragraph.

the counter performance with the contract concluded with Facebook. The decision has been confirmed by the Regional Administrative Court of Appeal (TAR del Lazio).⁸¹

In the Guidance, the points of contact with data collection practice are further expanded to misleading omission. According to the EU Commission:

"A trader's violation of the Data Protection Directive or of the ePrivacy Directive will not, in itself, always mean that the practice is also in breach of the UCPD.

*However, such data protection violations should be considered when assessing the overall unfairness of commercial practices under the UCPD, particularly in the situation where the trader processes consumer data in violation of data protection requirements, i.e., for direct marketing purposes or any other commercial purposes like profiling, personal pricing or Big data applications."*⁸²

The reference to Big data application is particularly fitting and future-looking. With the growing uptake of Big data analytics and real-time automated decision-making, the collection and processing of customer data and the implementation of a commercial practice are becoming two increasingly indistinguishable moments. Consider, for example, a business using A/B testing for experiment different kinds of ads: customers' data are used to test advertising two groups of consumers in real time. The feedback goes back into the system which learns which advertising configuration is most effective. In this micro-span of time, two things happen: the company obtained new information about consumers (related to ads effectiveness) and at the same time has carried out a commercial practice (i.e., targeted promotion). Data analysis and feedback is in fact the very essence of algorithmic business: consumers' data analysis, in fact, constitutes the context of decision-making and therefore may instantly determine the offer, and the consumers' behaviour with respect to the offer is subject to data analysis.⁸³ Consumer law has always been focused on contractual decisions or at least decisions that are leading towards the conclusion of a contract, and has historically considered business information practices out of its scope. The new socio-technical reality may necessitate a change in this respect.

One could look at this development as strengthening privacy through consumer protection tools. Such a view, however, would be reductive. While data protection law protected individual fundamental rights to of privacy and data protection, fair trading law aims to protect consumers' economic decisions that are influence by misleading practices. The protective aim is

⁸¹ TAR Lazio, Sentenza del 10 gennaio 2020 n. 261. URL: <https://dirittodiinternet.it/facebook-valore-dei-dati-tar-lazio-10-gennaio-2020/>.

⁸² UCPD Guidance p. 26.

⁸³ Foster Provost and Tom Fawcett. "Data science and its relationship to big data and data-driven decision making". In: *Big data* 1.1 (2013), pp. 51–59.

clearly different, and if this trend takes hold, it could be argued that the role of information fairness is expanding. In data-driven businesses where data represent the counter-performance, an act of deception or omission of material information is not only about how companies provide information about certain products (in the example of AGCM, Facebook did offer complete information about service terms and condition), but also about how companies claim or do not claim to use consumer data in their business activities. After all, if the underlying rationale of consumer protection and fair trading law is to remedy to the asymmetric informational situation that arise in business-to-consumer markets, and this situation no longer affects the product only, but also consumer personal data (remember, "if you are not paying, you are the product"), it can be understood why data collection practice could represent a new area in which to expand disclosure obligations. Commercial fairness would then become a powerful means to stifle commercial surveillance.

Obviously, the control would not be on surveillance practices per se (what companies do with data), but only on how data practices are declared or not declared in privacy policies, and in so far, the opacity of policy would likely cause a distortion in the economic behaviours of consumers. The authority or court responsible for the enforcement may limit itself to review how the information is provided and presented in the privacy policies and deception may only occur if such information would have led the consumer not to consent to the use of the service. Nevertheless, there is a great room for improvement here. As said in Chapter 4, in privacy policy, despite the GDPR requires privacy policy be clear and transparency, and consent be given for specific purposes, firms hardly ever communicate to consumers how they specifically use their personal data for shaping offers and advertising material. If information is present are very often vague (e.g., "marketing purposes", "personalize communication"). Such broad disclosures in privacy policies do not clarify exactly how firms use this information to make profile users or make recommendations, nor do they alert consumers to the potential risks repercussions they could face.⁸⁴

An interesting question remains as to whether information requirements may also affect the activity of customer profiling. In other words, the legal point would be to what extent consumers in order to make an informed choice regarding the product or service at hand, or even regarding commercial communication, should be given the information regarding their profiles.

⁸⁴ According to Article 7(2) UCPD, unclarity and ambiguity in information are regarded as one of ground of the material omission: "It shall also be regarded as a misleading omission when [...] a trader hides or provides in an unclear, unintelligible, ambiguous or untimely manner such material information as referred to in that paragraph [...] and [...] this causes or is likely to cause the average consumer to take a transactional decision that he would not have taken otherwise."

This is a most debated issues in data protection law.⁸⁵ In the field of unfair marketing practices, the problem can be formulated by looking at transparency of algorithmic personalization.

8.4.2 Misleading personalization

An additional aspect related to information duties concerns the role of commercial information in personalized practices. In Chapter 4, it has been said how predictive personalization has the inherent power to steer consumers' choice by means of shaping and adapting choice architecture, narrowing down available options for consumers. As mentioned, we are in the presence of a soft influence, where the consumer remains free to navigate the web and different options, however its anchoring bias (only considering the first products) represents a potential influence activity of the trader on the consumer. When it comes to assessing the potential for deception underlying hyper-nudging, the legal question concerns whether and to what extent the new context in which consumers make decisions enables them to make informed decisions. EU law strives for a marketplace where consumers can make informed decisions, which means that on the basis of the available information made available to the marketers they can maximise their preferences.

With respect to a misleading action, the Directive is clear: deception must regard information about the existence of the product, its main characteristics (risks, performance, accessories, use, geographical origin), the commercial nature of the relationship, and the price. Interestingly, however, in defining misleading practices, the directive also considers the influence caused such as:

*"if it contains false information and is therefore untruthful or in any way, including overall presentation, deceives or is likely to deceive the average consumer, even if the information is factually correct, [...]"*⁸⁶

The reference to "overall presentation" and the fact that a factually incorrect misrepresentation is not a requirement to mislead a consumer, suggests an importance that is given to how choice is presented to consumers and direct the assessment towards the commercial practice as a whole.⁸⁷ As noted by Wilhelmsson, for example, layout of an advertisement and the size and

⁸⁵ Sandra Wachter. "Affinity profiling and discrimination by association in online behavioural advertising". In: *Berkeley Technology Law Journal* 35.2 (2020); Sandra Wachter and Brent Mittelstadt. "A Right to Reasonable Inferences: Re-Thinking Data Protection Law in the Age of Big Data and AI". en. In: *Columbia Business Law Review* (2019), pp. 494–619. URL: <https://osf.io/mu2kf> (visited on 11/29/2019).

⁸⁶ Article 6(2) UCPD

⁸⁷ Sibony, "Can EU consumer law benefit from behavioural insights? An analysis of the Unfair Practices Directive", p. 917. This was also explicitly stated by the first proposal of the Directive: "if the presentation is obscure, Article 7 makes clear that this is tantamount to an omission." (para 65).

location of the pieces of information may be taken into account.⁸⁸ This approach very much lay the way for a welcoming integration of behavioural findings and could indeed question many of the algorithmic practices based on the control of the interface. The EU Commission also acknowledged this in the informal Guidance:

"Insights from behavioural economics show that not only the content of the information provided, but also the way the information is presented can have a serious impact on how consumers respond to it.

For this reason, Article 6 explicitly covers situations where commercial practices are likely to deceive consumers 'in any way, including overall presentation' 'even if the information provided is factually correct' [...]"⁸⁹

The Commission's receptivity of behavioural findings in this reading seems to favour new spaces to develop the concept of deception in algorithmic marketing practices.

The first problem raised in the current debate concerns the presence of personalization as such. A recent behavioural study commissioned by EU on the use of personalized advertising and ranking of offers has pointed out that consumers superficially know that they are targeted by personalized marketing materials, but that such self-declared awareness does not necessarily translate to an ability to correctly identify online personalisation.⁹⁰ In the experiment, respondents who correctly identified online targeted adverts, personalised recommendations in forms of rankings were less than 50%. Moreover, only four in ten participants were able to correctly identify that an advertisement was present or correctly identified the product shown in targeted advertising. The findings seem to have been used in the recent Omnibus Directive. Curiously, however, the Directive only provided a right of transparency on personalization for price based on algorithmic systems. The new rights have been inserted in the Article 6 of the Directive on consumer rights, in point (ea) "where applicable, that the price was personalized on the basis of automated decision making"⁹¹.

With regard to personalized offer, the EU legislator actually went further and introduced a transparency obligation not simply on personalisation as such, but on how personalised offer are made, notably in ranking. Given that these systems are often developed with a view of maximising profit-seeking metrics (such as engagement, click, and conversion), information regarding the parameters and the goals of algorithmic personalization would

⁸⁸ Howells, Micklitz, and Wilhelmsson, *European fair trading law: The unfair commercial practices directive*, p. 142.

⁸⁹ UCPD Guidance, p. 58.

⁹⁰ European Commission, *Consumer market study on online market segmentation through personalised pricing/offers in the European Union*, p. 76.

⁹¹ Article 4, Omnibus Directive (Amendments to Directive 2011/83/EU).

arguably allow a more informed choice. The issue was already raised in the Guidance where the Commission considered the case where an online trader that builds "shopping profiles" based on purchasing powers of its customers and use them to adapt offer accordingly.⁹² Now the Directive 2019/2161 has added a new paragraph in Article 7(4a) on misleading omission which established that when a trader gives consumers the possibility to search for products offered by different traders or by consumers on the basis of a search query, the trader will have to supply general information on the main parameters determining the ranking of the products as presented to the consumer, as well as the relative importance of those parameters as opposed to others. The new information duty will apply irrespective of where transactions may ultimately be concluded (i.e., via the search engine itself or through another platform). The same provision is repeated and introduced in point 11a of the Annex I of the UCPD which declares as misleading the practice of "providing search results in response to a consumer's online search query without clearly disclosing any paid advertisement or payment specifically for achieving higher ranking of products within the search results."⁹³ This addition does not provide any additional meaning to the new provision in Article 7(4), if not for giving much leeway to courts to enforce it without, since provisions included in the blacklist are unfair per se.

As far as the subject scope, the transparency right does not apply to provider of online search engines which are already required by the Regulation (EU) 2019/1150 of the European Parliament and of the Council.⁹⁴ These are defined in the newly added Article 2(n) as

*"a service using software, including a website, part of a website or an application, operated by or on behalf of a trader which allows consumers to conclude distance contracts with other traders or consumers"*⁹⁵.

With regard the definition of ranking, this provision seems to have a wide-ranging impact on business practices. Ranking is defined in the newly added Article 2(m) as the

*"relative prominence given to products, presented, organized or communicated by the trader, irrespective of the technological means used for such presentation, organization, and communication"*⁹⁶

⁹² UCPD Guidance, p. 148.

⁹³ Article 3, Omnibus Directive (Amendments to Directive 2005/29/EC).

⁹⁴ Regulation of the European Parliament and of the Council on promoting fairness and transparency for business users of online intermediation services Brussels, COM(2018) 238 final 2018/0112 (COD) (also Platforms-to-Business Regulation).

⁹⁵ The Recital 20 of the Omnibus Directive, however, makes clear that "online search functionality can be provided by different types of online trader, including intermediaries, such as online marketplaces, search engines and comparison websites." Following this interpretation, also normal e-commerce site if providing personalized recommendation systems may be indeed included in the definition.

⁹⁶ Article 2, lit. m, Omnibus Directive.

. The duty to inform, here, does not regard the specific characteristics of the product, but the way the business has designed its algorithmic systems. This is clear when the legislator require business to provide consumers with the "main parameters" which determine the ranking of products. It follows that, when the trader does not provide such information, the practices should be regarded as misleading. In enhancing disclosure, however, the legislator has opted for the least restrictive measure for algorithmic traders, who are required to disclose the detailed functioning of their ranking mechanisms, including algorithms.⁹⁷ Information must only regard the "general description of the main parameters determining the ranking that explain the default main parameters used by the trader and their relative importance as opposed to other parameters". Moreover, the information does not have to be presented in a customised manner for each individual search query.

This new approach to transparency is visible in another legislative instrument that has recently been amended by the Omnibus Directive. The newly inserted Article 6(a) of Directive 2011/83/EU on consumer rights establishes that "general information, made available in a specific section of the online interface that is directly and easily accessible from the page where the offers are presented, on the main parameters determining ranking, as defined in point (m) of Article 2(1) of Directive 2005/29/EC, of offers presented to the consumer as a result of the search query and the relative importance of those parameters as opposed to other parameters"⁹⁸. Interestingly the Article 6(a)(2) adds that "without prejudice to Directive 2000/31/EC, this Article does not prevent Member States from imposing additional information requirements for providers of online marketplaces. Such provisions shall be proportionate, non-discriminatory and justified on grounds of consumer protection."⁹⁹

These modifications clearly aim to reinforce the importance of information thereby illustrating a definitive move towards rendering the consumer more informed about the underlying logic involved in personalization. It remains to be seen to what extent this new information could act as a meaningful "counter-nudge" to commercial hyper-nudging,¹⁰⁰ and to what extent transparency obligations can be implemented from a technical point of view.¹⁰¹ It should be noted, however, that information duties in EU law are

⁹⁷ Recital 23, Omnibus Directive.

⁹⁸ Article 4, Omnibus Directive (Amendments to Directive 2011/83/EU)

⁹⁹ Recital 29 states allows for Member States to adopt or maintain specific additional measures for that purpose. Considering the rapid technological developments concerning online marketplace.

¹⁰⁰ Expressing concerns over this strategy, Duivenvoorde, "The Upcoming Changes in the Unfair Commercial Practices Directive"; Marco BM Loos. "The Modernization of European Consumer Law (Continued): More Meat on the Bone After All". In: *European Review of Private Law* 28.2 (2020).

¹⁰¹ Adrien Bibal et al. "Legal requirements on explainability in machine learning". In: *Artificial Intelligence and Law* (2020), pp. 1–21. Following the GDPR model on transparency in automated decision-making (Article 22), the authors point out to the fact that to actually substantiate these new legal requirements, research on machine learning explainability is needed, as much of today's personalization practices are black box models.

not merely designed for the individual consumer in order for her to actually make an informed decision. Information provisions are a key asset also for a more diffuse control over business practices. This is, actually, a crucial point considering that a substantial part of existing legislation in fair trading is enforced thanks to the initiative of traders. The issue is even broader if one considers that information represents a tool for civil society, groups of interests, and (one could also include) academia to monitor business practices.¹⁰²

Beyond the actual protective scope of the new provision, a new approach to transparency in commercial practice remains, and it is extremely important. When marketing materials are personalized, substantial information turns to be not only that that is presented in advertising and direct marketing materials, but those that relate to the extent and to the modalities used by the businesses to personalize advertising and offers. This new approach to information arguably regards marketing deception not only and no longer as the act of providing misleading information about the product, but as the act of omitting information on how business design the system in order to present consumers with personalized information.

The issue of transparency is inextricably linked to the ethics and transparency requirements for developers and deployers of artificial intelligence systems and to the requirement - currently formulated in ethical guidelines - to ensure clear information regarding "AI system's capabilities and limitations, in particular the purpose for which the systems are intended, the conditions under which they can be expected to function as intended and the expected level of accuracy in achieving the specified purpose"¹⁰³. As it has been mentioned multiple times, behind personalisation systems, there is reliance on specific goal-oriented metrics that are legitimately intended to advantageous for the business, but may result non beneficial, and indeed bring to deceptive outcomes for the consumers. Greater transparency in this regard would also allow consumers to better understand the mechanisms behind personalisation, beyond the personalization and empowerment rhetoric and fictional representation of non-competing brands.

¹⁰² Sure fact is that, if every companies were to provide the parameters of selection or the logic involved, these documents would end up being hundreds of pages long. This might hinder the actual ability for the public to extract valuable information. This is a legitimate but unfounded worry. As much as businesses are developing the tools to automatically analyse customers information on website, enforcement authorities and civil society are embracing the power of analytics technologies to screen legal documents. We will return to this point in more detail in the chapter on enforcement.

¹⁰³ High-Level Expert Group on Artificial Intelligence, *Ethics Guidelines for Trustworthy AI*. According to the High-Level Group on Trustworthy AI, the principle of transparency requires, *inter alia*, to "communicate, in a clear and proactive manner, information to stakeholders about the AI system's capabilities and limitations, enabling realistic expectation setting, and about the manner in which the requirements are implemented" and "be transparent about the fact that they are dealing with an AI system", see *ibid.*, p. 2. The ethical principle is also translated in the recently adopted white paper on AI, see , p. 2.

8.4.3 Misleading personal assistants

The duty to ensure that clear information is provided as to the technical system's capabilities may also affect the new market relationships mediated by conversational interfaces. In Chapter 6, this thesis has explained the potential deceptive nature of the relationships between consumers and their personal assistants controlled by third parties. Despite not being credible as humans per se, studies in human-computer interaction are clearly pointing that chatbots and voice assistants are still capable of fooling people through a sense of familiarity and subordination through human-like and social cues, which risks concealing. This may seem a form of social deception, outside the field of consumer protection law. Yet, conversational agents are developed also as interface to commercial entities which can exploit such "banal form of deception" for surveillance and targeted advertising purposes. In the webpage where consumers can buy Alexa, information is given such as "Alexa is happy to help" – "Ask Alexa to tell a joke, play music, answer questions, play the news, check the weather, set alarms, and more". "Make your life easier at home". No clear statement is made about commercial nature of the service. Google Nest's purchasing webpage spend four section explaining what the tool can do, without mentioning once that fact that the device is also a portal to a world of commercial interests. To be sure, privacy policies do provide information in their privacy policies when selling Echo and Nest. Indeed, they seem very careful in describing data use: for example, Amazon's policy explains that all Echo devices are designed to capture voice and transcript recordings only when the user utters the activation command, that users can always turn off the microphone, review and delete voice recordings. Yet, privacy policies are less clear on how data are used to provide recommendations, when suggestions are given for their sponsored nature, and especially how information is shared with third-party businesses. Amazon says it does not share *personally identifiable information* with business third-party without your agreements and that "third-party businesses do not have access to, or control over, cookies or other features that advertisers and third party sites may use, and the information practices of these advertisers and third party websites are not covered by their Privacy Notice or this Interest-Based Ads page". Yet, Amazon Alexa API allow digital marketers to develop skills that allow marketers to personalize voice-based interaction with each customer. In the Amazon's Echo purchasing webpage,¹⁰⁴ no information is given about the fact that Alexa allows to third-party marketers to connect with customers. Some consumers may see creepiness in all of this, others may be totally unaware of how the developer intermediaries provide access to data and select marketers for commercial offers, if not without scanning long and unclear privacy policy.

¹⁰⁴ Amazon, Echo Dot webpage, 2020, available at <https://www.amazon.com/All-new-Echo-Amazon-Smart-Charcoal/>.

The problem does not only concern the purchase of the product, which could give the impression of an object exclusively at the service of the consumer, but also the transparency of how Amazon or Google or the like manage information obtained from the private ambient to sponsor third parties or to recommend products. After ordering from the best pizzeria or signing up for the most advantageous magazine contract, consumers may be led to believe that the results provided by Alexa are objectively the best results, when in fact many competitors have paid Amazon to be sponsored or recommended. This opens up the question of how to deal with the potential for deception in voice-based applications in which the information content cannot be conveyed by text or visual interface.¹⁰⁵

8.5 Aggression

The line between legitimate persuasion and unfair distortion in the UCPD goes beyond deception and affects commercial conducts that, regardless their informative character, are so invasive and disturbing that prevent consumers from exercise their freedom of choice. Article 8 of the UCPD prohibits aggressive commercial practices, i.e. those practices that by using harassment, coercion, including physical force, or undue influence, are likely to significantly impair the average consumers freedom of choice with regard to the product.¹⁰⁶ In this provision, the interest of consumer protected is less the ability to make an informed decision and more the freedom of choice. The distinctions run parallel to the second traditional focus of marketing regulation, which is less concerned with information-based advertising, and look to the modality of sales practices and promotions. Here, the infringement on the consumer's freedom to choose is the central element of the aggressive unfair commercial practices, which make them unlawful.

The Directive talks about "a high level of consumer protection" and extending consumer protection to aggressive practices might indicate that this injunction is being taken seriously. The Directive broke new ground by introducing a new concept, that of aggression, that was largely unknown to the legal orders of Member States. However, neither the Directive, nor the recitals or UCPD Guidance, provide useful interpretation on how "aggression" should be understood as an umbrella concept for harassment, coercion and undue influence. Scholars have observed that the Directive should be read in the context of a European legal regime that adopts a liberal view of

¹⁰⁵ Karin Sein. "Concluding Consumer Contracts via Smart Assistants: Mission Impossible Under European Consumer Law?" In: *Journal of European Consumer and Market Law* 7.5 (2018).

¹⁰⁶ Article 8 UCPD.

what marketing practices should be allowed.¹⁰⁷ This liberal orientation is underlined by the fact that it is not every commercial practice that restrict freedom of choice is condemned, but only those practices that fit in three specific conducts: coercion, harassment, and undue influence. Liberal here also has strict legal meaning. The introduction of these three types of conduct has represented a compromise between the private legal tradition of Member States which to a greater or lesser extent shared these legal concepts in their national systems. Coercion clearly looks at the use of physical but also psychological violence in contract formation. Harassment is something closer to assault and threatening behaviour that invade the private sphere with annoying conducts. Undue influence echoes the well-developed concept of common law doctrine and navigate a very subtle line between legitimate persuasion and unfair manipulation.¹⁰⁸ Moreover, these three practices are unfair only to the extent they are able to significantly impair the consumer's freedom of choice, which is reflected in a transactional decision that the consumer would not have made otherwise. The Directive clearly specifies that the impact on freedom of choice or conduct must somewhat significant, so it is expected that not every aggressive practice will be able to impair the freedom of consumer. This is also reinforced by the fact that the standard of the average consumer is again the benchmark to measure the aggressiveness of a practice.

From all these elements, it clearly emerges that the protection of the freedom of choice by the directive is limited to those behaviour that put a hard constraint on consumers' ability to make a free decision. As such, it will be hard to use the concept of aggressive practice to understand when algorithmic practice may result as unfair. When judged from the perspective of freedom of choice, whether in the case of targeted advertising or personalized content, the influence exerted by algorithmic business practice on consumer is typically based on soft intrusion. Algorithmic businesses do not foreclose options but guide consumers' behaviour towards certain choices that are supposedly preferred by the choice architect.

At the same time, however, the EU strict and quite unclear approach to aggressiveness is counterbalanced – and when seen from the perspective of maximum harmonization also put into question – by the fact that what constitute an aggressive practice is something that is very much like rooted in national culture and social context.¹⁰⁹ This aspect arguably leaves room to investigate new interpretation of the concepts underlying the notion of aggressive practice, in light of the socio-technical transformation taking place in the market.

¹⁰⁷ Howells, Micklitz, and Wilhelmsson, *European fair trading law: The unfair commercial practices directive*, p. 185.

¹⁰⁸ For a general account on the doctrine of undue influence, see Rick Bigwood. "Undue Influence: Impaired Consent or Wicked Exploitation". In: *Oxford J. Legal Stud.* 16 (1996), p. 503.

¹⁰⁹ Reich et al., *European consumer law*, p. 114.

8.5.1 Undue influence

Most interesting of all is the concept of undue influence. Undue influence is the only one of the three concepts in the small clause of aggressive practices that is specifically defined by the Directive. Article 2(j) states that it means

*"exploiting a position of power in relation to the consumer so as to apply pressure, even without using or threatening to use physical force, in a way which significantly limits the consumer's ability to make an informed decision"*¹¹⁰

Despite being the only "means" of aggressive practices defined by the Directive, the notion of "undue influence" has neither been subject to specification by the CJEU, nor by guidance by the Commission. Only recently, in the cases of *Wind Tre*¹¹¹ and *Orange Polska*,¹¹² the CJEU has had the opportunity to clarify the requirements to qualify commercial practices as aggressive through the exercise of undue influence. *Wind Tre* case deals with default settings in the promotion of SIM cards where the Internet and mailbox service are already installed, without properly informing the consumer of that fact and the potential costs. *Orange Polska* turned on the marketing of telecommunication contracts where the consumer had to take the final decision on whether they wanted to conclude a contract or not under the physical presence of the courier who handed the contract out. In the decisions, the CJEU stated that an aggressive practice has to affect both the consumer's freedom of choice and their freedom of conduct. Freedom of choice implies that the consumer has been properly informed. The yardstick is the average consumer, who, however, cannot be expected to have the necessary skills to change the default setting alone. The mere withholding of relevant information in *Wind Tre* or the physical presence of the courier in *Orange Polska* cannot be qualified as aggressive as such. Undue influence, so goes the reasoning of the Court, requires a situational action which must not be unlawful but which must be apt to put undue pressure on the consumer's freedom of choice and conduct. The CJEU requires "additional practices": in *Orange Polska*, the Court provides guidance of what these additional practices might be, for example time pressure from the courier. In *Wind Tre*, the CJEU based its judgment against the opinion of the Advocate General on the per se prohibition of no. 29 of Annex I, thereby avoiding discussion on the scope and meaning of aggressive practices in Articles 8 and 9. Additional measures are said to constitute an aggressive practice if they are "liable to make that consumer feel uncomfortable and thus to confuse his thinking in relation to the transaction decision to be taken". It is clear from reading the decision how the Court emphasised the key role of information also when examining undue

¹¹⁰ Article 2(j) UCPD

¹¹¹ Case C-54/17, *Wind Tre*, ECLI:EU:C:2018:710.

¹¹² Case C-123/16 P, *Orange Polska v Commission*, ECLI:EU:C:2018:590.

influence: in *Orange Polska*, the lack of information must cause an undue influence on the consumer's choice; in *Wind Tre* the AG more or less reiterates the unclear wording of the article. Such an interpretation, however, runs counter to the possibility of governing forms of commercial practice that qualify as unlawful for reasons other than the "information deficit".

Another conceptual problem relates to the notion of "position of power", on which the Court has remained silent in the aforementioned judgments. The Directive does not specify how this power should be determined. According to Howells, it includes all those situations where traders have some particular suasion over the consumer and can result in an economic or intellectual domination and can derive out of many social ties that go beyond the purely professional.¹¹³ Willett understands the notion of "power" as related to the negotiation skills possessed by the traders, so that there may be influence in case of some high pressure sale.¹¹⁴ An additional cue on the nature of power may also come from Article 9, which allows for several factors in order to judge a commercial practice aggressive, thus possibly also based on undue influence. Among these:

*"the exploitation by the trader of any specific misfortune or circumstance of such gravity as to impair the consumer's judgement, of which the trader is aware, to influence the consumer's decision with regard to the product"*¹¹⁵

The Directive therefore covers a situation where a position of power, which can be exploited in a transaction, derives from his knowledge about specific misfortunes or circumstances of such gravity as to impede the consumer's freedom. Reference is traditionally made to possible tragic or traumatic events in the life of the consumer such as bereavement, illnesses and accidents. The legal question here is to what extent the concept of "circumstance of such gravity" can be extended to encompass the vast pool of information about consumers' private life algorithmic marketers can be aware of. Looking at the audience categories offered by Facebook to its third-party business client, one could wonder whether personal attributes related to private relationships such as "separated", "divorced", "widowed", or certain purchase behaviours as "food and drink" or "purchase habits", may be included in such circumstances. The fact is that if the discretionary criterion is that of 'impairing the consumer's judgment', then one can think of several circumstances that can be exploited that go well beyond the situations considered in the common imagination to be 'misfortunes'. In fact, programmatic advertising not only exploits the attributes of customer audiences, but it is also possible to determine when this is possible. So it is possible to think that each of us in

¹¹³ Howells, Micklitz, and Wilhelmsson, *European fair trading law: The unfair commercial practices directive*, p. 204.

¹¹⁴ Chris Willett. "Fairness and consumer decision making under the unfair commercial practices directive". In: *Journal of Consumer Policy* 33.3 (2010), pp. 247–273.

¹¹⁵ Article 9(c) UCPD

the course of the day is in a temporary moment of vulnerability. Moreover, it is relevant to point out to the fact that exploitation is not just related to factual circumstance, but also the psychological effect that may create a certain commercial practice. This was the position of the CJEU in *Purely Creative*.¹¹⁶ The CJEU was asked to interpret point 31 of the Annex (practices prohibited in all circumstances) prohibiting the aggressive practices consisting in "creating the false impression that the consumer has already won, will win, or will on doing a particular act win, a prize or other equivalent benefit, when in fact either, there is no prize or other equivalent benefit, or taking any action in relation to claiming the prize or other equivalent benefit is subject to the consumer paying money or incurring a cost"¹¹⁷. Interestingly, the Court refers to the fact that the practice in question is considered, pursuant to the Directive, to be aggressive because the reference to a prize "seeks to exploit the psychological effect created in the mind of the consumer by the perspective of having won something and to cause him to take a decision which is not always rational and which he would not have".

The problem remains that the Directive require for a practice exercising undue influence some additional practices that exercise pressure on consumers. The problem is crucial for algorithmic practices. In this regard, Mik argues that since "undue influence" cannot be of practical relevance because algorithmic practices clearly do not apply pressure.¹¹⁸ Similarly, Sibony holds that when it comes to undue influence the concept does not allow to take into consideration soft form of influence.¹¹⁹ However, this is not necessarily the case, since whether soft influence such as hyper-nudging can constitute a form of pressure, very much depends on the meaning of "pressure". The Directive is silent on the point. For example, the Cambridge dictionary defines "pressure" as noun as "the act of trying to make someone else do something by arguing, persuading,"¹²⁰ as a verb "to strongly persuade someone to do something they do not want to do". The problem is thus how much influence generated by algorithmic nudging impact on the concept of freedom of choice purported by the directive.

In this regard, critiques to nudging theory highlight that libertarian paternalists look at freedom only as an "opportunity" rather than an "exercise".¹²¹ For example, if consumer John is presented by a recommendation system with certain options in e-commerce webpage, a strict libertarian paternalist would argue that he has been nudged towards certain choice and, as far as substantive economic incentive do not alter the payoff of choice (e.g., the first

¹¹⁶ Case C-428/11, *Purely Creative and Others*, ECLI:EU:C:2012:651, para. 9.

¹¹⁷ Annex I, No. 31, UCPD.

¹¹⁸ Mik, "The erosion of autonomy in online consumer transactions", p. 25.

¹¹⁹ Sibony, "Can EU consumer law benefit from behavioural insights? An analysis of the Unfair Practices Directive", p. 719.

¹²⁰ Cambridge Dictionary, 2020, <https://dictionary.cambridge.org/it/dizionario/inglese/pressure>.

¹²¹ Andreas T. Schmidt and Bart Engelen. "The ethics of nudging: An overview". In: *Philosophy Compass* 15.4 (2020), e12658.

option provide a great discount that is not present in other ranked product), he has the opportunity to be "free", i.e. to opt-out from the nudge. Following their contention, it is an ethical nudge and not act of manipulation, if it presents choice in the interest of the nudgee. The question of the interest against personalized practices such as recommendation system, as said, is utmost unclear. In anyway, such an account of freedom does not take into consideration that freedom of choice is not merely an opportunity, but also an exercise which requires practical toolkit to exercise it. Critics of nudging such as Rebonato or Grüne-Yanoff have argued that nudges are only formally "liberty-preserving" or "easily resistible" as libertarian paternalism would have us to believe.¹²²

This the underlying reasoning that has been followed, for example, by the Italian Consumer Protection Authority in the Facebook mentioned above. The Commission was required to judge the unfairness of a second practice. Facebook engaged in a number of practices which aimed at discouraging users from blocking the transfer of their personal data to third-party websites. In particular, while users were able to actively opt out of the transfer of personal data to third parties, the default option in the Facebook settings was to allow this transfer. Furthermore, Facebook warned its users that by modifying the default settings, their "social experience" could be affected and they would not be able to access certain contents and services provided by Facebook. Facebook thus misled consumers by encouraging them not to change the default settings. According to the AGCM, Facebook relied on the concept of "undue influence" and exploited its position of power by applying pressure on users to accept its terms.¹²³ The undue influence derives from the application of the system of pre-selection of the broadest consent to the transmission of one's own data from/to third parties, described above, together with the prospect, following deselection, of significant limitations on the usability of the social network and the websites/apps of third parties, broader and more pervasive than those actually applied, feared consequences that condition users to maintain the choice pre-set by the company. This type of influence clearly favours a vision of the freedom of choice which is permeable of the findings of behavioural science. Facebook's commercial practice

¹²² Till Grüne-Yanoff and Ralph Hertwig. "Nudge versus boost: How coherent are policy and theory?" In: *Minds and Machines* 26.1-2 (2016), pp. 149–183. On the relationships between nudging and autonomy, Bart Engelen and Thomas Nys. "Nudging and Autonomy: Analyzing and Alleviating the Worries". In: *Review of Philosophy and Psychology* 11.1 (2020), pp. 137–156.

¹²³ . The practice was considered to be in breach of Article 24 and 25 of the Italian Consumer Code (transposing Articles 8 and 9 of the UCPD) as Facebook was exerting undue influence on its customers, who were subjected, without express and prior consent, thus in an unconscious and automated way, to the transmission and use by Facebook/third parties of the data concerning them, for commercial purposes. Undue influence has been found because the application of the system of pre-selection of the consent to the transmission of their data from/to third parties, together with the possibility, in case of deselection, of significant limitations on the usability of the social network and third-party websites/apps, which are more extensive and pervasive, which conditioned users to maintain the choice preset by Facebook.

nudges consumer into give away their data exploiting the status quo by using default that steer consumer behaviour towards.

8.5.2 Digital harassment

An unclear relationship with the concept of freedom of choice is also visible in the concept of harassment. As noted by Howells, an impairment on the ability to freely chose can hardly be regarded as the objection to many practices considered to be harassing the Directive in the Annex I (practices prohibited per se). For example, practice n. 25 is considered harassment because "the trader conducts personal visit to the consumer's home ignoring the consumer's request to leave or not to return" or "making persistent and unwanted solicitations by telephone, fax, e-mail or other remote media"¹²⁴. Many of such practices concern the protection of the consumer's private sphere, both physical and psychological, and include those practices that are so pressing that they frustrate the average consumer's judgement causing him or her to take a certain decision or behave in a manner not really intended.¹²⁵

The criteria established in Article 9(a) relating to timing, location, nature or persistence have great relevance in relation to harassment and give an insight into the types of practices typically associated with harassment. Looking at the means of commercial practice could be relevant. According to Howells, commercial practices carried out by telephone calls and e-mails are considered harassing as they consumers to engage with the trader, can be seen to invade their private sphere. Timing may affect the extent to which the practice is deemed harassing; telephone calls late at night or salesmen staying late may be deemed more harassing than calls that respect civilised hours.¹²⁶

In a recent case brought to the attention of the CJEU, the German Supreme Court has referred a case where an online e-mail service provider commissioned an advertising agency to insert pop-up advertising in the electronic mailboxes of users. The advertising was displayed in a specific advertising spaces in the inbox forming part of the mailbox of the free email service provided by Telekom. An ad server's JavaScript code was embedded in the appropriate place in the inbox on the webpage visited by the user of such a free email mailbox. The ads could be removed from the inbox by click on the cross symbols however the advertisement appeared against a grey background and did not indicate either a data or a sender. The applicant claimed that that advertising is anticompetitive in that it constitutes an "unacceptable nuisance" and is misleading". The Regional Court ordered to refrain from the practice, while the Court of Appeals dismissed the action on the ground

¹²⁴ Annex I, No. 25, UCPD

¹²⁵ Howells, Micklitz, and Wilhelmsson, *European fair trading law: The unfair commercial practices directive*, p. 189.

¹²⁶ *Ibid.*, p. 189.

that the contested ad placement did not constitute an unlawful commercial practice. The case was brought before the German Supreme Court on a point of law to interpret the UWG, which is the law that, *inter alia*, transposes the UCPD in Germany. In particular, the specific provisions referred to the Court are Paragraph 7(1) and Paragraph 7(2), point 3, of the UWG whereby it is established that a commercial practice is unlawful where it constitutes an unacceptable nuisance to a market participant, and such nuisance must always be assumed to be present in the case of advertising using electronic mail without the express prior consent of the addressee.¹²⁷ The provision in Paragraph 7(2), point 3, of the UWG is consistent with point 26 of Annex I to Directive 2005/29 and transposes Article 13(1) of Directive 2002/58 into German law. With regard to the case at hand, the German court referred to CJEU to interpret, among other things whether "individual advertising meet the conditions governing the presence of 'solicitation', for the purposes of the first sentence of point 26 of Annex I to Directive 2005/29/EC, only where a customer is contacted via a medium traditionally used for individual communication between a sender and a recipient, or is it sufficient if – as with the advertisement at issue in the case in point – an individual connection is established by the fact that the advertisement is displayed in the inbox of a private email account, and thus in an area in which the customer expects to find messages addressed to him personally?"¹²⁸ The Court will then have to clarify, in particular, whether a private e-mail account can be regarded as sufficiently "private" to constitute an "unacceptable nuisance", such as to be considered aggressive under the UCPD rules.

One could then broaden the question and ask how the notion of harassment and the public-private boundary line should be understood in the "on-life marketplace". This environment is "situated beyond the distinction between online and offline"¹²⁹ and blurs the boundaries between the private and the public. As said in Chapter 6, the clearest representation of the "onlife marketplace" is the Internet of Things. A legal question may here emerge as to what may constitute a fair commercial practice in the context of smart home. Clearly, the consumer is the one who decide to "smartize" her home

¹²⁷ The concept of "unacceptable nuisance" (Unzumutbare Belästigungen) translates the prohibition of unsolicited marketing practices. In particular Paragraph 7 establishes that "A commercial practice which constitutes an unacceptable nuisance to a market participant shall be illegal. This shall apply to advertising particularly in cases where it is apparent that the solicited market participant does not want this advertising." Act against Unfair Competition in the version published on 3 March 2010 (Federal Law Gazette I p. 254), as last amended by Article 5 of the Act of 18 April 2019 (Federal Law Gazette I, p. 466).

¹²⁸ Case C-102/20, StWL Städtische Werke Lauf a.d. Pegnit, Request for a preliminary ruling of 26/02/2020.

¹²⁹ Mireille Hildebrandt. *Smart technologies and the end (s) of law: Novel entanglements of law and technology*. Edward Elgar Publishing, 2015, p. 6. On the concept of "onlife marketplace", see also Roger Brownsword. "The E-Commerce Directive, consumer transactions, and the digital single market: questions of regulatory fitness, regulatory disconnection and rule redirection". In: *European Contract Law in the Digital Age*. Ed. by Stefan Grundmann. Intersentia, 2016, pp. 165–204, p. 204.

with connected gadgets and home assistants. However, the algorithmic assistants enter the home, the consumer largely loses its control over the network of marketing interested behind the digital devices.¹³⁰ The topic is of relevance for fair trading law considering that home has been traditionally regarded a free-market place. Consider in particular, the new interactions mediated by digital assistants. These allow marketers to send commercial messages to consumers not door-to-door and not through a request via the phone, but in the home and via home apps. A practice is harassing because of where it takes place, especially if it is in the home or on the doorstep or involves being accosted in public. The home is explicitly considered by the Directive as an "advertising-free-zone", as it can deliver psychological disturbance and place her in a potentially vulnerable position.¹³¹

8.6 Emotions

Given the rise of empathetic industry, a specific consideration is to be reserved to the relationship between legitimate persuasion, unfair manipulation, and emotions.

The discussion about emotions in marketing law has always been influenced by the role emotions play in the classic elaboration of marketing theories and consumers decisions. Following early consumer behaviour theories, emotions have been always regarded as important component of marketing information directed to the generality of consumers by integration of visual, textual and aural to increase the effectiveness of the commercial communication.¹³² Humour, sexual desire, story-telling and a plethora of other means of emotionally engaging the target audience have been traditionally deployed in practice to induce a sense of certain way of thinking, constructing, speaking at the heart of people. This is noted by Stewart, according to which an advertisement is designed on the basis both of informational component which comprises rational and logical arguments and (an emotional dimensions, which include visual imagery, music and language variables designed to elicit, reinforce and transfer feelings. Adding appropriate emotional content to a purely information-based advertisement has been generally believed to enhance attitude change in audience and audience receptivity.¹³³

¹³⁰ Leenes and De Conca, "Artificial intelligence and privacy – AI enters the house through the Cloud".

¹³¹ See also, Christoph Bush. "Does the Amazon Dash Button Violate EU Consumer Law? Balancing Consumer Protection and Technological Innovation in the Internet of Things". In: *Journal of European Consumer and Market Law* 7.2 (2018), pp. 78–80. The author argues that EU consumer law is most likely not ready to address the challenges of smart speakers as they impose a new control over the home and a new way of contracting via voice, which may not be compliant with mandated disclosure required by EU law.

¹³² David W. Stewart. "Emotions in advertising". In: *The Sage Handbook of Advertising*. Ed. by Jon Morris and Aditi Grover. Publisher: Sage Publications, 2007, pp. 120–134.

¹³³ Ibid.

From the point of view of consumer protection law, the challenge posed by mixing of commercial information and emotional content has been mainly played on the ground of transparency and identification principle. Business can compete in studying consumer psychology and use emotional triggers to influence behaviours but must do ensuring that the informational core of the commercial message remains identifiable. This is also the approach of the UCPD: marketing messages that overemphasise the emotional tone while disguising the informational content of products have a potential to harm economic interests of consumers diverting them from making an informed decision. At the same time, however, consumers must be able to apply a certain amount of diligence to study advertising and reduce the message to its rational core, selecting its key informative assets. This design is deeply linked with the classic vision that the average consumer is rational, who makes decisions based on products quality and price, carefully comparing risks and benefits, in which calculation is impermeable to emotions, with the result that personal economic autonomy of the consumer should normally not be distorted by emotional advertising. The point will be further discussed in the next chapter. It is important here to emphasise that so far EU law has control emotional marketing to a very limited extent.¹³⁴

It is important to re-emphasise that the scope of the UCPD is limited to commercial practices that are "directly connected with the promotion, sale or supply of a product to consumers" which may be deemed unfair only if they directly and materially harm consumers' economic interests. This means that emotional marketing which does not harm consumers' economic interests (i.e. does not potentially mislead in their economic behaviours) might still be controlled by Member States on grounds other than economic. As such, this could potentially imply that consumer protection from emotional marketing be based on grounds of national moral, taste and decency. This interpretation of the UCPD appears to be reflected somewhat in the European Commission's guidance which indicated that "[...] national rules on commercial practices, including marketing and advertising, regulating the protection of human dignity, the prevention of sexual, racial and religious discrimination, or the depiction of nudity, violence, and anti-social behaviour are not covered by the Directive"¹³⁵. Hence, evoking emotional responses with violent scenes or images for instance, will have to rely on the cultural acceptance of such methods in the specific Member State and therefore, the societal perception from a taste and decency perspective.

As a result of this framework, emotional marketing can either be controlled by EU in as far it distorts the economic behaviours of a transactions decisions as judged by the perspective of the average consumers. If however the emotions are appealed to in a tasteless and indecent manner, then

¹³⁴ In this respect, Micklitz argues that "European unfair commercial practice law legitimately economises emotions". Howells, Micklitz, and Wilhelmsson, *European fair trading law: The unfair commercial practices directive*, p. 105.

¹³⁵ UCPD Guidance, p. 9.

the question arises whether more stringent measures are justified by reference to deviating national morals, but this is a matter of national culture. As observed by Micklitz, the UCPD aims to "demoralise" the assessment of fairness and essentially establish a demarcation line between an EU level notion of unfairness and national non-market orientated values which remain outside the scope of the Directive and in the national sphere of competence.¹³⁶

It must be noted, however, that this reconstruction of emotional marketing presents a conceptual deficit with respect to the actual role emotions play in algorithmic commercial practice.¹³⁷ The monetisation of emotions today goes well beyond the integration of affective appeals in into commercial messages spread into the general audience. Today, the commodification of emotions and the ability to use them in real-time interaction with consumers represents the new real face of affective marketing. The variety of emotional signals left by the digital consumers and real-time analytics make already possible today and potentially more in the future to trigger a certain behaviour through messages that can directly affect the incidental emotional sphere at personal level and induce certain behaviours. In this case, the exploitation of emotion is not conveyed via the marketing message but through the analysis of "emotionally significant" behaviour (text, speeches) in the environment in which the consumer find itself and the ability to engage it in real time to stimulate a desired response. The issue is therefore not about only ethical norms, nor directly about national taste and decency, but about the commodification of emotions for influencing and potentially distorting the economic behaviour of consumers. This is the result of what we have seen in Chapter 6: the process of datafication of consumers' lives has not only involved and marketed (i.e. commodified) purchasing behaviour, but also previously excluded social and human behaviour, which carries information about the psychology and personal emotions of the consumer.

Think of the following scenario: Alice, an 18-years old girl has navigated over the week on online diets website and girlish blogs reading informing on psychological depression from overweight. At the end of the week, after school, girlfriends invite her for a Saturday night at the bar with their school boyfriends. An anxious Alice comes home "what will I wear?". As soon as she opens Facebook, scrolls down the page, a content appears displaying a black leather jacket with the claim "Ready for the night? (instant shipping, 30% discount)". Alice doesn't think twice and decides to spend her weekly pocket money to buy it. Legitimate persuasion or aggressive practice? Here the message does not contain any emotional claim, but only exploitation the potential knowledge of how she might feel in that precise time because it

¹³⁶ Howells, Micklitz, and Wilhelmsson, *European fair trading law: The unfair commercial practices directive*, p. 110.

¹³⁷ A more in-depth analysis of the relationship between EU law and strategies of emotion monetization can be found in Damian Clifford. "The legal limits to the monetisation of online emotions". PhD thesis. KU Leuven, 2019. URL: https://limo.libis.be/primo-explore/fulldisplay?docid=LIRIAS2807964&context=L&vid=Lirias&search_scope=Lirias&tab=default_tab&lang=en_US&fromSitemap=1.

scores high in the likelihood of buying. The question regards not so much whether the average consumer who is presented can be reasonably expected to identify commercial meaning, but differently, to what extent the use and exploitation of consumers' emotions in commercial practices can be considered as an unfair conduct.

An option would be to frame emotional targeting within the context of the general unfairness test.¹³⁸ Article 5(2) establish that a practice is unfair if it is contrary to the requirement of professional diligence and is likely to material distort the economic behaviour of consumers. The focus here is on the requirement of professional diligence. The importance of professional diligence will be further explored in the next chapter in conjunction with the concept of digital vulnerability. Suffice here to say the notion of professional diligence suffers from a certain underdeveloped at EU level, with the effect of both leaving a large margin of appreciation to Member states to judge a practice under the general unfairness clause, and opening up for wide autonomous action to self-regulatory organization to instantiate what may constitute the "the standard special skill of care"¹³⁹.

One the first side, no initiative has been taken by Member States with a view to substantiate the requirement of professional diligence in algorithmic practices, and whether this may entails an obligation upon traders to refrain from exploiting emotional information of consumers.

Similarly, as far as self-regulation is concerned, the use and exploitation of emotional technologies by marketers has not raised significant self-regulatory initiative. Among its basic principles, the ICC Code, some significant provisions stem from the obligation to respect human dignity and the prohibition against discrimination contained in Article 4 (Social Responsibility). The provision also states that "marketing communications should not without justifiable reason play on fear or exploit misfortune or suffering" and "not play on superstition"¹⁴⁰. As presented above, these codes of ethics are not mandatory and elaborated by third parties. Otherwise, although timidly, codes of conducts have also been developed in the domain of neuromarketing research and practice. With regard to this, however, there is a peculiar ethical stance towards self-regulation as emotion detection technologies are applied and experimented on physical human bodies (such as in the case of EEG

¹³⁸ Practices that are considered aggressive because they coerce, harass or unduly influence consumers do not require the proof of breach of professional diligence. In this sense, Micklitz observes that the three conducts already represent the instantiation of a normative judgement made by the legislator on what constitute professional diligence. This gives insight into the importance of professional diligence as a concept, at least on a theoretical level, in establishing what can and cannot be expected from marketers. Howells, Micklitz, and Wilhelmsson, *European fair trading law: The unfair commercial practices directive*, p. 101.

¹³⁹ Article 2(h), UCPD.

¹⁴⁰ International Chamber of Commerce. ICC Advertising and Marketing Communication Code, 2018 Edition. URL: <https://iccwbo.org/content/uploads/sites/3/2018/09/icc-advertising-and-marketing-communications-code-int.pdf>.

or fMRI). For example, the Neuromarketing Science and Business Association (NMSBA) introduced the first neuromarketing code of ethics in November 2012, which covers areas such as privacy, consent and transparency.¹⁴¹ The codes take inspiration from the protection of human test subjects in the EU Charter of Fundamental Rights and establish that personal information may not be kept longer than required for the purpose of the neuromarketing project or that participants less than 18 years of age shall only participate in studies with the informed consent of their parents. ESOMAR is also dealing with such issues and provide information about validity and efficacy of neuromarketing studies, but not inclusion of new AI-powered remote-sensing technologies is included.¹⁴² Moreover, the compliance with such guidelines and conducts is voluntary and the enforcement by the government and industry varies from country to country.

For such a sensitive issue like emotional exploitation, however, one might argue that too much is stake to be left the governance of those commercial practices to non-binding codes, governed by SROs. Indeed, as point out in the previous chapter, the inclusion of the criteria of "honest market practice" and "the general principle of good faith" in the professional diligence requirement leaves the room for a normative judgment. This was confirmed by the Commission in the Guidance when underlining that "these principles emphasise normative values that apply in the specific field of business activity."¹⁴³ In this regard, authors ventilate the hypothesis that the concept of professional diligence in the UCPD could be given a new meaning considering the about of information today traders can have about consumers. For example, Jan Trzaskowski opts for using a behavioural approach to interpret in a new light the requirement of professional diligence.¹⁴⁴ The trader is the professional party, and the standard of professional diligence could include expectations of consumers that the trader uses information about consumers in a way that is not harmful to the consumers. The available technology of bio-marketing and the possibility to access emotional information about consumer in real-time may raise the bar of what consumers can expect from trader here. Indeed, in a recent survey conducted among UK citizens by Andy McStay, emotional practices such as sentiment analysis, out-of-home advertising, voice recognition in mobile phones has decisively negative response by citizens-consumers. Half of UK citizens interviewed have said they are "not OK" with all these technologies in any form; a third are said "they are OK" if the application does not personally identify; less than a tenth

¹⁴¹ Neuromarketing Science & Business Association. NMSBA Code of Ethics. Nov. 2012. URL: <https://www.neuromarketing-association.com/buying-neuromarketing/code-of-ethics>.

¹⁴² ESOMAR. *ICC/ESOMAR International Code on Market*. Opinion and Social Research and Data Analytics, 2016. URL: https://www.esomar.org/uploads/public/knowledge-and-standards/codes-and-guidelines/ICCESOMAR_Code_English_.pdf.

¹⁴³ UCPD Guidance, p. 51.

¹⁴⁴ Trzaskowski, "Behavioural Economics, Neuroscience, and the Unfair Commercial Practices Directive", p. 314.

they said "they are OK" and another tenth "do not know".¹⁴⁵ In that vein, it could be presumed contrary to the requirement of professional diligence to use emotional information that the trader should know are likely to distort the economic behaviour of the average consumer, taking into consideration what he or she as a professional trader should know about how a commercial practice is likely to affect consumer behaviour.

On a different tack, Sibony suggests drawing from the field of marketing ethics to substantiate the requirement of professional diligence in the field of behavioural marketing.¹⁴⁶ Here, there is an interesting synergy with recent development in the field of AI ethics.¹⁴⁷ The High Level Group of Experts on Artificial Intelligence has identified emotional technologies as one of the potential ethical issues in the use of AI technologies. The issues concern not only the potential identification of individuals through face recognition technologies, but also the "tracing and tracking of an individual and between targeted surveillance and mass surveillance"¹⁴⁸. In the Policy and Investment Recommendation document, the HLEG also stresses the need to examine new rules to address the critical concerns arising from AI-powered methods of empathic media, emotional tracking, affect recognition, voice and facial recognition.¹⁴⁹

8.7 Conclusions

In the past, marketers' primary mission was to influence consumers' evaluation of products or services, with the idea that these appraisals would affect consumer purchase behaviour. Sometimes such influence has been declared unfair by the law as it was prone to generate too much confusion or distortion into consumers behaviours. Today's algorithmically personalized commercial offers and messages approach consumers in a different way than traditional radio or television commercials do. With AI, marketing consultants advise businesses to shift away from "brand advertising" and to invest instead in measuring consumer "habits" and in monitoring "real-time actionable data" so as to engage in "sales methods" that are "tied to buyers' processes" and can "react to customers' habits"¹⁵⁰. These ads appear more authentic because they purport to represent us, not the advertiser. With the sovereign consumer seemingly in the driver's seat, personalised marketing looks like democratic empowerment for citizens seeking fulfilment in the

¹⁴⁵ Andrew McStay. "Emotional AI, soft biometrics and the surveillance of emotional life: An unusual consensus on privacy". In: *Big Data & Society* 7.1 (2020).

¹⁴⁶ Sibony, "Can EU consumer law benefit from behavioural insights? An analysis of the Unfair Practices Directive", p. 916.

¹⁴⁷ Reka Pusztahelyi. "Emotional AI and its challenges in the viewpoint of online marketing". In: *Juridical Current* 23.2 (2020), pp. 13–31.

¹⁴⁸ High-Level Expert Group on Artificial Intelligence, *Ethics Guidelines for Trustworthy AI*.

¹⁴⁹ High-Level Expert Group on Artificial Intelligence, *Policy and Investment Recommendations for Trustworthy AI*.

¹⁵⁰ Willis, "Deception by Design", p. 154.

marketplace. Yet this does not eliminate problems to consumers choice. To the contrary, the clandestine nature of many of today's marketing strategies "aim to influence consumers at a mundane, and sometimes microscopic, level of habits and cognitive shortcuts that humans rely on to cope with the endless decisions necessary in the digital marketplace".¹⁵¹

In algorithmic business, distortion of consumers is less determined from hiding or providing untruthful information on products, but more with how available consumer data can be used and algorithmic responses better fine-tuned to optimize profitable goals. External influence that can limit consumers' ability to make an informed decision is less likely to result from scoundrel trickeries and outward coercion, and more on a subtle, opaque guidance of choice through the modulation of digital interface and social interaction. This is clearly visible in the use of emotion. New empathic variables increasingly featured into the algorithmic model of marketing personalization allow not only for the monetisation of online behaviours, but also of psychological and emotional insights about consumers. Once, the algorithm has been trained to categories and discriminate between emotional cues, it will be hard to distinguish when consumers' decisions are the effect of a reflected self-conscious decisions or the result of an exploitation of psychological and emotional information. The subjective elements and the discerning elements of probability and counterfactuals are less likely to signal out the hypothetical distortive character of a specific algorithmic practices.

The current approach of the Directive towards practices that distort consumer decisional autonomy appears to be very limited. On the one hand, the Directive places great emphasis on the information that must be given to the consumer in order to accomplish an informed decisions. In this respect, it should be noted that with algorithmic practices, commercial messages are only a residual part of a new mode of communication built on the assumption of influencing consumer behaviour. The commercial message is an insetral part of the algorithmic system from which it can no longer be separated. Statistical data analysis creates the message and adaptively modifies it to perfect its 'persuasive potential' over time. Consequently, in order to assess commercial practices in terms of fairness, it is not enough to assess the message; the systemic framework and the way technology shapes the relationship between the consumer and the advertiser must also feature prominently in such an analysis. Continuing to defend the consumer through the proclamation of deceptive practices could be a dead end. At the same time, a closer look at the information needed to ensure informed transactions in algorithmic marketing is necessary. In this sense, the new obligations introduced by the Omnibus Directive in the UCPD to provide more information on how personalisation practices work in order to counter opaque targeting are welcome. At the same time, however, it should be kept in mind that the power gap between consumers and traders is not merely informational, but technical and concerns the ability to pre-engineer offers and transactions (in

¹⁵¹ Nadler and McGuigan, "An impulse to exploit", p. 160.

a personalised, but standardised way) to pursue one's economic interest. The gap cannot be reduced to mere information asymmetry. Since the consumer is structurally and universally incapable of "understanding" the algorithmic architecture, information in any form cannot remedy the existing asymmetry. The consequence is that a solution in the existing body of consumer law has to address the structural side, the digital architecture, by means other than information. That is why, even mobilising the prohibition of misleading omissions to combat digital asymmetry in the form of data exploitation strategies leads to counterproductive effects.

As to the possibility of preventing manipulative effects in the algorithmic economy through the prohibition of aggressive business practices, it should be noted that the current regulation does not appear to be sufficiently clear with respect to new forms of influence. These no longer affect consumers' behaviour outright by imposing or precluding choices with rogue behaviours, but through incentivising certain desired behaviours and through making others more difficult. This often happens also thanks to the ability to exploit consumers' personal data or the inferences made thereon, as well as the ability of traders to build the digital architecture in a way that makes those nudges more effective. In this respect then, clearer guidance is needed on how fair trading law intends to prevent distortive effects on consumers' freedom of choice. This could also be done by amending the blacklist of practices considered aggressive, and considering what kinds of algorithmic business strategies should be banned as such.

Chapter 9

Digital vulnerability

9.1 Introduction

In the legal domain, vulnerability is notoriously a vague term.¹ It is used in a broad range of legal context and generally used as an ex-ante assessment of the likelihood of a potential negative outcome towards specific individual or groups.² The concept may serve to designate persons or groups that require specific regulatory/policy attention because of their lack of bargaining power, structural inequalities and other market or social conditions that make them more susceptible to harm (for example in the form of discrimination or unequal treatment).³ At times, it is also used as a concept to allow differentiation in situations in which uniform treatment of all would lead to unfairness for some. For example, Peroni and Timmers show how in the case law of the European Court of Human Rights, the acknowledgement of vulnerability status for particular groups (such as Roma, people with mental disabilities, people living with HIV, and asylum seekers) has led the court to find special positive obligations on the part of the state, increase the weight of harm in proportionality analysis, and reduce states' margin of appreciation.⁴ Malgieri and Niklas trace the development of vulnerability as a concept in data protection law, mostly confined to the case of minors who are less aware of potential risks and consequences of data protection and who therefore warrant a higher level of protection (for example with respect to the right to transparency, profiling, and informed consent).⁵

The vagueness of the vulnerability legal concept is reinforced by an ambiguity of the term that reflect in a main point of disagreements between those who look at vulnerability as universal and an inevitable part of the human

¹ Jonathan Herring. *Vulnerable adults and the law*. Oxford University Press, 2016.

² Felix Povel. *Perceived Vulnerability to Downside Risk*. Discussion Papers 43. Georg-August-Universität Göttingen, Courant Research Centre - Poverty, Equity and Growth (CRC-PEG), 2010. URL: <http://hdl.handle.net/10419/90573>.

³ N Craig Smith and Elizabeth Cooper-Martin. "Ethics and target marketing: The role of product harm and consumer vulnerability". In: *Journal of Marketing* 61.3 (1997), pp. 1–20.

⁴ Lourdes Peroni and Alexandra Timmer. "Vulnerable groups: The promise of an emerging concept in European Human Rights Convention law". In: *International Journal of Constitutional Law* 11.4 (2013), pp. 1056–1085.

⁵ Gianclaudio Malgieri and Jędrzej Niklas. "Vulnerable data subjects". In: *Computer Law & Security Review* 37 (2020), p. 105415.

experience (also within the legal system), and those who believe that it is more profitable to recognize that there are particular individuals or groups of individuals who suffer particular vulnerabilities. Among the most prominent and influential proponents of an universal approach to vulnerability is Martha Fineman with her vulnerability theory. According to Fineman, vulnerability is a "consequence of human embodiment, carrying with it 'the ever-present possibility of harm, injury, and misfortune'" and therefore "no individual can avoid vulnerability"⁶. According to this understanding of vulnerability, vulnerable consumers are not the exception; they are the rule. Such an approach has been criticized because it would leave too little room for considering individual differences of consumers, for example because of identity or social status. After all, not all people are alike, some are more affluent, privileged or better equipped than others. To account for the inequalities this may create, it is necessary to acknowledge the influence of different identities and privileges within each of us as consumers and how they influence social practices.⁷ In a similar vein, Cole criticizes the fact that universalism makes it impossible to acknowledge distinctions between particularly vulnerable consumers: "the concept has been rendered so broad as to obscure the needs of specific groups and individuals, undermining its promise as a conceptual frame to understand and challenge systemic inequalities"⁸. In response of such a disagreements, critics have suggested moving beyond using vulnerability as a label (vulnerable or non-vulnerable), and posing attention towards those drivers that transform the theoretical possibility of being vulnerable into a concrete situation of unfairness.

The vagueness and ambiguity inherent in the concept of vulnerability are arguably also reflected in EU consumer protection law and this has to do with the image of the consumer in need of protection.

9.2 The vulnerable consumer in EU law

The idea of vulnerability is at the core of consumer protection and is the very reason that pushed consumer protection on EU policy agenda.⁹ Vulnerability here is associated directly with the experience of consumption. Comparatively to the trader, the consumer is the one not doing business and lack the experience to handle economic transactions and legal contract. As mentioned in the previous chapter, this imbalance has traditionally been expressed with the notion of the consumer as "weaker party" and has progressively emerged

⁶ Martha Albertson Fineman. *Vulnerability: reflections on a new ethical foundation for law and politics*. Ashgate Publishing, Ltd., 2013.

⁷ Frank Rudy Cooper. "Always already suspect: Revising vulnerability theory". In: *NCL Rev.* 93 (2014), p. 1339.

⁸ Alyson Cole. "All of us are vulnerable, but some are more vulnerable than others: The political ambiguity of vulnerability studies, an ambivalent critique". In: *Critical Horizons* 17.2 (2016), pp. 260–277, p. 267.

⁹ Lisa Waddington. "Vulnerable and Confused: the protection of "vulnerable" consumers under EU Law". In: *European Law Review* 38.6 (2013), pp. 757–782.

as a general principle of EU law.¹⁰ Crucially, however, positive law has never attempted to define consumers' weakness, and the issues has been largely confined to doctrinal analysis and jurisprudential interpretation. Scholars made many attempts to draw parallels to the role of the worker in the production process focusing on the imbalance of power, whether there is one and if so, how the imbalance can be defined. The imbalance is generally linked to the perceived asymmetry in the level of available information and bargaining power. This kind of social welfare thinking has been also taken by the European Court of Justice. In a series of judgments, the CJEU made references to the concept of weaker consumer for its position of "economically weaker and less experienced in legal matters than the other party to the contract"¹¹, or for its "his bargaining power and his level of knowledge"¹². The perception of the consumer as a weaker party in need of protection was reflected in the legislative developments at the Community level, most notably in the principle of minimum harmonisation upon which the common rules had originally been based and the areas in which they were developed. Member States would be therefore in a position to provide additional protective standards to the consumer that, despite shared minimum rules, would have indeed enhanced the weaker position of consumers.

Over time, however, the importance of market-related objectives increased, partially at the expense of the original protective goals and of the idea of consumer as the weaker party. The shift was also reflected at the rhetorical level. At the turn of the millennium, with the adoption of the Lisbon Treaty, a new consumer policy strategy was put forward where the focus was no longer on consumer protection as such, but rather on making it possible for consumers "to realise the benefits of the internal market" which requires "common consumers protection rules and practices across Europe" and means "moving away from present situation of different sets of rules in each Member State"¹³. Also, following the approach of the E-commerce Directive, the new consumer policy programme promoted measures that would empower consumers to "benefit from the opportunities presented by the information society" for which consumer participation will be crucial to success"¹⁴. Despite Treaty reforms that occurred in the meantime, most of the Commission's legislative initiatives affecting the position of consumers continued to

¹⁰ Norbert Reich. "Vulnerable consumer in EU law". In: *The Images of the Consumer in EU Law: Legislation, Free Movement and Competition Law*. Ed. by Dorota Leczykiewicz and Stephen Weatherill. Hart Publishing, 2016, pp. 139–158.

¹¹ Case C-89/91, *Shearson Lehman Hutton v TVB*, ECLI:EU:C:1993:15, para. 23-24.

¹² Joined cases C-240/98 to C-244/98, *Océano Grupo Editorial SA v Roció Murciano Quintero* (C-240/98) and *Salvat Editores SA v José M. Sánchez Alcón Prades* (C-241/98), *José Luis Copano Badillo* (C-242/98), *Mohammed Berroane* (C-243/98) and *Emilio Viñas Feliú* (C-244/98), ECLI:EU:C:2000:346, para. 34-35.

¹³ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on consumer policy strategy 2002-2006" (COM(2002) 208 final), OJ C 127/2, 8.6.2002.

¹⁴ Communication from the Commission – Priorities for Consumer Policy 1996-1998 COM/95/519 Final.

derive their legal basis from the provisions related to the functioning of the internal market and have increasingly followed the full harmonisation approach.¹⁵ The functions of the advancing harmonisation policy were associated with the removal of barriers to trade and with the promotion of "consumer confidence" in the viability of the border-free market.¹⁶ Such an approach does away from the idea of weaker consumer in need of protection and move towards an image of consumer as wishing to engage actively in the integrated market and make the most out of it via its enhanced freedom of choice and by the presence of the same floor of rights everywhere. This image is closer to the idea of the average consumer as the normative construal to build the internal market. The consumer is now an empowered figure, the one that has the skills to deal with information and carefully analyse contractual materials. Under the Internal Market doctrine, consumer protection law turned into consumer law without protection.¹⁷

As the idea of generalized weaknesses lost its bearing, after the Lisbon Treaty, the idea of vulnerability made its appearance for the first time as a consumers' individual state pre-existing the market relations. The EU's focus on the internal market and the empowered consumer had, in fact, been counterbalanced by increased attention to the issue of social exclusion. The focus was towards the consumers more vulnerable, "living below the poverty line and in social exclusion"¹⁸ who run the risk of being isolated from economic and social life, be it by over-indebtedness, illness or a lack of possibilities to communicate. According to Reich, for this category of consumers, improved information and market transparency are of little help if the goal is to enable them to lead self-determined lives but

*"it is rather the targeted improvement of infrastructure, and intelligent, realistic schemes of providing advice, that enable consumers, including vulnerable consumers to participate independently in economic and social life"*¹⁹.

The recognition of this new type of consumer is closely linked to the second-generation liberalization in important economic services of general interest, such as telecommunication and energy, which has urged the EU to

¹⁵ Klaus Tonner. "From the Kennedy message to full harmonising consumer law directives: A retrospect". In: *Varieties of European Economic Law and Regulation*. Ed. by Kai Purnhagen and Peter Rott. Springer, 2014, pp. 693–707.

¹⁶ Stephen Weatherill. "Justifying limits to party autonomy in the internal market – EC legislation in the field of consumer protection". In: *Party autonomy and the role of information in the internal market*. Ed. by Stefan Grundmann, Wolfgang Kerber, and Stephen Weatherill. De Gruyter, 2001, pp. 165–172.

¹⁷ Hans-W. Micklitz. "The expulsion of the concept of protection from the consumer law and the return of social elements in the civil law: a bittersweet polemic". In: *Journal of Consumer Policy* 35.3 (2012), pp. 283–296.

¹⁸ Decision No 50/2002/EC of the European Parliament and of the Council of 7 December 2001 establishing a programme of Community action to encourage cooperation between Member States to combat social exclusion; OJ L 010, 12/01/2002.

¹⁹ Reich, "Vulnerable consumer in EU law", p. 150.

provide new legislative frameworks to guarantee everybody with the supply of those services. Article 1(1) of the Universal Service Directive aimed at ensuring the availability of electronic communication networks and services to the end users through effective competition and choice and to deal with circumstances in which the needs of end-users are not satisfactorily met by the market. According to Recital 7, the Directive provides the "same condition [of] access, in particular, for the elderly, the disabled and for people with special social need"²⁰. The concept of "vulnerable customer" appeared in the Directive 2003/54 on electricity,²¹ enacted in reaction to energy poverty and then repealed by the Directive 2009/72/EC,²² and in Directive 2003/44 on natural gas,²³ repealed by the Directive 2009/73/EC.²⁴ From this moment on, the recognition of the consumer vulnerability confirms that consumers are no longer understood as being equally weaker homogenous group and some require a higher level of protection because their inability or failure to have access to certain valuable goods or services.

A slightly different approach to the "vulnerable consumer" has also found its way in the Unfair Commercial Practice Directive and later in other consumer directives.²⁵ As said in Chapter 7, the Directive follows the confident approach to consumer, who is willing to shop across border and thus stimulate competition. The presence of the vulnerable consumer here is mainly due to Nordic countries who in the legislative process were critics about the maximum harmonization scope of the Directive and rejected the codification of the standard of average informed consumers as the only conceptual benchmark. This move would have in fact blatantly disregarded the long-standing tradition of national consumer protection laws shielded particularly vulnerable groups against targeted marketing strategies. The condition

²⁰ Directive 2002/22/EC of the European Parliament and of the Council of 7 March 2002 on universal service and users' rights relating to electronic communications networks and services; OJ L 108, 24/04/2002.

²¹ Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in electricity and repealing Directive 96/92/EC; OJ L 176, 15.7.2003, p. 37–56.

²² Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC; OJ L 211, 14.8.2009, p. 55–93.

²³ Directive 2003/55/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in natural gas and repealing Directive 98/30/EC; OJ L 176, 15.7.2003, p. 57–78.

²⁴ Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC; OJ L 211, 14.8.2009, p. 94–136.

²⁵ The concept of "vulnerable consumer groups" was already present in the Directive 97/55/EC which amended Directive 84/450/ECC concerning misleading advertising so as to include comparative advertising. Here, however, the notion was only referred into Recital 22 and employed to open up the possibility for Member State to maintain or introduce stricter bans regarding marketing methods or advertising which would target vulnerable consumer groups. The Directive is now repealed by the Directive 2006/114/EC which applies only to business-to-business relationship and accordingly the reference to the vulnerable consumer has been removed.

of vulnerability in the UCPD is however different from services of general economic interests. It is notable, in fact, that the Directive does not speak of the "vulnerable consumer" but of "consumers whose characteristics make them particularly vulnerable"²⁶. The concept is considered to belong more to the traditional area of contract law understanding which acknowledge that some parties due to their characteristics may be less able to self-determine their choices within the contractual relationship. These characteristics features their mental or physical infirmity, age or credulity. A commercial practice that is likely to materially distort the economic behaviours of the groups of consumers shall be assessed from the perspective of the average member of such groups, provided that the group is clearly identifiable and the vulnerability was foreseeable by the trader.

The same approach can be also found in the Directive 2011/83 on consumer rights,²⁷ as well as in the revised package tour Directive 2015/2302.²⁸ The two legislative instruments are pre-eminently concerned with information duties, and the vulnerable consumer concept features as a non-binding benchmark to assess the level and modalities of information provisions. No explicit mention of the vulnerable consumer, instead, has been made in other consumer contract law instruments which, in line with the philosophy of general service, would have arguably required a special protection to consumers living below the economic subsistence. Given this fragmented approach, doubts arise as to whether the concept of the vulnerable consumer actually represents a general normative category of EU consumer law.²⁹

The way the UCPD defines and frames the vulnerability concept has been largely criticised by consumer law scholars, who argue that it ends up losing all its bearing. The standard to be applied requires that the vulnerable group must be clearly identifiable. What can be regarded as clearly identifiable and to whom the group must be clearly indefinable, however, remain unclear. It might indeed be hard to determine whether and why certain groups of consumers are particularly vulnerable to a commercial practice, and whether these groups are sufficiently homogenous in order to be identified.³⁰ Moreover, vulnerability by virtue of age and infirmity clearly implies groups such as children, teenagers, elder, and to people with disabilities and sensory impairment, the vulnerable credulous people defines a-not-so-clear groups of

²⁶ Article 5(3) UCPD.

²⁷ Recital 34, Consumer Rights Directive.

²⁸ Recital 25 of the Directive (EU) 2015/2302 of the European Parliament and of the Council of 25 November 2015 on package travel and linked travel arrangements, amending Regulation (EC) No 2006/2004 and Directive 2011/83/EU of the European Parliament and of the Council and repealing Council Directive 90/314/EEC. OJ L 326, 11.12.2015, p. 1–33. The concept of credulity has been abandoned by the directive, as well as the foreseeability requirement of the vulnerable group.

²⁹ Hans-W Micklitz. *The politics of justice in European private law: social justice, access justice, societal justice*. Cambridge University Press, 2018, p. 166.

³⁰ Thomas Wilhelmsson. "The informed consumer v the vulnerable consumer in European unfair commercial practices law-a comment". In: *The Yearbook of Consumer Law 2007*. Ed. by Geraint Howells et al. Routledge, 2007, pp. 211–227.

consumers, who may be characterised by "commercial inexperience and ignorance of the law"³¹ or may be "more readily to believe specific claims"³². The term is neutral and circumstantial, so the effect is to protect members of a group who are for any reason particularly open to be influenced by a specific commercial practice. Any consumer could qualify as a member of this group.³³ A further complication is introduced by the fact that in order to trigger the standard of the vulnerable consumers, the practice must distort the economic behaviours of the vulnerable group only. This would mean that the commercial practice would have to affect the vulnerable group, for example elder people, exclusively. If some other consumers are also affected who do not qualify as vulnerable consumers, it is not clear whether the vulnerable group benchmark can still be applied.³⁴ Finally, the fact that the vulnerable groups must be reasonably foreseeable to the traders allow the applications of the alternative benchmarks only when the trader knows or should have known that the vulnerable group was going to be affected by the practice.³⁵

So far, Article 5(3) has never been referred to the CJEU for interpretation, nor has the Court incidentally touched upon on the concept in other cases, while the EU legislator did not provide any guidance been provided.³⁶ Reich explains this in light of the general political orientation of EU legislator in the field of marketing law: the vulnerable consumer concept is mostly being perceived as a barrier to trade and market integration, so that the focus has been more on the application of the informed consumer standard.³⁷

The dissonance of vulnerable consumer with reality is also reflected at conceptual level. Here, it is observed that the existing consumer law, including the UCPD, offers a rather limited outlook of the vulnerability concept comparatively to evolving elaborations in non-legal research. Socio-cultural and marketing literature on consumer vulnerability is in fact moving beyond strict personal characteristics which signal the status of vulnerable towards considering an ever-growing range of socio-economic factors that may pinpoint vulnerable conditions, as well as looking at how external elements may create, influence or reinforce vulnerabilities.

³¹ Bram B Duivenvoorde. "The protection of vulnerable consumers under the Unfair Commercial Practices Directive". In: *Journal of European Consumer and Market Law* 2.2 (2013), pp. 69–79.

³² *Ibid.*, p. 66.

³³ *Ibid.*

³⁴ *Ibid.*

³⁵ *Ibid.*

³⁶ A rare exception where the Court did consider the position of the vulnerable consumer is Case C-382/87, *Buet and Others v Ministère public*, ECLI:EU:C:1989:198. The case, regarding misleading advertising, concerned a French restriction on door-to-door canvassing and selling of educational material. This Court found that such a restriction was justified on the ground of protecting consumers who are "behind with their education and are seeking to catch up" which "makes them particularly vulnerable" (para. 13)

³⁷ Reich, "Vulnerable consumer in EU law", p. 34.

In this vein, scholars have observed that only a restricted number of vulnerable groups is covered by the Directive which are seen as vulnerable because of their intrinsic characteristics. The list is interpreted as non-exhaustive by the Commission, which indeed could leave space for considering additional characteristics of vulnerability. Yet, it is clear that what may count as vulnerable characteristics is something that is endogenous to consumers' way of being. In this regard, Stuyck, Terryn and Van Dyck argue that the definition of the vulnerable groups seems to be quite arbitrary and lacking empirical evidence, especially if different markets are considered.³⁸ Other factors such as educational attainment, income, ethnicity, may indeed play a role in rendering consumers vulnerable. Moreover, it has been observed that by focusing on specific characteristics that UCPD is liable to stigmatise certain consumers, which might not consider themselves as a priori vulnerable.³⁹ This is what Cole has called the "victim approach"⁴⁰ to vulnerability, as the concept is used to draw attention to the inherent weakness of particular groups, or their inability to fend for their own interests. More generally, it is noted that moving from a class-based approach, and considering vulnerability on the characteristics they possess, the risk is not to consider that fact that vulnerability is a dynamic and may characterise the situation in which the consumer finds himself. Clearly, relying on clear-cut categories is a vehicle of legal certainty, which admittedly represent a barrier for more flexible notion of vulnerability to be transferred in legislation. At the same time, however, providing too a narrow focus may prevent from further discussing the concept as evolving with market practice and may de facto hinder the law to achieve its very objective.

Following these shortcomings, more nuanced conceptualizations of consumers vulnerability have been proposed based not only on additional characteristics of consumers, but also on the circumstances that may lead to vulnerability. In the first group, for example, Morgan, Schuler and Stoltman have developed a more extensive typology of personal characteristics. In their typology, designed with a particular focus on product safety and pharmaceuticals, they distinguish four consumer groups based on their: physical sensitivity, referring to, in the context of product safety, consumers being particularly sensitive to specific substances; physical competency, referring to consumer's physical capabilities; mental competency, referring to consumer's mental capabilities; and sophistication level, referring to consumers' educational or socioeconomic background.⁴¹

³⁸ Stuyck, Terryn, and Dyck, "Confidence through fairness? The new Directive on unfair business-to-consumer commercial practices in the Internal Market", p. 122.

³⁹ Geraint G. Howells, Christian Twigg-Flesner, and Thomas Wilhelmsson. *Rethinking EU consumer law*. Routledge, 2018, p. 71.

⁴⁰ Cole, "All of us are vulnerable, but some are more vulnerable than others: The political ambiguity of vulnerability studies, an ambivalent critique".

⁴¹ Fred W Morgan, Drue K Schuler, and Jeffrey J Stoltman. "A framework for examining the legal status of vulnerable consumers". In: *Journal of Public Policy & Marketing* 14.2 (1995), pp. 267–277.

Among novel conceptualization of vulnerability looking at the sources of vulnerability, Cartwright developed a taxonomy of vulnerability consisting of a set of elements which, taken together, help identify where vulnerability is liable to exist.⁴² Focusing on financial sectors, he identifies the following types of vulnerability:

- informational vulnerability, both with regard to the ability to obtain and to process information;
- pressure vulnerability, arising from individual characteristics, temporary individual circumstances, or the physical situation they find themselves in;
- supply vulnerability, i.e. the inability to access and/or afford essential goods and services;
- redress vulnerability, the difficulties in being able to seek redress after harm or economic loss has been suffered;
- impact vulnerability, the comparatively more serious harm of making a bad choice with regard to a particular product or service.

Looking forward, then, an important contribution of recent theoretical advances in the thinking on vulnerability theory is the recognition that vulnerability is not static condition, reserved for particular groups of consumers, but more a dynamic state which may affect different persons and groups. Griffiths and Harmon-Kizer are explicit in recognising that "consumers may move in and out of situations where they experience vulnerability or are at risk for a defined period of time"⁴³. In addition to viewing vulnerability as dynamic, Harrison and Chalmers suggest that it could also be viewed as a spectrum and not a binary state, which would help show that vulnerability does not have to be enduring and can arise from a combination of factors.⁴⁴

In response to mounting criticism of the traditional interpretation of the vulnerable consumer and leaning towards a more dynamic approach, the status-based definition of consumer vulnerability in the UCPD seems to have been abandoned also at policy level, as suggested in a recent document of the European Commission. Here, the vulnerable consumer is defined as:

"A consumer, who, as a result of socio-demographic characteristics, behavioural characteristics, personal situation, or market environment:

⁴² Peter Cartwright. *The vulnerable consumer of financial services: Law, policy and regulation*. Financial Services Research Forum 6. Nottingham University Business School, 2011. URL: <https://www.nottingham.ac.uk/business/businesscentres/gcbfi/documents/researchreports/paper78.pdf>.

⁴³ Merlyn A. Griffiths and Tracy R. Harmon. "Aging consumer vulnerabilities influencing factors of acquiescence to informed consent". In: *Journal of Consumer Affairs* 45.3 (2011), pp. 445–466.

⁴⁴ Ronald Paul Hill and Eesha Sharma. "Consumer vulnerability". In: *Journal of Consumer Psychology* 30.3 (2020), pp. 551–570.

- *Is at higher risk of experiencing negative outcomes in the market;*
- *Has limited ability to maximise his/her well-being;*
- *Has difficulty in obtaining or assimilating information;*
- *Is less able to buy, choose or access suitable products; or*
- *Is more susceptible to certain marketing practices."*⁴⁵

In the same document, in addition to attributing the status of vulnerability to certain groups of consumer given their *personal characteristics*, the Commission explored several mechanisms (referred as "vulnerability drivers") through which individual consumers can become vulnerable and through which their vulnerability can be exploited in the market leading to concrete situations of unfairness. The categories of drivers considered are the following:

- *Behavioural drivers*, which relate to the individual and include biases and heuristics, as well as broader cognitive limitations;
- *Market-related drivers*, which refer to the functioning of the market and ways in which the functioning of the market can contribute to consumer vulnerability;
- *Access drivers*, which refer to a range of mechanisms through which consumers can have restricted access to markets, goods and services;
- *Situational drivers*, which refer to mechanisms through which consumers' current (temporary or permanent) situation results in vulnerability.

Building on this existing typologies and contributing to this debate, the next paragraphs discuss some of the potential refinements for the concept of consumer vulnerability in the context of algorithmic business practices. It soon becomes apparent that an exhaustive and definitive definition of a vulnerable consumer is nearly impossible. Consequently, the aim is not to define who the "vulnerable consumer" is, notwithstanding that this is recognised to be an important element. The objective is to navigate the grey area between the vulnerable concepts enshrined in current legislation and the image of the average consumer, and only contribute to create a clearer image who is the consumer in need of protection.

⁴⁵ European Commission. *Consumer vulnerability across key markets in the European Union*. Final report. Sept. 2016. URL: <https://op.europa.eu/en/publication-detail/-/publication/79b42553-de14-11e6-ad7c-01aa75ed71a1>. The results of the study were also incorporated in the UCPD guidance, which suggests that the notion of vulnerable consumer in the Directive can also be reconstructed in the light of the approach taken in the study mentioned above.

9.3 Personal characteristics

While research on consumer vulnerability moves away from focusing on specific characteristics of certain groups of consumers, there are still arguments for retaining elements of this approach. For example, Commuri and Ekici recognise that vulnerability is dependent on external and situational factors, but note that from a policy-making perspective it is important to be able to target specific well-defined consumer groups. They propose to view consumer vulnerability as a "sum of two components: a systemic class-based component and a transient state-based component"⁴⁶. According to this proposal, it would still seem to be important to focus on how transactions within algorithmic business can generate situations of vulnerability with respect to specific categories of consumers in view of their intrinsic capacities.

9.3.1 Traditional groups

When it comes to evaluate consumer vulnerability in the context of the algorithmic business, there are still reasons to consider vulnerability as linked to specific internal characteristics of consumers, such as those considered by the UCPD.

For example, there is considerable body of research on teenager consumers or young adults' vulnerability in digital marketplace, especially with regard to social media advertising and content. Children have become an important and lucrative target group for digital marketers, not only because their overpresence social media, but also because their purchase power and money independence from their parents has grown from earlier stage of adolescence.⁴⁷ Kotler and colleagues point to young people as the primary and most profitable customers: this involves cool advertisement, celebrity endorsement, innovative brand interactions. Marketers perceive them as "early adopters", meaning that they are not afraid of experimentation, they try new products which older groups deem too risky, and they are also more likely to be carrier of viral content marketing for their social media engagement.⁴⁸

However, several studies put such an interests under a critical light, as this may come with greater exposure to commercial pressure. For example, Berg shows how teenagers and young adults frequently using social media become vulnerable in their role of consumers.⁴⁹ She calls this the "selfie effect": young users posting selfies and following bloggers are exposed to

⁴⁶ Suraj Commuri and Ahmet Ekici. "An enlargement of the notion of consumer vulnerability". In: *Journal of Macromarketing* 28.2 (2008), pp. 183–186.

⁴⁷ Sandra L. Calvert. "Children as consumers: Advertising and marketing". In: *The future of children* (2008), pp. 205–234.

⁴⁸ Kotler and Keller, *Marketing Management*. "If brands want to influence the minds of mainstream customers, convincing youth is the important first step."(p.35).

⁴⁹ Lisbet Berg. "Young consumers in the digital era: The selfie effect". In: *International Journal of Consumer Studies* 42.4 (2018), pp. 379–388.

greater commercial decoys, attention captures and overconsumption. Of special concerns are integrative and interactive forms of advertising in social networks, which often embed commercial messages into media content, such as YouTube video clip, or app games (s.c. *advergames*), which not merely develop a positive product or brand association through the delivery of fun interactive content, but also exploit children as a vehicle of branding with their friend.⁵⁰ Valerie Verdoodt dedicates an extensive book on the perils of new forms of marketing to children to *advergames*, carefully examining applicable law between data protection and consumer protection, pointing out to the vulnerable consumer.⁵¹ Other focus more on how social media marketing and unwanted marketing directed towards children affects their behaviours and social relation with peers.⁵² For example, following the strand of study referred to as "consumer socialisation", i.e., the development of consumer knowledge, skills and value in children and adolescent, Kennedy et al. shows how marketers shape and socialize children's identity as consumers, influencing their consumption goals. Digital advertising skills are not taken into consideration in most of national education systems.

Elderly people are also generally associated with a status of vulnerability in digital marketplace. One major problem may regard their (lack of) digital skill both when dealing with information technologies and their lower understanding of privacy concerns. For example, in the context of digital advertising, one factor is complete lack of awareness of attempts to disengage with online advertisements such as through the growing use of ad blockers. Research has also shown that older people tend to engage in lower levels of information search⁵³ and demonstrate lower likelihood of switching brands.⁵⁴ Even though representing a lower portion among Internet and social media users and thus being less relevant niche for targeted marketing, the availability of targeting based even on older age and the possibility to study psychological traits of elder social media users suggest the increasing effectiveness targeting older generational cohorts.⁵⁵

Research on vulnerable consumers by virtue of infirmity in online environments is comparatively less developed. Following the approach of the UCPD, one might first wonder what "mental disorder" means. The Directive

⁵⁰ Jenny Radesky et al. "Digital advertising to children". In: *Pediatrics* 146.1 (2020).

⁵¹ Valerie Verdoodt. *Children's Rights and Commercial Communication in the Digital Era*. Intersentia, 2020.

⁵² Sonia Livingstone et al. "Maximizing opportunities and minimizing risks for children online: The role of digital skills in emerging strategies of parental mediation". In: *Journal of Communication* 67.1 (2017), pp. 82–105.

⁵³ Carolyn Yoon, Catherine A. Cole, and Michelle P. Lee. "Consumer decision making and aging: Current knowledge and future directions". In: *Journal of Consumer Psychology* 19.1 (2009), pp. 2–16.

⁵⁴ Raphaëlle Lambert-Pandraud, Gilles Laurent, and Eric Lapersonne. "Repeat purchasing of new automobiles by older consumers: empirical evidence and interpretations". In: *Journal of Marketing* 69.2 (2005), pp. 97–113.

⁵⁵ European Commission, *Consumer vulnerability across key markets in the European Union*, p. 357.

seems rather unclear on this point but suggests that consumers whose cognitive abilities are decreased and therefore cannot resist to marketing pressure should be included.⁵⁶ Duivenvoorde includes different mental disorders, such as anxiety and impulse control disorder are often linked to less inability to refrain from analysing information and lead to impulsive buying. Yet – he notes – it is difficult to speak of people with mental infirmity as a homogenous group of vulnerable consumers, and the problems they face are highly context specific.

With regard to the category of mentally-ill people, it is important to remember that today it is possible to make inferences about the psychological states of consumers through the new techniques of data analysis and profiling. Burr and Cristianini have reviewed a series of research studies that show how it is possible to infer disorders and conditions from different sources of data.⁵⁷ Just to name few which might have a role in the marketplace, a research team at Microsoft found that major depressive disorder could be predicted on the basis of a range of behavioural signals collected from Twitter.⁵⁸ Another study showed how it is possible to predict consumers affected by impulsive.⁵⁹

9.3.2 New (concept of) groups

As mentioned above, in addition to the vulnerability categories provided for in the Directive, research on consumer vulnerability is moving towards new categories that allow for the consideration of cultural and socio-economic categories. In this respect, the EU Commission notes that one of the potential drivers of vulnerability is educational attainment.⁶⁰ Consumers with low or medium level of education are more likely than those with high education to consciously engage in the digital marketplace, comparing products and understanding digital advertising. Within this category, one can include the cognitive capacities of those individuals who are unable to understand IT environments, including information on privacy, but also the modalities of monetisation through behavioural advertising.⁶¹

⁵⁶ Duivenvoorde, "The protection of vulnerable consumers under the Unfair Commercial Practices Directive".

⁵⁷ Christopher Burr and Nello Cristianini. "Can Machines Read our Minds?" In: *Minds and Machines* 29.3 (2019), pp. 461–494.

⁵⁸ Changye Zhu et al. "Predicting depression from internet behaviors by time-frequency features". In: *2016 IEEE/WIC/ACM International Conference on Web Intelligence (WI)*. IEEE, 2016, pp. 383–390.

⁵⁹ Sanjeev Prashar and Subrata Kumar Mitra. "Forecasting impulse buying behaviour: a comparative study of select five statistical methods". In: *International Journal of Business Forecasting and Marketing Intelligence* 3.3 (2017), pp. 289–308.

⁶⁰ European Commission, *Consumer vulnerability across key markets in the European Union*, p. 358.

⁶¹ Karine Berthelot-Guiet. "The Digital "Advertising Call": An Archeology of Advertising Literacy". In: *International Conference on Human-Computer Interaction*. Springer, 2020, pp. 278–294.

The study on consumer vulnerability as traditionally focused on a specific notion of groups, which implies a certain degree of self-identification among its members or an acknowledgement from the society or the legal system.⁶² Members of a self-conscious social group identify themselves as such and are aware that they are part of it; their identity is often shaped by the perception and treatment of the group by the rest of society (e.g. young consumers, women, environmental-friendly consumers, etc.). At the same time, such external social perceptions can also form the basis of what we may call a "passive" social group: a group treated as a group by society without its members actually identifying as such (e.g. sex, religion, cognitive agency, culture, etc.), while the members themselves do not necessarily perceive themselves as part of the group. It is, however, important to begin to question this conceptual approach to define the notion of a group, thus also vulnerable groups, when it comes to data-driven business.

As seen in Chapter 3, in data-driven marketing research, the notion of consumer groups is assuming a different meaning. Thanks to clustering and other segmentation methods, marketers infer and study commonalities between individuals which are not part of groups understood in a socio-culture-economic meaning. The group remains a number of individuals classified together, however, whereas the classification of a certain number of individuals as a group has traditionally taken place through a self-defined or externally perceived social construct, today consumer groups are defined or indeed automatically emerged with the use of data analysis and algorithm. Clusters are used to identify a set of individuals that are directly or indirectly grouped on the basis of any possible variable (class of age, habits, geographic distribution, etc.).⁶³

In the field of consumer research, this approach to study consumer behaviours have been championed by Robert Kozinets which developed the concept of "netnography".⁶⁴ This represents a new research methodology in marketing research which uses ethnography but apply it on internet to understand consumers' behaviours in "e-tribes" or online communities. Similar to ethnography, netnography aims to study humans through immersion into their natural (digital) communities in an unobtrusive way. An example will clarify. A netnography marketing research has identified through natural language processing a new group of consumers and has labelled "Black Twitters". It refers to a group of social media users active on the platform for group discussion, advocacy and scathing commentary on the black experience both in the United States and around the world. This has led to attempts by marketing agencies and news organisations to analyse who is involved

⁶² Linnet Taylor, Luciano Floridi, and Bart Van der Sloot. *Group privacy: New challenges of data technologies*. Vol. 126. Springer, 2016, p. 38.

⁶³ Diaz Ruiz and Kjellberg, "Feral segmentation"; Fisher and Mehozay, "How algorithms see their audience".

⁶⁴ Robert V. Kozinets. "Netnography". In: *The International Encyclopedia of Digital Communication and Society*. Ed. by Peng Hwa Ang and Robin Mansell. John Wiley & Sons, 2015, pp. 1–8.

and the language of these conversations in order to inductively generate a group.⁶⁵

Whereas the traditional classification of groups seemed to depend on the common evidence of certain commonalities between individuals, in the algorithmic business, groups are identified with increasingly opaque procedures; first with regard to the group members themselves, who may be classified together without ever knowing, and then potentially to data analysts. Thus could, for example, emerge as relevant from the point a group of overweight men between 28 and 32 or 54-years old residing in areas with average incomes below the median income, smoking and driving a used car. Here, the algorithmic categorization is not only opaque because of the lack of transparency, it is also not intuitive, and would remain so even if it were full transparency would be ensured. Similar risks of harm could be considered with other groups online, such as the bereaved, repressed, abused, depressed, and stigmatized, who may use digital self-presentation and social interaction as a coping mechanism for self-transformation, but experience vulnerability and disempowerment.

From these new, dynamic concept of groups, it can be derived that the UCPD focus on specific groups is largely unfit to respond to vulnerability in data-driven markets. Vulnerability here is transversal to the different clusters of data points that may emerge (obscurely to the targeted consumer) from the data and that are constantly changing as online behaviour changes.

9.4 Behaviour

Another driver of consumer vulnerability considered by the EU Commission which relates to the individual consumer and pre-exists the market includes consumers' behavioural and cognitive limitations.⁶⁶ The discussion of this category of vulnerability is closely linked to findings coming from the field of behavioural and cognitive sciences, according to which individuals are subject to biases and often make use of heuristics in the judgements.⁶⁷ For example, they may suffer from inertia and be unwilling/unable to make decisions. They may be more sensitive to losses than gains and so are afraid to act in case they incur losses as a result. They may anchor starting from reference points and then fail to adjust adequately as more information is obtained. Consumers can suffer from endowment effect, whereby a higher value is placed on something a person owns and they therefore demand more to give up a good than they would be willing to pay to acquire it. Unlike the

⁶⁵ Twitter Hires Marketing Pimp To Snitch On #Blacktwitter Conversation, n.d. accessible at <http://www.rippdemup.com/race-article/twitter-hires-marketing-pimp-to-snitch-on-black-twitthers-conversation/>.

⁶⁶ European Commission, Consumer vulnerability across key markets in the European Union, final report, 2013, p. 47.

⁶⁷ We have already explained in the second part, here again there reference is to Kahneman, *Thinking, fast and slow*.

cognitive limitations of individuals such as children and the elderly, the key aspect of cognitive vulnerability is the fact that they are generally observed in the generality of consumers,⁶⁸ which in turn means that all consumers may be in a vulnerable position depending on the situations they find themselves in and the way a choice is presented to them. This of course does not mean that personal status does not play a role: if a Professor Cass Sunstein is targeted with personalised content that says that he will be aware that his marketing strategy is exploiting his bandwagon effect bias. At the same time, less educated consumers might not be aware of their own cognitive deficits and be induced to follow the choice being proposed.

9.4.1 Cognitive vulnerability

As a first elements of concern towards this new refinements of the vulnerability concept, the acknowledgement of cognitive biases as a source of consumer vulnerability in the law is appears to be in stark contrast with the robust image of the average consumer build in the UCPD, as well. As pointed out in the previous chapter, the general benchmark for establishing when the behaviour of a trader constitutes an unfair commercial practice is the impact on the average consumer, who is considered as someone "who is reasonably well-informed and reasonably observant and circumspect"⁶⁹. Besides the UCPD, this strict link is the design that characterizes much of current EU consumer law: the law protects the consumer only to the extent that she has previously applied her due diligence in the market weighing up her choices through attentive deliberation. Underlying this observation is the point that the protections provided by EU law is not designed for everyone all of the time and some collateral damage is inevitable. There is obviously a trade-off advanced by the EU law, which recognises the commercial entities' interests and the need to take these into account in drawing the lines of legislative protection. Thus, the average consumer benchmark is most often described as a normative abstraction, which crystallizes how consumers should behave, rather than reflecting how they actually behave on the market. Yet, as argued by Möslin, the average consumer also convey a specific model of empirical, which clearly reveals several basic assumptions on patterns of human behaviour.

The image of the average consumer is that of an individual in the market that is "the best judge of his own interests and act[s] rationally, maximising his utility (or personal satisfaction) within constraints of his economic resources"⁷⁰. This portrays consumers as acting in a consistently rational way, taking into account all available information, processing and understanding

⁶⁸ Lisbet Berg and Åse Gornitzka. "The consumer attention deficit syndrome: Consumer choices in complex markets". In: *Acta Sociologica* 55.2 (2012), pp. 159–178.

⁶⁹ Recital 18, UCPD.

⁷⁰ Iain Ramsay. *Consumer law and policy: Text and materials on regulating consumer markets*. Bloomsbury Publishing, 2012.

this information fully, and weighing the option before coming to a perfect informed and logical decisions, only constrained by prices and incomes.⁷¹ This in turn means that consumers are entrusted with the role of the arbiters of markets, since it is their ability to make choice that will force markets to regulate themselves.

In this design, the acknowledgment of cognitive vulnerabilities arising from behavioural science thus strikes at the heart of the normative concept of the average consumer deeply challenging its empirical assumption.⁷² The standard of the average consumer paints a picture of the consumer that is largely at odds with the empirical evidence.⁷³ He is believed to have enough slack in his mental bandwidth to be "reasonably well informed and reasonably observant and circumspect". This wise consumer is not seriously biased against reading; he will go online to check what is behind the small print in an attractive advert and he will read food labels. He does not trust appearances and is not easily fooled by colours or the size of promotional labels on a packages.⁷⁴ We now know from behavioural studies that there is a large discrepancy between this idealised average EU consumer and the actual behaviour adopted by average EU consumers. On this ground many, Incardona and Poncibò conclude that the "reasonably well-informed and reasonably observant and circumspect" average consumer does not reflect reality and the concept should be interpreted more flexibly or abandoned.⁷⁵

The problem of considering cognitive vulnerability has been recently taken on by the CJEU in what has been considered one of the first opening-up to a less rational oriented image of the consumer.⁷⁶ The Court had to interpret the alleged misleading character of the statements on the packaging of a fruit tea. That packaging comprised a number of elements of various sizes, colour and font, in particular (i) depictions of raspberries and vanilla flowers, (ii) the indications "fruit tea with natural flavourings" and "fruit tea with natural flavourings – raspberry vanilla taste" and (iii) a seal with the indication "only natural ingredients" inside a golden circle. The question brought before the Court was whether the depictions on the packaging of the fruit tea were of such a nature that they could mislead consumers with regard to the tea's content inasmuch as it gives the impression that it contains raspberry and vanilla-flower or flavourings obtained from those ingredients, even though such constituents or flavourings are not present in that tea.

⁷¹ Gary S. Becker, Michael Grossman, and Kevin M. Murphy. "Rational addiction and the effect of price on consumption". In: *The American economic review* 81.2 (1991), pp. 237–241.

⁷² Mak, "The consumer in European regulatory private law".

⁷³ Purnhagen, "Why Do We Need Responsive Regulation and Behavioural Research in EU Internal Market Law?"

⁷⁴ Sibony and Helleringer, "EU consumer protection and behavioural sciences", pp. 51–69.

⁷⁵ Incardona and Poncibò, "The average consumer, the unfair commercial practices directive, and the cognitive revolution".

⁷⁶ See *Teekanne* Case C-195/14. More on the subject, see Hanna Schebesta and Kai P. Purnhagen. "The Behaviour of the Average Consumer: A Little Less Normativity and a Little More Reality In CJEU's Case Law? Reflections on Teekanne". In: *European Law Review (Forthcoming)* (2016).

Having regard to the settled case law of the average consumer, one would have expected the CJEU to rule that the list of ingredients expresses, in a manner free from doubt, the fact that the flavourings used are not obtained from vanilla and raspberries but only taste like them, and that correct and complete information provided by the list of ingredients on packaging constitutes sufficient grounds on which to rule out the existence of any misleading of consumers. As was indicated above, consumers have the duty to internalize information which is disclosed to them in the market and on the products. Despite all this the CJEU however stated: "the list of ingredients, even though correct and comprehensive, may in some situations not be capable of correcting sufficiently the (average reasonably well informed, and reasonably observant and circumspect) consumer's erroneous or misleading impression concerning the characteristics of a foodstuff that stems from the other items comprising its labelling"⁷⁷. In doing so, the CJEU for the first time recognised that correct and complete information provided by the list of ingredients on packaging in accordance with the labelling of foodstuffs directive may constitute misleading advertising. It follows that the display of the correct and comprehensive list of ingredients no longer rules out the possibility that the labelling has the capacity to mislead consumers. That will be the case if some of the items of which the labelling is composed of are in practice misleading, erroneous, ambiguous, contradictory or incomprehensible. This assessment must particularly take into account "the words and depictions used as well as the location, size, colour, font, language, syntax and punctuation of the various elements on the fruit tea's packaging"⁷⁸. In its judgement the Court concluded that for a complete assessment of the effects on the consumer one must consider the 'overall labelling', thus representing a departure from the traditionally normative underpinnings of the notion of the average consumer and potentially catering for the real-world vulnerabilities of consumers. More specifically, the Court emphasised 'the need to consider the words and depictions used as well as the location, size, colour, font, language, syntax and punctuation of the various elements on the [...] packaging' and that even accurate information provided in the text of the label may not be capable of adequately correcting the misleading impression caused by the other items on the packaging. These developments reflect the acknowledgement of the need to protect consumers considering insights brought to the fore by behavioural science.

Such a course of action appears to be much needed if EU fair trading law aims to protect consumers in the algorithm-mediated market environments. As expressed in the chapters of the second section, the idea of a rational consumer is also challenged by the socio-technical system in which she makes decisions. The average consumer does not read the privacy policy and is rarely able to understand its content; the average consumer does not know

⁷⁷ Teekanne, Case C-195/14 (para. 40).

⁷⁸ Id. (para. 43).

how online advertising works, nor is she in a position to know what information the data collector holds on him, and why certain algorithmic decisions are made. Not only, algorithmic business are able to take into account only the digital behaviour of the consumer and use it to make offers that maximize the probability set by the designer of the system. Thus, as we have seen in Chapter 4, the offers and, more generally, the choice architecture will reflect consumer behaviour, without distinguishing between a rational and an irrational decision. In addition, algorithmic systems are based on a selection of options which is based on "they employ a radical behaviorist approach to human psychology to mobilize and reinforce patterns of motivation, cognition, and behavior that operate on automatic, near-instinctual levels and that may be manipulated instrumentally".⁷⁹ The rational consumer standard appears to be largely outdated and nonsensical in a world of machine-learned micro-targeting makes it possible for economic actors to exploit, intentionally or unintentionally, consumers' behavioural biases (e.g. status quo bias, bandwagon effects), digital materials are no longer produced for the "reasonable person", but are produced to trigger emotional reaction and personalize appeals according to personality traits, weakness and Thanks to machine learning, it is now possible to use specific metrics necessary to assess specific biases, as well as overall degrees of rationality, with high precision. Further, the content and delivery of digital business materials are optimized for micro-moments when those consumers are most likely to take the action desired by the business. Therefore, digital business communications may be aimed with some regularity at the most susceptible consumers at their most susceptible moments, not average consumers when they are at their most rational time.

9.4.2 Emotional vulnerability

The cognitive limitation of consumers does not merely relate to what literature generally refers as "bias" but also to the role emotion play in decision-making. Traditionally the rationality paradigm adopted by the law has ignored the role of emotions and irrationality in decision-making. Indeed, as noted by Maloney the law has traditionally worked from the perspective that these notions "belong to separate spheres of human existence; the sphere of law admits only of reason; and vigilant policing is required to keep emotion from creeping in where it does not belong."⁸⁰ Indeed, in law, emotions appear to be more readily categorised as irrationalities or bad influences over rational decision-making, or at best, something that an individual strives towards in their decision-making (i.e., a welfare goal). The emergence of the ability to detect emotions, therefore, presents a real challenge to this underlying assumption. For rational choice theory, emotions are seen as outside forces that

⁷⁹ Cohen, *Between truth and power*, p. 93.

⁸⁰ Terry A. Maroney. "Law and emotion: A proposed taxonomy of an emerging field". In: *Law and human behavior* 30.2 (2006), pp. 119–142.

compel one to act inconsistently with the interest of the self. Although researchers originally thought non-conscious cognition was limited to simple mental processes, they now believe it dominates our lives. Non-conscious behavioural processes are so ubiquitous, robust and effective that some are left wondering what purpose conscious reasoning serves.⁸¹ In relation to rational marketing models Martin and Morich confirm: "Conscious models of consumer behaviour do not accommodate the reality of the part that emotions, attitudes and beliefs play in decision making."⁸² Therefore, it is not our rationality that determines the choice of a product, but the numerous mental processes in which emotions play a fundamental role. The existence of these cognitive accelerators that affect our purchases have been demonstrated on the basis of scientific evidence. The consumer will be oriented to choose not always the best good but what he perceives as such.

In the category of cognitive vulnerability thus, it is also important to consider the vulnerabilities, considering the meaning to deep psychological and emotional life attributed by marketers. Differently from behavioural science which is concerned with representing how individual make choice under the influence of unconscious mental processes (shifting the attention from rational cognition), empathic practice directly focuses on how a distribution of choice can be shifted or "influenced" through many cognitive modalities, and not just through the valuation of choice options.⁸³ Moreover, this is compounded by the fact that EU law is weighted towards the protection of the verifiable propositional content of commercial messages whereas interdisciplinary research is increasingly recognising the persuasive effect of the unverifiable content (i.e., images, music, and algorithmic voice assistants) and has long recognised that people interact with computers as social agents and not just tools. These developments could arguably raise key concerns regarding the continuing reliance on the rationality paradigm within the consumer protections and hence, consumer self-determination and individual autonomy as core underlying principles of the legal protections. According to a recent commentary in the scientific journal *Nature*:

"We are on a path to a world in which it will be possible to decode people's mental processes and directly manipulate the brain mechanisms underlying their intentions, emotions and decisions; where individuals could communicate with others simply by thinking; and where powerful

⁸¹ David J. Arkush. "Situating emotion: a critical realist view of emotion and nonconscious cognitive processes for law and legal theory". In: *BYU L. Rev.* (2008), p. 1275.

⁸² Neale Martin and Kyle Morich. "Unconscious mental processes in consumer choice: Toward a new model of consumer behavior". In: *Journal of Brand Management* 18.7 (2011), pp. 483–505.

⁸³ Hans C. Breiter et al. "Redefining neuromarketing as an integrated science of influence". In: *Frontiers in Human Neuroscience* 8 (2015), p. 1073.

computational systems linked directly to people's brains aid their interactions with the world such that their mental and physical abilities are greatly enhanced."⁸⁴

9.5 Market

Another factor considered by the EU Commission in its study, which at this point of the analysis shows its great importance for a refinement of the concept of vulnerability in the context of algorithmic business, is the market-related driver. This refers to the specific functioning of the market and the ways in which such functioning can contribute to consumer vulnerability. It includes, for example, information problems, whereby consumers are in a situation of not having enough information to make informed decisions, or the lack of experience and engagement with certain markets by consumers, in terms of, for example, rarely comparing deals, not being familiar with contract terms and conditions, or not reading communications from providers. Other market-related drivers may involve competition problems, where the nature of competition can result in consumers being vulnerable, for instance due to existence of "imperfect markets" (e.g. situations where there is little competition in the market such that consumers have few alternatives and are dependent on the dominant (or monopoly) provider; competitive pressures which may drive economic operators to exploit potential consumer vulnerabilities).

Following this conceptual approach towards consumer vulnerability, two are the main characteristics that renders consumers before algorithmic practices.

9.5.1 Lack of privacy as a source of vulnerability

As has become clear from previous chapters, the data-driven surveillance underlying algorithmic business practices contributes to their potential to exploit consumers' vulnerabilities, be they linked to personal characteristics, or stemming from bias or emotional traits of consumers. Given the great potential of algorithmic business practices of knowing and exploiting in-depth information about consumers life. Then, restricting access to (consumer) data that helps marketers to know consumers may limit the ability of marketers to identify or evoke vulnerabilities that can then be targeted. This is what is

This is what Ryan Calo argues when he suggests that privacy and the lack thereof are closely related to the onset or absence of vulnerability. According to his reconstruction, one of the basic functions of privacy is precisely the ability of individuals to control access to information that is important to

⁸⁴ Rafael Yuste et al. "Four ethical priorities for neurotechnologies and AI". in: *Nature News* 551.7679 (2017), p. 159.

them in order to prevent possible exploitation by third parties.⁸⁵ So in this sense, the right to privacy and the rules that guarantee it provide for raising a sort of shield around consumers, protecting them from data-related practices that can weaken their position of power vis-à-vis a seller. In this sense, privacy can be understood as a value that increases consumers' decision-making autonomy by inhibiting the ability of traders to know their vulnerabilities and use them strategically in m practices.

This conceptualisation, namely the absence of privacy as a source of vulnerability, is already clearly visible in the GDPR. Two examples can be given. Article 9 on the processing of special categories of data is interesting in this respect. By imposing stricter rules on the processing of data considered particularly sensitive (e.g. data on racial or ethnic origin, political opinions, religious or philosophical beliefs), vulnerable individuals or groups are afforded additional protection. In addition, it is relevant to note that the Article 29 Working Party has established that situations where marketers use knowledge of data subjects' vulnerabilities for targeted messages may fall under the prohibition of automated profiling in Article 22 of the GDPR.⁸⁶ Despite this clear references to the concept of vulnerability, the GDPR does not contain an explicit definition of vulnerable consumers or data subjects. There is just one slight reference in recital 75 about relevant risks to consider when performing a Data Protection Impact Assessment: "where personal data of vulnerable natural persons, in particular of children, are processed"⁸⁷. Similar wording can be found in the WP29 Opinion on legitimate interests.⁸⁸ When data controllers perform the balancing test that is required if they want

⁸⁵ Ryan Calo. "Privacy, vulnerability, and affordance". In: *DePaul L. Rev.* 66 (2016), p. 591 ("At a basic level, then, one function of privacy is to minimise the exploitation and surrender of vulnerability, either by hiding the vulnerability itself (e.g., location or peanut allergy) or by protecting information that, if known, would make us vulnerable at that moment.").

⁸⁶ Article 22 GDPR states that "a data subject shall have the right not to be subject to a decision based solely on automated processing, including profiling, which produces legal effects concerning him or her or significantly affects him or her in a similar way". If it is clear that advertising, even in its most subtle and manipulative forms, does not produce legal effects (advertising is not a command and can be ignored or even blocked with the use of ad-blocking tools), Article 22 also provides room to prohibit automated decision-making when this type of processing is capable of similarly significantly affecting the consumer concerned. In the Authority's view, targeted advertising does not generally have a similarly significant effect on individuals. The example given here (i.e. targeting based on profiles such as "women in the Brussels region aged between 25 and 35 who are likely to be interested in fashion and certain articles of clothing") seems rather simplistic compared to the precision and intrusiveness of the knowledge that can be extracted from simple behavioural data. However, following WP29: "some particular forms of OBA may do [have a similarly significant effect on individuals] depending on the particular characteristics of the case, including: the intrusiveness of the profiling process, including the tracking of individuals across different websites, devices and services; the expectations and wishes of the individuals concerned; the way the advert is delivered; or using knowledge of the vulnerabilities of the data subjects targeted", see Article 29 Working Party. Guidelines on Automated individual decision-making and Profiling for the purposes of Regulation 2016/679.

⁸⁷ Recital 75, GDPR

⁸⁸ Article 29 Working Party. Opinion 06/2014 on the "Notion of legitimate interests of the data controller under Article 7 of Directive 95/46/EC.

to process personal data on the basis of legitimate interests, they need to consider the nature and source of the legitimate interest, if there are additional safeguards and what is the impact on the data subject, considering in particular “the status of the data controller and data subject, including the balance of power between the data subject and the data controller, or whether the data subject is a child or otherwise belongs to a more vulnerable segment of the population.”⁸⁹ Here, the idea of vulnerability is linked to power imbalance. In particular, vulnerability is considered as a contextual notion: “the question whether the data subject is an employee, a student, a patient, or whether there is otherwise an imbalance in the relationship between the position of the data subject and the controller must certainly be also relevant. It is important to assess the effect of actual processing on particular individuals.”⁹⁰

Another aspect closely linked to the absence of privacy concerns the concentrating tendency of data-driven markets. Centralised control over consumer data may lead to new accumulations of market power and power imbalances and thus to the creation of a wider information and power asymmetry between certain marketers and service providers and consumers.

According to this reconstruction, lack of privacy does not create vulnerability in itself. Rather, it is the overall deprivation of privacy that consumers typically suffer in digital marketplaces that fuels data-driven practices, which in turn enable the identification and further exploitation of consumer vulnerabilities. It should be noted then that the difficulties outlined in Chapter 3 with respect to the ability of the current legislative framework to limit surveillance practices and ensure effective consumer control over their information are then inextricably linked to the emergence of a situation of consumer vulnerability in data-driven markets.

9.5.2 Algorithmic business practices as a source of vulnerability

The relationship between algorithmic business markets and vulnerabilities, however, goes deeper than the absence of privacy, and is closely related to the way algorithmic systems function in commercial practices.

As extensively illustrated in the second part of this thesis, the new algorithmic systems employed by marketers essentially provide the means and infrastructure to automate the ongoing search for exploitable consumer vulnerabilities. Consumer profiling, scoring and optimisation practices aim to discover how best to engage consumers with the best products and services, and how to increase the likelihood of a click or conversion. As constructed, these systems are not interested in understanding the true preferences of consumers, but simply make inferences and predictions about the best choice to make to enable profitable business measurement. The systems, and the underlying practices, are based on continuous experiments that allow over time

⁸⁹ Id., p. 54.

⁹⁰ Id., p. 51.

to discover the kind of psychological bias or cognitive or affective bias that can be exploited for growth. Thus, the algorithmic process that creates vulnerabilities is not linear but recursive, and is based on the ability to adjust business choices according to the desired response of the consumer.

In this context, the importance of focusing on consumer vulnerabilities becomes clear again. Contemporary companies do not simply identify and target the vulnerabilities present in each consumer that become transparent due to the lack of privacy. Instead, the real advantage brought by algorithmic systems lies in the ability to identify and target circumstances and personal characteristics that make a person vulnerable but have not yet translated into actual vulnerabilities present in the consumer. In the digital society, vulnerability then does not only pertain to certain groups of consumers, nor to the more or less strong propensity of a consumer to respond to irrational or emotional tendencies, but concerns all consumers who find themselves interacting within the algorithmic mediated choice architecture. The vulnerabilities that consumers may experience are not an unfortunate by-product of digital consumer markets; vulnerabilities are the product of digital consumer markets.

Such structural vulnerability that is immanent and potential in every consumer can then materialise in different ways. Certainly, given the recursiveness of artificial intelligence systems that learn from data and consumer interactions, the potential for identifying and targeting vulnerabilities grows as consumers continue to use a particular service over a longer period of time. Usage over time means the collection of user data over time, which translates into more consumer insights and greater potential for effective adjustments of the choice architecture to influence behaviour over time. Not surprisingly, commercial digital services often seek to build ongoing relationships with their users by "engaging" them more deeply in the use of the platforms or services offered. Ongoing commercial relationships increase the potential for exploitation of vulnerabilities by collecting and analysing more in-depth and time-diluted user data.

As Calo points out, digital marketing strategies "tend [...] to collapse the ethical and legal distinction between the ordinary and vulnerable consumer".⁹¹ In other words: the vulnerable consumer is no longer the exception, nor is the ordinary or average consumer the rule. The transition towards computer-mediated transactions and algorithmic business has enabled entirely new forms of personalized persuasion strategies that discover, and build on, individual biases, weaknesses, preferences and needs and that can be directed, very purposefully, at making consumers – even those that do not belong to the typical categories of vulnerable consumers – vulnerable, in the sense of affecting their ability to rationally deal with a particular marketing practice. Every consumer has a persuasion profile or psychological score that allow marketers to understand how he or she will better respond to certain

⁹¹ Calo, "Privacy, vulnerability, and affordance".

commercial trigger. On the concept of vulnerability, then, Calo draws the following conclusion:

*"In its purest form, digital market manipulation recognizes that vulnerability is contextual and a matter of degree and specifically aims to render all consumers as vulnerable as possible at the time of purchase. A given consumer may not be vulnerable most of the time and will act rationally in her own interest. But under very specific conditions – say, when confronted with scarcity by a trusted source after a long day at work or upon making her hundredth decision of a day – she may prove vulnerable for a short window. Therefore, a firm with the capacity and incentive to exploit a consumer could, for instance, monitor the number of decisions she makes on her phone and target the customer most intensely at the moment she is most depleted."*⁹²

In the context of digital consumer markets, then, one can conclude that vulnerability is about the power or ability of commercial actors to affect the decisions, desires, and behaviour of the consumer in ways that the consumer, all things considered, does not condone, but also is not in a position to prevent. The challenge, then, is to refine the concept of vulnerability in such a manner that it allows us to capture all those ways in which consumers can be affected adversely by actors in digital marketplaces without being able to prevent those occurrences. Moreover, vulnerability does not originate solely in a person's (fixed) characteristics, but in a person's relation to other actors.

9.6 Conclusions

The vision that Internet users are empowered is probably old. This is precisely described by who explains the rhetoric of empowerment is largely connected to the early culture of networked communitarianism of the early days. In those days, the consumer who surfed on the Internet looking for information and buying products was the tech-savvy, the enthusiastic. Today, a much more sober approach is warranted. Living and consuming on-life may abstractedly well provide with consumer information but bet if people were not empowered offline because of their level of literacy, skills, information capacity. With this regard, it cannot be neglected the, a cultural orientation is slowly emerging, which regards digital commerce less as the instrument of freedom and empowerment but more as "a giant opaque vending machine designed to exploit every known or detectable cognitive bias"⁹³. Very slowly but definitively, an emerging realization that services like social networking

⁹² Calo, "Digital Market Manipulation", p. 1034.

⁹³ Eliza Mik. "From Automation to Autonomy – Some Non-existent Problems in Contract Law". In: *Journal of Contract Law* 36.3 (2020), pp. 205–229.

platforms and personalized content are provided by businesses for commercial purposes inherently designed to influence decision-making is spreading from academia circle to digital consumers society.⁹⁴

The current approach towards vulnerability in Article 5(3) UCPD is outdated and not particularly useful in addressing the situation of the digital consumer. Singling out and labelling particular groups of consumers as vulnerable by considering all other digital consumers as "normal" is also not in line with increasing findings that consumer vulnerability is essentially a universal condition that potentially applies to all consumers. This is even more true in the algorithmic business environments. As shown in this chapter, the dynamic nature of vulnerable groups, the combination of cognitive and emotional vulnerabilities and the specific characteristics of the markets in which algorithmic business proliferate then allows to move towards a new conception of vulnerability that is less group-based and respond more to structural positions in which every consumer find herself when confronted with new algorithmic business practices.

A renewed perspective on consumer vulnerability involves important implications for law and policy. First, a more person-neutral approach would not only help overcome the stigmatisation of certain social groups, but it would allow policy makers to consider vulnerability in the face of changing social conditions. Such an approach would arguably require a downsize of the average consumer paradigm who is informed and well circumspect not only by considering the findings coming from behavioural economics and neuroscience, but also looking at the entire socio-technical system in which relations between consumers and traders develop, should lead to broaden the notion of vulnerability, which, from considering the cognitive dimensions, especially in online environments, would seem to extend to every consumer. More generally, establishing that the vulnerable consumer is the norm, rather than the exception (as it is now in the UCPD), translates into a conceptual shift. The focus would no longer be on whether or not a consumer was vulnerable and to what extent (if such a circumstance was foreseeable by the trader) an additional duty of care would have to be applied. But it would require the identification of those unfair practices that exploit vulnerabilities and power asymmetries, thus leading to situations of unfairness and inequality. If we are all vulnerable in principle, the real question is not so much who is vulnerable, but when digital technologies are used to identify us and (ab)use our inherent vulnerabilities to make us take decisions we would not otherwise have taken.

For the UCPD in particular, this means that, at the moment, Article 5(3) UCPD does not seem to be the right framework to help us identify unfairness in the digital market. Of great interest both theoretically and practically would rather be the question whether the provisions of the UCPD prohibiting unfair commercial practices are able to ensure that consumers are treated

⁹⁴ John Naughton. *The Social Dilemma: a wake-up call for a world drunk on dopamine?* The Guardian. Sept. 2020.

fairly, and declare as unlawful the abuse of the structural advantages that some companies have over consumers, all of whom are vulnerable. Such a renewed perspective on consumer vulnerability could then be operationalised through new obligations on algorithmic marketers to provide fair decision-making environments. Proposals are already many and could relate to the sphere of professional diligence requirements in algorithmic business. It is worth exploring here the potential synergies with the GDPR and its risk-based approach, which require data controllers to provide an ex-ante assessment of the impact of their data processing practices.

Conclusions

In 1999, Steven Spielberg was working on a new movie, an adaptation of Philip K. Dick's short story "The Minority Report". Although the story was science fiction, set in an undated time in the future, Spielberg wanted the film's details to be realistic. The director did not want an over-the-top dystopian fantasy but a plausible vision of what might come to pass in fifty years. To help him build this vision, Spielberg convened a group of technology experts and asked for their prediction. At the centre of their discussion was marketing. They predicted a world where marketing and advertising had become more personalized, more persuasive, and more effective. The experts envisioned omnipresent and, thanks to facial recognition technology, individually personalized commercials. Spielberg used their insights in the film, describing a future where advertising doubles as a surveillance tool, helping to keep citizens under the thumb of shadowy bureaucratic overlords. Paradigmatic is the scene in which the main character John Anderton (Tom Cruise) walks through a shopping mall and is bombarded by marketing materials citing him by name, implying that they were addressed specifically to him. Anderton's attention is captured by advertising for Lexus and Guinness, presumably because he has indicated interest in buying those brands or because he is male and has an expensive jacket – this is not much explained. Anderton is then shown an American Express announcement recognizing that he is an existing member by simply scanning his eyes as he passes by.

That future is now. The convergence between Internet, Big data and the increased availability of artificial intelligence technologies is radically changing the relationship between business and consumers in a way forecasted by the Minority Report. Predictive analytics and machine learning profiling applications allow business to compile digital profiles about consumers and determine their propensity to buy or switch providers. Personalization systems and recommendation engines are used to customer experience, experiments and test commercial content and adjust options to optimize conversions and influence consumers decisions. Text analytics and natural language processing are employed in social media research to listen what consumers say about brands and create profiles for personalized "empathic" engagement. Image recognition software and tracking wearable devices are increasingly used to recognize emotions and interpret biofeedback to calibrate marketing efforts for maximum appeals. As forecasted in Steven Spielberg's film, algorithmic presence in marketing is no longer confined to the "online world" but is increasingly integrated into the fabric of consumer social life. The whole technological apparatus is embedded in brick-and-mortar retail store through

cameras and back-end software processing data merged from offline and on-line customer journeys. New digital products are pushed onto the market as friendly assistants and enter customers private spaces such as the home and the body. These developments are neither the stuff of science fiction, nor the claims for the ultimate conspiracy. They are the result of intricate entanglements between a set of new powerful, ubiquitous, networked technologies with abundant access to our personal data, and a corporate culture prone to exploit these technologies based on their profit-seeking motive.

Against these background, this work has shown how the increased introduction of data-driven AI technologies into marketing organization is tilting the balance of power between business and consumers. The new technological affordances allow new set practices which allow markets to infiltrate into areas where their messages can be heard while our defences to commercial come-ons are low. They can develop rich and portable records of consumer preference and predictions beyond our awareness. Our behaviours can be anticipated at individual level and tuned for commercial gains through subtle and nudging control of decision-making context. They may deliver content customized to the idiosyncratic mind processes of individual commercial targets and potentially reducing free will. Data profiling and personalization strategies are only the tip of the iceberg. Dark patterns are user interface design choices that benefit an traders and service providers by steering and or deceiving users into making unintended and potentially harmful decisions. Practices can range from default settings, sneak into basket, and disguised advertising interfaces. Moreover, the proliferation of chatbots and virtual assistants whose very mission is to adapt to their users by learning about them and generating knowledge and the power to persuade, but also to proactively engage in triggering – or even creating – (new) vulnerabilities. In the algorithmic business economy, consumers are no longer the end-user or the recipient of service, but they become the object of transaction, constantly part of ongoing experiments aimed at finding out how and under what conditions they can be induced to click, see, watch and be influenced. Most of the gears of this machinery for identifying and targeting vulnerability are invisible to consumers.

A sceptic might argue that we have nothing to fear from these practices. Consumers adjusted to past marketing innovations, like radio and television, and they will do so again. Techno-enthusiasts might argue that many of current algorithmic developments, while reducing autonomy and freedom, increase consumers experience and efficiency, decreasing search costs and highlighting more relevant content. Do they? Besides sparing time to decide what movies I want to see on Monday night, are these technologies really working for us? Techno-deterministic might argue that this is the price to pay for the increased digitation and access to the market. Do we? Can we accept do be under the constant gaze of business operators and be at the mercy of ethically compliant marketers?

Fortunately, new socio-technical transformations in marketing practice do

not flow unrestricted in the European Union. With the increased digitization of society, EU has implemented robust legal framework for data protection to safeguards individuals' privacy. The General Data Protection Regulation has represented a fundamental step forward towards regulating data collection practices and enhancing privacy in Europe as well as abroad. The Regulation has limited collection to specific legitimate grounds and provided a number of rights to empower data subjects to control over their data. The regulation has also attempted to limit the use of algorithmic systems by providing individuals with the right not to be subject to automated decision-making, including profiling. At the same time, however, the GDPR has itself liberalized algorithmic marketing practices, and therefore additional normative benchmarks can be studied to understand the challenges of new algorithmic practices.

One of the most important tool for consumers agencies, and consumers organisations and (ever-increasing) consumers themselves in the fight against algorithmic business practices strategies consists in the rights granted under the Unfair Commercial Practices Directive. The directive aims at fairness in the market and to empower collective entities and consumers to fight for their rights by eliminating unfair behaviour in commercial transactions. The assumption of this work is that fair trading law can have an important role in assessing the fairness of these new developments and contribute to establishing the legal architecture of new algorithmic business. The Directive is based on regulatory concepts that are still fundamental to consumer protection in the technology-driven economy and presents broadly formulated concepts that, at least in abstract terms, would allow the law to be adapted to the new socio-technical reality.

To test such an assumption, this work has reviewed two concepts that are central to current legislation and that need further conceptualization when addressed in the context of algorithmic business. Restriction of manipulation focuses heavily on the 'information component' of commercial practices. However, if we take empirical findings on cognitive biases and tactics that tap into such biases seriously, it is evident that the provision (or omission) and presentation of information is but one aspect of the manipulative potential of contemporary digital choice architectures. The broader and more important issue concerns the structural asymmetry that are introduced by the contemporary algorithm-mediated transaction and that the power of business to Designing digital architectures and market transactions in advance in order to massively manipulate consumers by guiding them towards outcomes that are preferred by the company but perhaps not optimal, or even harmful, for consumers. The structural power dynamics introduced by the data economy and algorithmic business should serve as a starting point for rethinking European law on unfair commercial practices. In particular, efforts should be made towards a clearer definition of algorithmic unfair practices that impose an undue influence on the consumer, without necessarily generating the outright pressures that is required today by the aggressive

practices prohibition. In this regards, it is to be hoped that the next round of legislative action on the directive, scheduled for 2022, will take into consideration the findings deriving from behavioural economics and cognitive science that would the concept of consumer autonomy in EU law to be given a new lease of life. Furthermore, through new governance and co-regulation mechanisms with the market players involved, it is hoped that there will be movement towards updating the blacklist by including new algorithmic unfair practices, not only based on misleading information or omissions of information, but on specific behaviours deemed not to be in line with consumers' expectations of freedom and autonomy in the markets.

Another central element in assessing the fairness of any commercial practice is the underlying concept of the consumer, and the extent to which they can be expected to deal in a reasonably well-informed, observant and circumspect way with these practices, or whether they belong to the category of so-called vulnerable consumers. Originally designed to single out situations in which consumers, for reasons largely related to their own personal characteristics (such as their age, mental infirmity), are particularly susceptible to forms of market persuasion, the concepts of average and vulnerable consumers play an important role in assessing the fairness of a commercial practice. The current framework of the Unfair Commercial Practices Directive juxtaposes the average (rational) consumer with the 'vulnerable consumer', as if all consumers neatly fall into one of these categories. However, as empirical findings show and conceptual approaches underline, vulnerability is not a stable property of a person. Not only are the sources of vulnerability diverse - vulnerabilities that are inherent to the human condition and vulnerabilities that are situational in nature - but there are also different states of vulnerability. The thesis argued in favour of accepting a structural digital vulnerability status of all consumers and different degrees of vulnerability according to a plurality of factors, such as personal characteristics and propensity towards cognitive biases or emotional triggers. Such a new conceptualisation of vulnerability would allow for more rigorous measures in the design of the application and implementation of the Directive. As a general rule, the EU legislator might consider establishing a reversal of the burden of proof that would require traders to provide evidence of fairness in algorithmic environments. At the same time, the EU legislator could explore the similar path adopted by the GDPR of the risk-based approach regulations, and require algorithmic marketers to comply with new requirements of professional diligence obligations by adopting preventive technical and organisational measures that consider the intrinsic vulnerabilities of consumers and aimed at preventing possible manipulative risks on consumer choices. These points are left for further study on the possible new ways and mechanisms of applying and enforcing the Unfair Commercial Practices Directive.

While existing laws reveals the possibility to act to defend consumers from new algorithmically-mediated marketing exploitations, the law on unfair trading can turn into a powerful instrument if its basic concepts are

rethought. Although demoralized of its social meaning, the principles underlying current framework, however, proposes a good starting point to found new solutions within resist for a new regulatory framework. Now it is time to change the course – trying not to look behind and attempting to build a consumer’s protection framework fit for the new digital reality.

Table of Legislation

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