

USER-CENTRICITY AND PUBLIC VALUES IN EGOVERNMENT: FRIEND OR FOE?

Research Paper

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Abstract

In their delivery of services, public administrations seek to develop a ‘citizen-centric’ approach. Concomitantly, user-centricity is emerging as a widely accepted construct for Web 3.0 applications supporting the digital interaction between service providers and recipients. The digitalization of public services can positively impact important public values, such as efficiency and transparency. However, the digital divide highlights that information and communication technologies can simultaneously neglect public needs. This begs the question of whether user-centricity reflects or conflicts with public values. To answer this question, we present a systematic review of existing literature on user-centricity and public values. The contribution of this paper is an extended taxonomy of public values for user-centricity, as well as recommendations for public policy to address conflicts between public values and user-centricity.

Keywords: User-centricity, citizen-centricity, public values, eGovernment, literature review.

1 Introduction

In eGovernment, initiatives face many problems that arise from what Heeks (2003) defines as the ‘design reality gap.’ That is, societal and institutional realities are so far apart that their forced combination in eGovernment projects inevitably leads to discrepancies that need to be resolved. At the same time, these projects strongly rely on the willingness and readiness of citizens to use proposed technical innovations. The dependency on citizens makes eGovernment projects particularly cumbersome as they require an assessment of needs beyond institutional levels (van Deursen et al. 2006; Heeks 2003).

This particularly extends to ‘citizen-centric’ approaches, which public administrations have already started to develop in the analog world of services. These approaches are defined by “policy and expenditure choices that respond to and anticipate citizen needs” (OECD 2019). More specifically, they attempt to enhance civic engagement and provide accessible information and services to citizens (Cooper et al. 2006; Thomas 2013). This also includes the consideration of citizens’ needs at the design stage of services and products. While citizens’ needs may appear volatile and whimsical, they are allocated to more general public value categories (Karunasena and Deng 2011). Bannister et al. (2014) define public values as “a mode of behavior [or] a way of doing things [...] that is held to be right [...] by the public, citizens or the so-called ‘reasonable man’” (p.120). Such values, encompassing, for instance, social inclusion, equality, fairness, or transparency, are typically integrated into citizen-centric

government approaches (Bannister 2000; Karunasena and Deng 2011). Citizen-centricity thus can serve the public good and therefore reflects public values.

With the use of new technologies for public services in the Web 3.0 era (Dwivedi et al. 2011), governments increasingly focus on citizens as users (Codagnone et al. 2020). Consequently, ‘user-centricity’ evolved to describe approaches to design applications supporting digital interactions between citizens and public administrations. User-centricity epitomizes a widely accepted principle in the design and development of digital services. It is commonly defined as “a design philosophy in which the needs and expectations of the end user of an interface are the center of focus” (Kurdi et al. 2010). Some user-centric approaches¹ imply user control, i.e., the capability of users to manage personal data (Eap et al. 2007). This approach presumes that citizens possess sufficient digital skills to navigate information and make responsible decisions based on available data, which is often far from reality. Instead, it epitomizes a ‘reality gap’ that becomes visible in the persistence of the digital divide, a social phenomenon where “significant minorities of the population are effectively denied access to a technology [...] thought to be open to anyone” (Robinson et al. 2003). In other words, the ‘needs and expectations of end users’ of different societal groups are not equally considered or addressed (Heeks 2003; Helbig et al. 2009).

Thus, the representation of public values in citizen-centricity may not hold for user-centricity. In fact, the digital-divide literature suggests that user-centric ICT (Information and Communications Technology) can even negatively affect values like social inclusion (Ferro et al. 2011; Norris and Norris 2001). This begs the question of whether user-centricity can coexist with or is related to public values and, therefore, fit for use in eGovernment services.

The urgency to approach this question increases with the parade of new technologies, such as blockchain, spreading into many aspects of society, including governments’ way of delivering services (Ølnes et al. 2017). User-centricity, in this regard, is an important paradigm in the design of digital services to enhance the collaborative relationship between service providers and users. Yet, if user-centricity and user-centric technologies only center around a subset of citizens’ needs and preferences, eGovernment initiatives might fail. This puts pressure on policy-makers to implement and regulate user-centric technologies in the right way. We thus pose our research questions as follows:

RQ1: How is user-centricity in the context of eGovernment services aligned with public values?

RQ2: Which public values conflict with user-centricity in the context of eGovernment services and why?

We present a systematic literature review on user-centricity and public values to provide a tentative answer to the research questions. The contribution of this paper is an extended taxonomy of public values for user-centricity based on current publications. Moreover, we introduce potential conflicts between public values and user-centricity and formulate policy recommendations to address these conflicts. As such, our paper aims to underpin the importance of public value considerations for the design and implementation of successful Government-to-Citizen approaches. This enriches existing research by not only deconstructing the meaning of user-centricity for public values, but also by elaborating on associated conflicts. More specifically, our paper may serve as a foundation for further research on public-value-based user-centric approaches in eGovernment 3.0 and new technological applications such as decentralized digital identities. In doing so, this study approaches a research gap by analyzing the most recent literature on public values and user-centric eGovernment and by identifying both synergies and conflicts between the two. For eGovernment practitioners, this paper offers explanatory value to the question of how user-centric approaches fit into the value proposition of democratic eGovernment initiatives.

The remainder of the paper is structured as follows. To highlight the relevance of user-centricity for eGovernment initiatives, we elaborate on the concept of user-centricity in connection with public values and eGovernment in section 2. Section 3 outlines the method of our systematic literature review. We then analyze our data in section 4. Finally, we discuss our results and conclude.

¹ Please, note that we use ‘user-centric approaches’, ‘user-centric design’ and ‘user-centricity’ as synonyms, even though one can distinguish between them. For the purpose of this study, we do not differentiate between ‘user-centered’/‘user-centeredness’ and ‘user-centric’/‘user-centricity’.

2 Conceptual background

2.1 User-centricity

User-centric approaches emerged in the 1980s in human-computer interaction (HCI) research and were recognized with the rise of software development projects. As commonly understood, user-centricity considers users' needs, expectations, skills, preferences, and perspectives (Kurdi et al. 2010; Jarke 2021). User-centric approaches were broadly accepted and used by software designers in various domains, producing X-centered design: like healthcare with patient-centered design (Rodriguez et al. 2007), workplace with employee-centered design (Spurlock and O'Neil 2009), or public administration with citizen-centric design (van Velsen et al. 2009). User-centricity in the context of systems development can be seen as a multidimensional concept composed of four aspects (Iivari and Iivari 2011): (1) User-centricity as *user focus*, (2) User-centricity as *work-centeredness*, (3) User-centricity as *user involvement*, (4) User-centricity as *system personalization*.

Each of these four aspects provides a different complementary dimension to the concept of user-centricity. First, *user focus* relates to a common understanding of addressing users' needs determined by their activities or tasks, considering their characteristics (such as skills or personal preferences). Second, *work-centeredness* reflects the understanding of users' work activities, the context of use, work practices and helps to model the work domain holistically. Third, *user involvement* reflects the 'importance and relevance users attach to a given system' (Iivari and Iivari 2011). Here, the authors provide differentiation between user involvement and user participation. The latter is a case of user involvement, in which users actively participate in the design process. In product development, companies that produce IT solutions see user involvement as an indicator of the product's success on the market. Fourth, *system personalization* reflects adaptability or adaptivity of the system's content structure, presentation, and functionalities to each user's preferences or behaviors.

Such a multidimensional view provides a better and more holistic understanding of user-centric approaches in designing IT products in the market. However, in the context of eGovernment services, which has a strong focus on and the obligation to create public value, they may manifest differently, be incomplete or even clash with certain public values. While user-centered design approaches proved useful and beneficial in software design, they are criticized for ignoring such aspects as sustainability, societal impacts, and consequences (Sevaldson 2018). Therefore, we apply the public value perspective to examine how different dimensions of user-centricity incorporate public values, which are at the heart of the design of eGovernment services. Our study addresses this critique – at least partly – by including the public value perspective and demonstrating how far user-centricity is both aligned and conflicting with public values.

2.2 Public values in eGovernment

"Rarely has anyone explicitly addressed the question of why the public sector invests in IT, and of what it is hoping to achieve if not increased competitive advantage" (Wyatt 1991, p.25). This issue was pointed out in 1991 to inquire into the rationale behind governments' effort to digitize public services. An answer to this question could be that eGovernment services, as opposed to commercial service providers, pursue objectives that go beyond profitability and growth. In general, democratic governments depend on public administration for the daily management and delivery of public services and policies. Public administrations, thus, "have an inherently democratic mission and must rely on support from citizens and institutions of government for their viability" (Ventriss et al. 2019, p. 276).

Therefore, a more trusted, efficient, inclusive and transparent governance is typically a core objective of eGovernment to make government services more convenient (Bekkers and Homburg 2007; Fountain 2001). Consequently, the question of how the use of ICT for public services relates to the values that support these objectives becomes more critical (Bonina and Cordella 2009; Grimsley and Meehan 2007).

To define 'public values' and capture the relationship between these values and eGovernment, Bannister (2000) distinguishes between *values*, *value*, and *benefits*. *Values* represent a normative consensus that

manifests as a specific mode of behavior. Many individuals share the same belief in certain values, such as, for instance, fairness and impartiality. On the other hand, *value* can be described as the worth assigned to an outcome or a service that conforms to specific values. Suppose some individuals agree that all citizens should be treated fairly and impartially when using electronic public services. In that case, these individuals will place value on IT systems that do not produce bias or discrimination. Finally, *benefits* are an operationalization of the attached value to a service, product, or outcome. For example, when governments assess an IT system based on its ability to conform to the specific values of fairness and impartiality, both underrepresented groups and governments themselves will benefit from the outcome. In other words, “value is what we perceive; benefit is what we receive” (Bannister 2000, p.34). It is important to differentiate between commercial and public service providers’ perceptions of value and benefits. While motivation and complexity are two diverging elements in public and private service models, the most fundamental contrast is the relationship between the service provider and the recipient (Bannister 2000; Jos and Tompkins 2009). In a commercial setting, customers usually have a free choice between products and services and the possibility of opting out to cancel a transaction. On the other hand, governments are a monopoly supplier and citizens do not have the option to switch the provider or refuse a service. Hence, the acceptance and success of eGovernment services relies on governments’ relations with citizens. In the New Public Management (NPM) approach, governments thus focus on citizens as customers by mimicking private sector management models and adopting market-based mechanisms (Ferlie et al. 1996; Pollitt and Bouckaert 2003). NPM, however, exhibits a mainly scientific and decision-centric, rather than user-centric accentuation (Bason and Austin 2021). When these efforts resulted in increased administrative complexity and various other dysfunctional side effects, the Digital Era Governance (DEG) emerged as an attempt to re-aggregate public services around users’ needs (Dunleavy 2005). This dialectic of public administration governance approaches requires further exploration of user-centricity and its alignment with public values. Bannister et al. (2014) developed a taxonomy of public service values for IT (Table 1). Their study identifies twenty-eight administrative public values and categorizes them into three types: duty-oriented, service-oriented, and socially oriented. *Duty-oriented values* include values related to the duties of the civil servant to the government. *Service-oriented values* reflect the responsibility of the civil servant to provide high-quality service to citizens as customers of public administration. Finally, *socially oriented values* exhibit a broader set of social goods. This taxonomy of public values has become well-established and frequently used in studies that examine the impact of ICT in eGovernment. Our study leans on the presented public values to examine their relation to user-centricity in the existing literature.

Duty-oriented	Service-oriented	Socially oriented
Responsibility to the citizen	Service to the citizen in his or her different roles	Inclusiveness
Responsibility to the elected politicians	Respect for the individual	Justice
Proper use of public funds	Responsiveness	Fairness
Compliance with the law	Effectiveness	Equality of treatment and access
Efficient use of public funds	Efficiency	Respect for the citizen
Integrity and honesty	Transparency	Due process
Facilitating the democratic will		Protecting citizen privacy
Accountability to government		Protecting citizens from exploitation
Economy/parsimony		Protecting citizen security
Rectitude		Accountability to the public
		Consulting the citizen
		Impartiality

Table 1. A proposed taxonomy of public values for assessing the impact of ICT (Bannister et al. 2014).

3 Method

The objective of our systematic review is to examine the reflection of public values in the concept of user-centricity. Methodologically, we followed Kitchenham's five-step approach, a well-established methodology in information systems (vom Brocke et al. 2015). We chose this concept-centric approach over other literature review approaches, such as narrative, critical or realist (Paré et al. 2015), to ensure replicability, rigor, and objectivity of the review process for two widely used concepts – public values and user-centricity – in government literature (Boell and Cecez-Kecmanovic 2015). This approach consists of (1) the identification of relevant publications, (2) the selection of relevant publications, (3) the evaluation of the publications' quality, (4) the extraction and evaluation of data, and (5) the aggregation and interpretation of data.

First, to identify relevant publications, we conducted a keyword search across five databases (IEEE Xplore, ScienceDirect, SAGE Journals, SCOPUS, and Taylor & Francis). We combined the keywords with the Boolean operators AND OR. To avoid language bias, we used speech and spelling variants of our key concepts, such as 'user-centricity', 'user-centric', 'user centric' and 'user-centered'.

We applied further criteria regarding publication types, language and publication year (see Table 5 in the appendix). As indicated in Table 5, we targeted publications from various disciplines, as long as they contained non-technical considerations and implications relevant for the analysis. Literature centering around eGovernment 1.0 and early eGovernment 2.0 was not included in the review by considering only articles published in 2012 or later. Naturally, papers needed to be screened manually in order to ensure that outdated eGovernment applications were not part of the analysis. All identified literature was exported into the bibliographic reference manager Zotero. We identified 6937 potentially relevant scientific contributions after having removed duplicates and books².

The search strings used for the systematic literature review were the following:

1. "User-centricity" **AND** ("Government" **OR** "Public Sector" **OR** "Public Administration")
2. "Citizen-centricity" **AND** ("Government" **OR** "Public Sector" **OR** "Public Administration")
3. "Customer-centricity" **AND** ("eGovernment" **OR** "Digital Government" **OR** "Digital Transformation" **OR** "Transformative Government")
4. "Values" **AND** ("eGovernment" **OR** "Digital Government" **OR** "Digital Transformation" **OR** "Transformative Government")

After this initial and more general pre-selection of literature, we continued with the second step (selection) and third step (evaluation) of Kitchenham's approach, using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol by Moher et al. (2009) (Figure 1). This protocol enables transparency, easy replicability, and verifiability of the results (Liberati et al. 2009). PRISMA consists of four phases – (1) identification as in Kitchenham's (2004) model, (2) screening, (3) eligibility, and (4) inclusion. In the screening phase, we selected the 206 articles based on the titles in two independent groups. The Cohen's kappa coefficient of the inter-group reliability regarding this first selection round of .94 was "almost perfect", considering that 1 corresponds to a perfect fit (Cohen 1960). During this exclusion procedure, we re-applied our pre-defined search selection criteria (Table 5). As the heterogenous search tools of the respective databases also yielded studies which were not related to our key concepts, we had to re-assess the selection criteria manually regarding the topic and discipline of the articles. In a next step of the screening phase, we discussed the publications based on the abstract, again in two independent groups. In a first step, we reduced our selection to 136 articles with an inter-group reliability coefficient of .73 between the selectors. In the refinement stage, we grouped the 136 articles according to cases, time span of their data collection and central foci of the studies (Kitchenham 2004). Doing so allowed us to exclude further 19 publications, leading to 117 articles. These publications dealt with cases of digital transformation that we considered outdated (such as eGovernment 1.0) or did not focus on technologies in the public sector. Examples include studies that

²The search operators were usually applied to full text and metadata. However, in cases where our search yielded more than 700 publication results, we restricted the search fields to key words, abstract or introduction, depending on the available filters of each database.

analyzed social media, or government websites, as well as studies with survey data from before 2012. When retrieving full-text articles, we could not access 8 papers. This further reduced our number of studies to 109. Among this set of 109 articles, we selected 30 articles for our qualitative analysis. We selected these 30 articles (Table 6) based on their relevance and usefulness to analyze the reflection of public values in the construct of user-centricity as well as the publications' citations per year and the impact factor of their publication outlet for additional quality insurance (Coombes and Nicholson 2013). Fourth, for data extraction and analysis, we applied a mixed-methods approach using MAXQDA. For the qualitative part, we manually coded 30 papers in two separate coding teams employing a two-stage coding process of inductive and deductive coding (Saldaña 2013). That is, we first consulted literature on public values to derive a set of codes that we used to deductively identify principles of user-centricity in our literature as well as potential construct-related conflicts and implications for public values. Then, we complemented our initial codes with other codes as emerged during our analysis and assigned them to higher-level concepts (inductive coding). This led to overall 2791 codified statements organized in 72 first-order themes and 16 second-order categories (Miles et al. 2014). To identify potential conflicts, we marked respective codes and re-analyzed the coded statements, summarizing and aggregating our findings to the most salient conflict areas. To investigate the relationships between user centricity characteristics and public values, we performed a code relation analysis followed by a qualitative content analysis. The quantitative analysis allowed us to observe overlaps between the individual codes and thus the relationship between them. We subsequently carried out a qualitative coding query to investigate which of these relations were aligned and conflicting overlaps between public values and user-centricity.

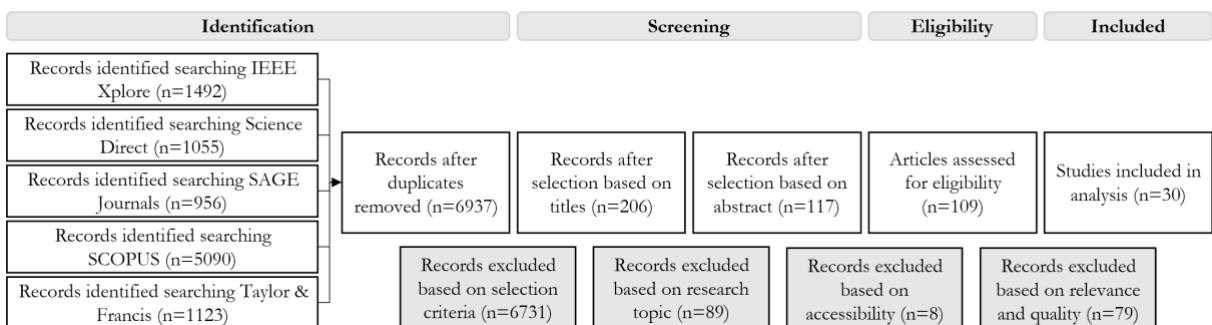


Figure 1. Study selection, assessment, and inclusion (PRISMA flow diagram).

4 Findings

This section reports our findings from the analysis of the selected research articles concerning user-centricity, citizen-centricity and public ICT values. First, we provide a descriptive analysis of our set of literature. Section 4.1 captures an overview of the newly identified public values. In 4.2, we outline the alignment of user-centricity with public values based on our qualitative analysis. Likewise, in section 4.3, we report our findings regarding public value conflicts with user-centricity.

In our selection of 30 articles, 24 were journal articles, 4 conference articles and 2 book chapters. Most journal and conference papers can be associated with information systems (25.00%), followed by electronic governments (21.43%) and public administration (17.86%) (based on the categorization from Pang et al. (2014)). The most common journal was Government Information Quarterly (3 articles). 4 articles were published between 2013 and 2014, 8 between 2015 and 2017, 11 between 2018 and 2020 and 5 in 2021. Most papers used surveys (25.00%) or literature reviews (25.00%) as methods, followed by case studies (15.63%), interviews (12.50%), analysis of existing data (6.25%) and content analysis (6.25%). Some articles used more than one method.

Table 2 illustrates the code co-occurrences between the three public value types (duty, service and socially oriented) and the three dimensions of user-centricity (user focus, user involvement and system personalization). Co-occurrences indicate only the overlap of two groups of codes (user-centricity and

public values) and their sub-codes for a particular segment. To differentiate between value alignment and conflict, we carried out a qualitative analysis. The percentages in the table hence indicate the frequency of co-occurrences between a specific public value (e.g., trust) and a user-centric dimension (e.g., user focus) in a text segment per overall frequency of co-occurrences between public values and a specific user-centric dimension. For example, 4.60% of the code co-occurrences of user focus with public values are between user focus and trust. We did not find any reflection of work-centeredness, the fourth dimension of user-centricity in our analysis. This is because the reviewed literature considers users as citizens and public service recipients, while work-centeredness focuses on users' occupational roles in a professional context, which are not within the scope of this study. Therefore, we excluded it. Table 2 includes solely public values that occurred in our documents. We did not include values of Bannister's et al. (2014) taxonomy that were not represented in the selected literature.

4.1 Public values for user-centricity

We identified eight additional public values (Table 3) that may enrich the proposed types by Bannister et al. (2014). These values are (1) *legitimacy* and *representation* for the duty-oriented values, (2) *flexibility* for the service-oriented values, and (3) *accessibility*, *pluralism*, *trust*, *autonomy*, and *innovation* for the socially oriented values. We split *equality of treatment* and *access* into *equality* and *accessibility*. Moreover, we re-formulated *consulting the citizen* to *citizen involvement / consulting*.

Legitimacy, which has evolved as a determinant of eGovernment adoption besides novelty and usefulness, focuses on the question of whether eGovernment truly serves the public interest. Therefore, academic literature proposes civic engagement to create legitimate eGovernment (#1; #13; #14; #16; #18; #20). Corresponding bottom-up driven *citizen involvement* would enhance the legitimacy of public actors' decisions and activities in eGovernment. Current eGovernment systems rarely employ a bottom-up system design approach and often lack not only legitimacy, but also *representation* of different user groups (#13; #15; #19; #22). Different user groups have different preferences and needs. Therefore, a personalized system might provide the desired *flexibility* to account for the varying requirements of different user groups (#1; #2; #6; #13; #18; #20; #21). *Accessibility* appears to be a key component to user-centric service design (#3; #7; #9; #10; #17; #21; #24; #29). Accessible services help citizens better understand the underlying processes and feel represented by the proposed system (#2).

Public values							
User centricity	Duty-oriented			Service-oriented		Socially-oriented	
	SP	UI	UF				
0	0	1.92	Proper use of public funds				
3.81	5.11	0.77	Facilitating the democratic				
10.48	5.84	0.38	Accountability to government				
0	0	1.53	Economy / parsimony				
0	2.19	0	Legitimacy*				
0.95	0.73	3.83	Representation*				
1.90	2.92	0.77	Responsiveness				
0	1.46	3.07	Effectiveness				
3.81	4.38	7.66	Efficiency				
6.67	6.57	5.75	Transparency				
4.76	1.46	0.77	Flexibility*				
4.76	2.92	5.36	Inclusiveness				
1.90	1.46	1.15	Fairness				
2.86	1.46	2.68	Equality				
2.86	5.84	3.83	Protecting citizen privacy				
2.86	5.84	3.83	Protecting citizen security				
2.86	4.38	6.13	Accountability to the public				
25.71	25.55	14.94	Citizen involvement /				
10.48	11.68	18.77	Accessibility*				
5.71	2.92	5.75	Pluralism*				
3.81	3.65	4.60	Trust*				
2.86	2.92	3.07	Autonomy*				
0.95	0.73	3.45	Innovation*				

Table 2. Code co-occurrences between user-centricity and public values in %. UF: User focus, UI: User involvement, SP: System personalization. * Marks the public values which are not included in the taxonomy of Bannister et al. (2014).

Duty-oriented	Service-oriented	Socially oriented
Proper use of public funds	Responsiveness	Inclusiveness
Facilitating the democratic will	Effectiveness	Fairness
Accountability to government	Efficiency	Equality
Economy / parsimony	Transparency	Protecting citizen privacy
Legitimacy*	Flexibility*	Protecting citizen security
Representation*		Accountability to the public
		Citizen involvement / consulting
		Accessibility*
		Pluralism*
		Trust*
		Autonomy*
		Innovation*

Table 3. *Extended taxonomy of public values for user-centricity. * Marks the public values which are not included in the taxonomy of Bannister et al. (2014).*

This also encourages the value of *pluralism* as even the needs of marginalized groups might be heard and included (#1; #4; #12; #17; #19; #29; #30). Despite all aspirations to *equality* and *pluralism*, the *trust* in government services may also not be tarnished (#4; #9; #15; #17; #21; #23; #25; #26; #28; #30). This particularly refers to the application of *innovative* systems (#1; #29). *Innovation* and the therewith associated perception of novelty is an important determinant of technology acceptance, yet also the greatest weakness when it comes to *trust* (#3; #23; #29). New systems and new roles require citizens to rethink known structures and may lead to insecurities that impair institution-based trust in governments (#11; #17). Finally, citizens that depend on government services may be given more *autonomy* in their interaction with public administrations as the digital exchange of personal data is core the eGovernment services (#28; #30). *Autonomy*, in this context, embodies a value related to the ethical use of citizen data in the public sector and enables individual data control (#4; #9; #17; #26).

4.2 Alignment between user-centricity and public values

This section seeks to answer RQ1, namely, how user-centricity in eGovernment services is aligned with public values. In doing so, we evaluated our findings regarding the reflection of public values in the concept of user-centricity with qualitative content analysis (complex coding query).

User focus. Our code relations and qualitative analysis revealed that the *user focus* dimension is particularly aligned with *efficiency*, *citizen involvement* and *innovation*. User-centric approaches enable an *efficient*, cost- and time-saving interaction between users and service providers (#3; #7; #9; #13; #15; #22; #23; #28). As user-centric design focuses on users' needs and preferences, one of the main goals is to reduce the administrative burden and make services more intuitive and convenient (#17; #20). Further, many scholars indicate that with the increase in efficiency, user-centric approaches may stimulate *citizen involvement* (#3; #15; #21). This is especially possible with collaborative, interactive and participatory platforms that "transform political communication of citizens with the public sector in a digital manner as a much more cost-efficient and, arguably, even trust generating form of governance" (#15, p.2). We found *innovation* as a public value to be aligned with user-centricity, since it is a strong enabler for user satisfaction and, therefore, users' decision to adopt and accept digital technologies for government services (#2; #23).

User involvement. For *user involvement*, the strongest alignment occurs with *citizen involvement*, *facilitating the democratic will*, *government transparency for users* and *accountability to the public*. User involvement appeared to be directly related to *citizen involvement*, a term we deduced from the original value of *consulting the citizen* (#1; #2; #4; #8; #18; #19; #22; #28). Our analysis indicated that user-centric design is mostly amplified by "participatory and action-oriented" design (#21, p.41). The

goal is to consider users' needs and preferences in the design stage of services, avoid top-down decisions and address design-reality gaps (#19; #21). In consequence, citizen involvement inevitably *facilitates the democratic will*, as the digital interaction of citizens with governments extends citizens' civic and political involvement and influence (#19; #23; #28). These democratic, participatory processes, in turn, allow for greater government *transparency* (#2; #3; #4; #9; #25; #26). *Transparency*, notably, leads "to a better-informed citizenry" (#22, p.3) and it is argued that "well-informedness" is a cornerstone for democracy and a fundamental component for public values (#28, p.7). This supports our fourth value alignment in this dimension, which highlights that citizen-centric approaches in eGovernment "help to reduce bureaucracy in governmental offices, stimulate citizens' participation in decision-making processes, and increase the transparency and *accountability* of governmental offices" (#3, #10, #16).

System personalization. Finally, *system personalization* is primarily aligned with *citizen involvement* and *flexibility*. As with the other two dimensions of user-centricity, system personalization is aligned with *citizen involvement* because the latter is a requirement for the former. In other words, governments need to collect information on citizens' preferences to design user-centric systems accordingly (#6; #22; #27; #28). Therefore, personalized and customized services require civic engagement and participatory design to accurately and flexibly tailor the design to individual needs and preferences (#12; #13). In this context, we found system personalization to be well aligned with *flexibility* (#4; #6; #18). In order to meet the requirements of personalization, governments need to provide flexible services to better cater to citizens' preferences (#16; #18).

4.3 Conflicts between user-centricity and public values

To answer RQ2, namely, which public values conflict with the concept of user-centricity in the context of eGovernment services and why, we identified a total of seven conflicts between the three user-centricity dimensions and public values (Table 4).

Value conflict	User focus	User involvement	System personalization
Duty oriented	- Representation	- Accountability to government	
Service oriented	- Transparency		
Socially oriented	- Inclusiveness, pluralism and accessibility	- Inclusiveness	- Equality and pluralism - Autonomy

Table 4. Summary of conflicts between user-centricity and public values.

User focus. In the user focus dimension, three conflicts emerged. The first one occurred with the public value *representation*. This conflict is based on the premise that citizens and governments have diverging interests and needs and that governments cannot represent users' needs to the extent prescribed by user-centricity (#4; #11; #17; #19; #30). Central to this claim is that governments focus on their accountability as defined by law or on "fulfilling the international requirements rather than trying to understand the needs of their users" (#11, p.1). In consequence, they are obligated to offer comprehensive information and adhere to specific legally defined standards. This explains the well-known bureaucratic and inflexible procedures, which mostly do not align with users' preferences, such as simplicity, efficiency and anonymity (#17; #22). A second conflict concerns a trade-off between the focus on citizens' preferences and *transparency* (#4; #13; #17). On the one hand, user involvement and system personalization are aligned with *transparency for the user* because they enable user involvement in the design of services according to individual preferences. Yet, *transparency for the service provider*, that is the government, appears to be conversely affected. This conflict arises through user empowerment and the concomitant transfer of control over their personal data and information (#26; #28). While this rightfully enhances user privacy, it also challenges governments' access to non-privacy-restricted and non-confidential, so-called open data, which can support public oversight and help to reduce corruption

(#4; #16). We detected an additional critical conflict between user focus and the values of *inclusiveness*, *pluralism*, and *accessibility*. Pluralism, in this context, does not reflect classical pluralism as a political decision-making theory, but relates to a pluralistic society that tolerates and supports diversity. By definition, user-centricity focuses on users' needs in the design and application of technology (#3; #20; #21; #24; #29). Thereby, it is important to understand that users do not exclusively make up the presumed dominant group of young, educated, affluent, and technology-conscious people (#10). Instead, the needs of digitally less literate citizens, or people with restricted access to technological devices or connectivity, need to be especially taken into account (#10; #13; #17; #21).

User involvement. In the user involvement dimension, we detected two main conflicts. In the first conflict, which concerns *accountability to government*, researchers questioned the compatibility of the active participation of citizens on the one hand, and the accountability of public officials at the government level, on the other (#1; #8; #13; #16; #24). Public servants must comply with official standards and rules, which might not always match citizens' knowledge and input. These standards also limit the involvement of citizens as they prevent the provision of individual workarounds by governments and the emergence of new and unregulated roles of citizens (#2; #17). Since user-centricity foresees the involvement of citizens exclusively through online channels and platforms, *inclusiveness* may be impaired (#15; #16; #24). That is, digitally less literate citizens may face neglect in participatory eGovernment initiatives (#1; #20; #21).

System personalization. In the system personalization dimension, our findings indicated a conflict with *equality* and *pluralism* (#1; #28). While user-centricity requires the adaptability of a system to specific user preferences, the personalization of a system for the public is often limited by the mandate and responsibility of governments to treat citizens equally. That is, governments often overrule individual needs to serve more general citizen needs. Many individual needs are irreconcilable with the required accountability of government services, so governments focus on the cumulative extract of needs, not the individual desire (#17). The final conflict refers to the trade-off between personalization and *autonomy* (König 2021). This conflict emerged in our findings mainly in the context of algorithmic systems for eGovernment. The issue is that personalized information risks nudging citizens in a certain direction, resulting in the (subconscious) loss of control over their decisions.

5 Discussion

The development of user-centric approaches in eGovernment implies changes for both the role of citizens and governments. On the one hand, public administrations are expected to digitalize their services and establish more efficient and transparent interactions with their citizens. On the other hand, citizens are expected to have sufficient digital skills to use electronic devices and have internet access. Moreover, decentralization and bottom-up driven initiatives require citizens to actively engage in the design of public services, and even policy-making. These dynamics imply the emergence of new public values that need to be considered for the concept of user-centricity in eGovernment.

This is particularly emphasized in the value alignments between user-centricity and socially- as well as service-oriented values, which we discovered in our analysis of the 30 selected publications. Duty-oriented values, however, were reported least in connection with user-centricity. Such findings underline the current design of user-centric eGovernment approaches. As our findings indicated, user-centric approaches try to minimize responsibilities or duties for users, while maximizing efficiency and user involvement to increase usability and uptake, and to avoid overwhelming citizens.

Although we primarily focused on the public value taxonomy provided by Bannister et al. (2014), the public administration literature and its branch in Public Value Management (PVM) offer various additional public value frames, "in which facts, values, theories, and interests are integrated" (Rein and Schön 1993). Nabatchi (2017), for example, suggests four public values frames: Political, legal, organizational, and market. The first two center around the "democratic ethos," similar to Bannister et al.'s duty- and socially oriented values, and the latter appear as part of the "bureaucratic ethos", corresponding to Bannister et al.'s service-oriented values. Rose et al. (Rose et al. 2015) cluster public values along four different value positions, which they define as the professionalism ideal, the efficiency

ideal, the service ideal, and the engagement ideal. Again, parallels to Bannister et al.'s taxonomy can be derived. Despite these additional taxonomies and frames, values that emphasize social and service dimensions are most salient in current user-centricity literature on eGovernments.

A common ground for all public value frames is that public values are often ambiguous, hybrid, contrasting, and overlapping (Stoker 2006). This means that if user-centricity in eGovernment projects is conflicting with certain public values, this might be precisely because it is aligned with and fulfills other public values, highlighting clear signs of value pluralism (van der Wal and van Hout 2009). In our analysis, value conflicts with user-centric approaches appeared mainly in duty- and socially-oriented values and were seen less frequently in service-oriented values. These conflicts indicate that responsibilities of citizen in user-centric eGovernment approaches are not yet clear and that also contrasting views on the social dimension, for instance regarding digital literacy and digital inclusion, may encumber projects in practice for public managers. Therefore, analyses of competing public values in eGovernment research are a necessary step for the development and solidification of new frames and taxonomies, which help adjust to new technological developments in eGovernment, especially those that increasingly focus on users. Such taxonomies can in turn be a useful tool for eGovernment practitioners, such as public managers and officials, to assess new digital public services.

This paper contributes to this effort by extending Bannister's et al. taxonomy (2014), and by providing a set of administrative public values that can be used as foundation for research at the intersection of user-centricity, eGovernment 3.0, and public values. Our literature analysis further evidenced diverse value alignments as well as conflicts for our three dimensions of user-centricity – user focus, user involvement and system personalization. It should be mentioned that as with any literature synthesis, the findings of our literature review are a conceptual generalization and are not directly grounded in empirical reality. We synthesized insights from academic literature analyzing an array of different user-centric eGovernment applications. The identified value conflicts and alignments need to be empirically validated with individual use cases.

However, some implications for practice can be drawn. The conflicts between user focus and *inclusiveness, pluralism* and *accessibility*, as well as user involvement and *inclusiveness*, highlight that governments, other than commercial services providers, have the mandate to respect the needs of every citizen. Public administrations must design their services in a way that digitally less literate and other marginalized groups can use their services. Scholars widely agree that digital literacy and skills must be developed alongside general educational objectives (van Deursen and van Dijk 2009; Ferro et al. 2011). Based on these findings, our recommendation is to improve citizens' digital literacy and skills to "translate digital participation into positive outcomes" (Park and Humphry 2019). This could also include ad-hoc measures, such as the provision of IT assistants in libraries to help with public services online. The value conflicts between user focus and *representation* and *transparency*, user involvement and *accountability*, and system personalization and *equality* and *pluralism* all emphasize discrepancies between citizen and government needs. Citizens already perform bureaucratic tasks that they perceive as inconvenient, such as paying taxes or applying for social security benefits. Governments, on the other hand, are obliged to adhere to prescriptive models of organization. Blind reflection of descriptive user needs would only impair the organizational model (Park and Humphry 2019). While user-centric design focuses on "making users' tasks simple and easy" (Kotamraju and van der Geest 2012, p.7), governments must follow legal requirements regarding the presentation and formulation of information (Scott et al. 2016; Sorn-In et al. 2015). That is, the government is supposed to provide full information on a topic in a legally binding and acceptable manner. Yet, particularly in a digital environment, governments could make available additional and simplified explanations of legal documents to reduce the information overload for citizens. Moreover, other mandates of usability and functionality that do not touch binding regulation could be addressed at a technical design level (Sorn-In et al. 2015). Our literature review, therefore, strengthens the call on governments to proactively engage in understanding users' needs to create smart services (Bokayev et al. 2021; Ghosh Roy and Upadhyay 2017).

Overall, this paper may serve as a foundation for future studies on public-value-infused user-centric eGovernment 3.0. By analyzing literature on public values and user-centricity the study offers synergies and conflicts that may emerge through the adoption of user-centric eGovernment applications. As such,

this research offers explanatory value to the question of how user-centricity may be positioned into the value proposition of democratic eGovernment initiatives.

6 Conclusion

This article set forth that successful user-centric eGovernment applications operate at the interface between fundamental public values and user-centricity. Thus, many public values are reflected in and aligned with user-centricity, adding new criteria to already existing taxonomies of user-centricity. On the other hand, user-centricity for eGovernment, as currently conceptualized in literature, also stands in contrast to some public values.

Since our article only synthesizes research evidence to uncover the relation between public values and user-centricity in eGovernment, our study suffers from several limitations. First, we determined the different public value categories only qualitatively and did not validate our results quantitatively. Showing how the different variables correlate with or describe the respective constructs factor-analytically could provide further indications on how public values are represented in user-centricity. Second, as is the case for most literature review studies, our analysis is limited to a certain selection of articles. Therefore, we might have missed papers, not fitting our search criteria.

Yet, we identified 30 influential academic contributions and corresponding results yield interesting insights of direct relevance to policy-makers. Our analysis provided an extension of the public value taxonomy tailored to user-centricity for eGovernment. In addition, we identified seven public value conflicts and provided two policy recommendations. Analogous to the widely studied conflict between needs of government and citizens, the conflict between public values and user-centricity results from design choices that include but do not unduly favor the desires of users. Yet, previous research focuses primarily on the lawfully required inclusion of minority groups or fundamentally different notions of the interaction between government and citizen (Carter and Bélanger 2005). Our paper extends this perspective by mapping public values against three dimensions of user-centricity. This leads to various conflicts between user perspectives and public values. In consequence, we recommend governments to be more proactive in asking for citizens' needs and assembling these needs into actionable and meaningful services. To not neglect marginalized and digitally less literate groups, governments could provide additional analog services or personal assistants.

Existing research streams on the digital divide acknowledge this phenomenon as a socially deeply engrained problem. Public values are guiding ethical criteria and principles to manage policies and services in a way that is acceptable by citizens and, as Bannister et al. (2014) put it, the "reasonable man" (p.120). In that sense, our extended public value taxonomy is a way to situate the problem of the digital divide, by, for instance, conceptualize it as hindering social inclusion, hampering equality, or prohibiting access and participation. It could be an interesting stream of research to further analyze the digital divide and its relation to public values for eGovernment. Moreover, we call for further research on how public values can be reflected in the technology design to benefit future eGovernment services and other public sector applications. It also remains to be determined to what extent citizens could and should be included in the design and provision of eGovernment services. In an effort to tackle those open questions, further studies could look into the ways public organizations are considering user-centricity and the potential conflicts with public values within their eGovernment strategies. For example, future research could incorporate grey literature emanating from public bodies that are in daily contact with end-users and complement it with findings originating from citizen-led initiatives. This would support both academics and authorities to better understand the dynamics at play and develop user-centric applications that exploit the synergies - and avoid the pitfalls - that exist between public values and user-centric approaches identified in this paper.

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8 Appendix

	Inclusion criteria	Exclusion criteria
Discipline*	Information Systems Library and Information Science Public Administration Economics and Sociology Public Policy Business, Management and Accounting Marketing and Sales	Engineering Statistics Computer Science and Security Mathematics Natural and Life Sciences
Topics*	User-centricity; citizen-centricity; eGovernment; emerging technologies; public values	Architecture; systems, government portals and websites; social media; survey studies from 2012; value creation
Publication type	Book chapters Peer reviewed articles Doctoral theses Conference articles	Books Bachelor or Master theses
Language	English	Non-English
Publication year	2012 - 2021	Articles published before 2012

Table 5. *Literature search selection criteria. * Marks the criteria that had to be re-applied in the title and abstract selection procedure.*

#	Reference	#	Reference
1	Aschhoff and Vogel, 2018	16	König, 2021
2	Bason and Austin, 2021	17	Kotamraju and van der Geest, 2012
3	Bokayev et al., 2021	18	Kumar, 2019
4	Degbelo et al., 2016	19	Kyakulumbye et al., 2019
5	Ebbers et al., 2016	20	Larsson, 2021
6	Fröhlich, 2017	21	Mariën and Prodnik, 2014
7	Gable, 2015	22	Mossey et al., 2018
8	Ghosh Roy and Upadhyay, 2017	23	Mostafa and El-Masry, 2013
9	Gjermundrød and Dionysiou, 2015	24	Park and Humphry, 2019
10	Gupta et al., 2018	25	Parra and Libaque-Saenz, 2020
11	Hashim et al., 2020	26	Pérez-Morote et al., 2020
12	Hung, 2012	27	Purao and Wu, 2013
13	Ingrams, 2019	28	Scott et al., 2016
14	Janssen and Helbig, 2018	29	Sharma et al., 2016
15	Kassen, 2021	30	Sorn-In et al., 2015

Table 6. *Overview of studies included in our systematic literature review.*

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