

Undetermined: A semi-academic exploration of the future of European data spaces via science fiction by Arianna Rossi

Abstract

This paper concerns the future — a scenario that is not so distant in time, as the future starts today. With the increasing datafication of our society and the approval of the European Union Data Governance Act that establishes conditions and safeguards to encourage the free flow and reuse of data for scientific, economic and societal progress, we are left wondering whether the existing challenges surrounding personal data management will be solved by then — or whether they will only be exacerbated. This sci-fi short story depicts a future where individuals, since a young age, question whether they still retain agency over their lives and their destinies, given that data-hungry personalized services surveil them extensively and steer their personal development. Returning to science fiction narratives to explore a societal issue at the edge of technology and law has a threefold purpose, in: (1) developing critical skills and exploring future consequences safely through the imagination; (2) fostering foresight and proactivity in policy-making; and (3) democratizing the debate about technological developments that concern us all. If this story depicts a desirable or undesirable future is left to the readers to assess.

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1. Introduction

The sci-fi narrative that is presented in these pages was drafted as a submission to the Second IViR “Science Fiction and Information Law” short story competition [1]. Why should the reputable law faculty of the University of Amsterdam organize a competition on science fiction? As the dedicated Web site explains [2], it is because “science fiction is a source of inspiration for many information law scholars to reflect on the societal implications of technologies, and the other way round”. With the ever-accelerating pace of technological advancements, concerns about their ethical, legal, economic and sociological implications are growing. The snail pace of law-making and enforcement casts doubts on the efficacy of technology regulation for mitigating risks and guiding progress towards desirable outcomes. Moreover, often new technologies are first introduced on the market and only then debated, if at all (Tharp and Tharp,

2019). ChatGPT 3 epitomizes the perils of a short-sighted vision purely driven by market forces for the benefit of a few people. This application was released to the greater public, adopted by hundreds of millions of users and integrated in countless applications in the span of a few weeks, with total disregard to the precautionary principle and to any legal safeguard or risk assessment.

But why should we reflect on techno-pessimist or techno-optimist invented scenarios as scholars, practitioners and decision-makers? First, to foster a rich, multi-faceted development of the “legal imagination” and of critical (*e.g.*, ethical) skills; second, to anticipate future risks and opportunities and stimulate proactive policy-making; and third, to widen participation in the decisions concerning desirable and undesirable futures.

2. Science fiction for imagination, anticipation and participation

Even though employing science fiction in the legal domain may seem revolutionary, and is without any doubt highly original, many scholarly reflections as well as academic and educational practices rely on a fictional instrument as an “intellectual protheses” (Tharp and Tharp, 2019) for the expansion of cognition and the creation of (scientific) knowledge. Fictional tales and products create “provisional realities” to enable us to navigate “possible pasts, possible presents, possible futures” (Durfee, 2018) through the generation of “prototypes of other worlds, other experiences, other contexts” (Bleecker, 2022). For example, the creation or the critical analysis of sci-fi narratives are increasingly leveraged in the education of computer science students and early career researchers (Fiesler, *et al.*, 2020; Burton, *et al.*, 2018) with the objective of going beyond the mere imparting of notions, methods and rules and embracing a more experiential, compelling learning experience. Conducting thought experiments and foreshadowing hypothetical scenarios (*i.e.*, “what ifs”) presented through fictional stories are among the innovative approaches that can expand imagination (Fiesler, 2021) to enable a more meaningful acquisition, testing and application of ethical decision-making to dilemmas raised by technological developments, within the safety net of the mind (Botes and Rossi, *in press*).

Bolstering our imagination skills as a tool for better decision-making introduces the second benefit of sci-fi story-telling, namely the development of anticipatory capacities: foreseeing trends and probing existing or emerging technologies in fictive settings, for example to more concretely envisage their positive and negative implications, are key to develop foresight and strategic decision-making. Speculation enables us to envision and implement suitable ways to mitigate risks *ex ante* to steer progress towards desirable futures (Auger, 2013). Such an approach can complement reactive measures that offer a redress only after harms have occurred, if at all. The ability to speculate about possible futures while building a “legal imagination” is very relevant for policy-makers as well, as the slow pace of regulation is often not able to keep up with the fast pace of innovation (Fiesler, 2021). This is why an anticipatory logic underlies the principle of privacy by design (Cavoukian, 2011) in the development of applications and services that process personal data, nowadays enshrined in regulations like the EU’s General Data Protection Regulation. Even the French Data Protection Authority (Commission Nationale Informatique & Liberté — CNIL) recurs to fictional tools, including science fiction fragments and backcasting techniques (Courmont, *et al.*, 2021) to challenge the existent and the plausible, spot weak signs of transformation in the data-driven economy and foreshadow the possible evolution of regulations, data practices and their interplay (Rossi, *et al.*, 2022). Such a proactive attitude enables French regulators to propose practical recommendations on data protection and devise future-proof policy interventions.

Third, recurring to science fiction stories may foster inclusion by broadening the participation of non-expert members of the public (Delgado, *et al.*, 2012) to discussions surrounding the governance of technological progress that are traditionally reserved to certain elites. By leveraging imaginative skills, alternative narratives to mainstream vision of our future (and our present) can be proposed, explored, examined and criticized (Tharp and Tharp, 2019), with the objective of fostering a more democratic discourse around the

social, legal and ethical implications of technologies that affect us all. Under this light, the future ceases to follow a deterministic trajectory that seems to exclusively benefit a few people and takes on a plural dimension that anybody can, and should, contribute writing: our futures.


3. Undetermined: A short story about upcoming European data spaces

The story is set in 2038 and depicts an intensively surveilled society where any behavior is transformed into data that are seamlessly shared with countless private and public bodies with the aim of creating a highly digital, automated society based on personalized data-driven services and applications. The scenario is inspired by the vision of the European Commission reflected in its Digital Strategy (European Commission, 2022), and in particular in the Data Strategy, where data are seen as “an essential resource for economic growth, competitiveness, innovation, job creation and societal progress” [3] that will drive the digital transformation of all sectors. The regulatory mechanisms and measures that are necessary to enable, facilitate and govern the free flow and reuse of data across organizations and countries have been established in the Data Governance Act [4] that was approved in 2022.

Therefore, the main question that inspired this story was: how will the life of Europeans look like in practice in circa 15 years from now? The short story unfolds over a few days at primary school, where we follow the life of a 10-year-old child: Olivia. In this fictional world, the education of minors is data-driven and granularly personalized: children’s school schedules are entirely dictated by their own specific needs and capacities; trainings that they receive are geared towards future professions that perfectly fit their profiles. The future of children is entirely determined by their data profiles and by the needs of the market, since many jobs have been taken over by autonomous agents while many others are related to engineering and computation. Moreover, after the COVID-19 economic chaos, entire school systems have been privatized, leading to educational institutions managed by CEOs, instead of principals.

At the age of 11, the data that children produce in any daily interaction, either at school or outside of it, start to be shared by default with private and public entities for the conception and production of new precision services. Children’s parents are required to decide who will be allowed to access and reuse such data and for which purposes, whereas children have no say until they reach the legal age of consent. People have the possibility to refuse to take part in the data economy and thus not share their data — albeit with the caveat that those who take this decision (“the Outcasts”) do not benefit from the ‘wonders’ of datafication and digitalization. Within this *do ut des* perspective, one may wonder to what extent the choice of sharing or withholding one’s own information can be free. Moreover, even today most of the data-related decisions are not taken in a fully conscious way because they are too numerous and the implications that they entail are too complex and far-reaching to allow for meaningful, informed and autonomous decision-making. Therefore, the story also tangentially explores the topic of consent and privacy decisions. Olivia’s mother is a Human Personal Profile Curator who recommends to individuals who purchase a VIP service which activities they need to undertake to mold their profiles in order to climb a Public Reputation Scale and have therefore access to premium services.

Whereas personalized precision services can offer invaluable benefits to individuals and society, Olivia and her classmates experience very strong pressure to perform since their faith is determined by the data that they produce, which additionally needs to be of high quality, as the Data Altruism Act introduced in 2033 mandates. At the same time, they feel powerless, as if their destiny was already written. “I don’t know who I am, I’m 10, I still have the world to explore in front of me. Why should someone tell me who I am? Even worst — why should a stupid system decide about my own life?!” Olivia cries out in a moment of despair.

Many other topics are touched upon in this story, but I will reveal no more. At the end of it I provide a backcasting (Robinson, 1990) exercise that I carried out to develop the narrative: starting from 2038, I speculated backwards on the events that needed to occur to get to that specific future. 

About the author

Arianna Rossi is a research scientist at the Interdisciplinary Center for Security, Reliability and Trust (SnT) of the University of Luxembourg, where she carries out research on online manipulation (dark patterns), usable privacy and legal design. Arianna has a mixed background, with a joint international Doctoral Degree in Law, Science and Technology (University of Bologna) and a Ph.D. degree in Computer Science (University of Luxembourg). She holds a M.Sc. in Linguistics with a focus on natural language processing. Arianna is an accomplished speaker with extensive experience at international conferences and routinely provide training to academic scholars, students and practitioners. In addition, as lead for Luxembourg Legal Hackers, she promotes legal innovation and open access to law and technology.
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This story represents the first story that I had ever written and originated as I was reflecting on how to make privacy decisions usable within the arising European data spaces. The events depicted in the story draw from many sources, first and foremost the content of the speculative report published by the CNIL in 2021 titled “Protecting privacy in 2030: a prospective and speculative exploration” [my translation] (Courmont, *et al.*, 2021). Other main sources of inspiration are represented by the themes of data determinism and social scoring explored in the science fiction TV anthology “Black Mirror” (directed by Charlie Brooker, 2011–14) and “The One” (directed by Howard Overman, 2021).

Notes

1. An earlier version of the story appeared at https://www.ivir.nl/publicaties/download/Undetermined_Rossi.pdf.
2. <https://www.ivir.nl/2nd-ivir-science-fiction-information-law-short-story-competition/>
3. <https://digital-strategy.ec.europa.eu/en/policies/strategy-data>
4. “REGULATION (EU) 2022/868 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 May 2022 on European data governance and amending Regulation (EU) 2018/1724 (Data Governance Act),” at <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32022R0868&qid=1659545858203&from=EN>

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