Is Digital Government Strengthening or Weakening Society? Exploratory Study

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Abstract. Governments are facing technical, organizational, political, financial, etc. limitations on their capacity to tackle major policy problems like pandemics, climate change, migration, etc. that endanger societal well-being, security, and development. Overcoming such limitations requires a collective response, where different members of the society – individuals and institutions – are working with government and each other to address the problem. The aim of this paper is to examine the digital transformation of government and whether the outcome – digital government – makes society stronger or weaker, thus facilitating or undermining such collective response. To this end, we examine six qualities of social development – inclusion, equality, justice, collectivism, order and democracy – which presence or absence make societies stronger or weaker, and collect the evidence from scientific literature of digital government impacting such qualities, leading to inclusive vs. exclusive societies, equal vs unequal societies, just vs. unjust societies, etc. The result of this research is a landscape of different approaches, experiences, and designs, through which digital government contributes to the presence or absence of these qualities. This result has both research and policy implications.

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1. Introduction

Traditionally, digital government research has been focused on improved service delivery, efficient administration, open decision-making, and engaged citizens. The research was mainly driven by the problems that were internal to the government or the relationships between the government and citizens. More recently, the focus has been shifting to dealing with wicked problems like pandemics, climate change, migration, etc., that no government has the capacity to handle alone, and to problems of democratic breakup that require balancing government power with societal power. Addressing such problems requires institutions and individuals to work together for the well-being, security and prosperity of all members of the society i.e., a stronger society based on cohesion, solidarity, resilience, equity, inclusion and other values.

In view of such problems and various limitations facing governments – technical, organizational, political, financial etc. to tackle them alone, whether digital government strengthens or weakens collective capacity to tackle such problems is of significant social and policy concern. Both outcomes are possible. For example, while digital government can open different electronic and traditional channels to deliver digital public services, making them more accessible to people with disabilities, by enabling automation it can also increase the burden on receiving such services especially by the vulnerable groups, including the disabled (Estevez et al., 2024). The former makes

society more inclusive, the latter more exclusive. Another example, by improving civic engagement and access to public services, digital government can enhance social justice (Hulstijn et al., 2024) but not having enough digital literacy and capabilities to access digital government can also lead to inequitable treatment and disenfranchisement (McNeal et al., 2008). The former makes society more just, the latter more unjust.

Based on the above, the aim of the paper is to explore the impact of digital government on society. The research question pursued is stated in the title: Does digital government strengthen or weaken society? However, the concept of the strong or weak society depends on the discipline and context. It is not easy to define. Thus, we refine this notion in terms of six qualities of social development which presence or absence make societies stronger or weaker: inclusion, equality, justice, collectivism, order, and democracy. Thus, depending on the presence or absence of these qualities, we have six contrasting statements on the impact of digital government on social development: inclusive vs exclusive society, equal vs unequal society, just vs unjust society, collaborative vs individualistic society, orderly vs disorderly society, and democratic vs undemocratic society. We are not just looking at binary answers, e.g. whether digital government leads to inclusive or exclusive society; as demonstrated above, both outcomes are possible. Instead, we aim at discovering different approaches, experiences, evidence and mechanisms through which digital government contributes to the presence or absence of these qualities. We approach this aim by systematically searching through and exploring the body of scientific literature. The main outcome is the landscape of the impact of digital government on social development, structured along the eight social qualities.

The rest of this paper is organized as follows. Section 2 presents the background, including theoretical constructs for categorizing social development. Section 3 explains the main research question and the approach adopted to address it. Section 4 describes the findings – the impact of digital government on the six qualities of social development, one subsection per quality. Finally, Section 5 discusses the findings and their implications for research and practice, and concludes the study through highlights, limitations, and directions for future research.

2. Background

Many public administrations face the challenges of adapting to the rapid social change driven and facilitated by technological developments. Since such developments go beyond the mere adoption of technological novelties and generate (positive or negative) impacts on the functioning of our societies, many expectations are posited into this process. The impact of technology adoption on the functioning of public administrations to increase their efficiency (Hilhorst et al., 2022), transparency (Matheus et al., 2021), collaboration (Gil-Garcia et al., 2023), smartness (Estevez et al., 2021), etc. are well studied. However, the societal impact of government technology adoption have not received the same level of attention (Eom & Lee, 2022) or, when it does, the focus is either on trust creation using rather simplistic approaches (Duenas-Cid & Calzati, 2023) or reflects a significant expectation-impact gap (MacLean & Titah, 2021). This contradiction has been highlighted in the academic literature. While texts focusing on the potential impact of technology to increase participatory and deliberative capacity of citizens (Mäkinen, 2006) or the speed of service delivery (Bekkers & Zouridis, 1999) are common, research on factual impacts uncovers lack of inclusivity in participatory use of technology (Loignon et al., 2021) or biases in service delivery (Clark et al., 2013). Thus, a paper approaching such contradictions and the discussion whether digital government strengthens or weakens societies is lacking in the literature.

Nevertheless, prior to such analysis, it is necessary to pose a question: what makes a society stronger or weaker? The question is not easy to tackle since might be different definitions of stronger or weaker society put forward by different academic disciplines. The approach to that question has traditionally been indirect, focusing on related concepts with a narrower and, therefore, easier to define scope. Social science classics, such as Émile Durkheim (1893), approached the “strength” of societies through the existence and meaning of social bonds between individuals. In traditional and simpler societies, societal ties are sustained by the similarity of their members and their feeling of pertinence to strong communities. In contrast, in modern societies, societal ties are more structural, stemming from the interdependence required to deliver wellbeing (Duenas-Cid et al., 2023). Similarly, Tönnies (2012) is linking the strength of societies to the degree of interpersonal ties and collective consciousness, that in complex societies is formalized in laws and contracts by the state. Differently, Dahrendorf (1968) argued that societal strength is influenced by the ability to deal with and institutionalize conflict. Stronger societies find a better balance between consensus and conflict, which makes them more stable and adaptable. More recently, Putnam (1995) linked the decline in civic engagement and social networks to weakening social bonds and “weaker” societies. In contrast, strong social ties and active community participation indicate "strong" societies. Alexander (2012) put the focus of strong (civil) societies on the capacity to develop solidarity, inclusiveness, and a shared commitment to democratic values.

Thus, by providing laws and contracts, and adjudicating conflicts, the state is defined as the provider of societal strength. This is especially the case with the decline and weakening of interpersonal connections. According to Kirlin (1996), the role of governments is creating institutional frameworks to shape human activities. This

materializes in three activities: 1) creating conditions for collective decisions, 2) making decisions to define and protect communities, and 3) delivering services (Janowski, et.al., 2018). Referring to technological adoption, the role of the state is providing conditions to facilitate such adoption as well as fostering innovation and adjusting it to the regulatory and societal frameworks where they are to be implemented (Kattel et al., 2022). The state institutions should help adopt and implement technologies, lead innovation and regulate technology used by citizens, and ensure that the technological impact is meaningful and contributes to strengthening societies (OECD, 2024). But, how to measure this impact? And how to understand what is a stronger or weaker society?

The definition of stronger or weaker society might fall into the category of concepts with symbolic meaning but open to interpretation depending on the context (Laclau, 2018). For this reason, and given the reflexive nature of this academic piece, we approached the impact of digital government on stronger or weaker societies by separately discussing such impact on six qualities that characterize such societies: inclusion, equality, justice, collectivism, order, and democracy. A strong society is one where the quality is present. A weak one is where the quality is absent. This leads to six corresponding dichotomies in Table 1: inclusive vs exclusive, equal vs unequal, just vs unjust, collaborative vs individualistic, orderly vs disorderly, and democratic vs undemocratic.

Tab. 1 - Societal dichotomies

Quality	Dichotomy	Sources	
Inclusion	Inclusive vs exclusive society	An inclusive society "actively involves all individuals in social, political, and economic processes, ensuring that diverse perspectives are valued and represented" (Marmot, 2005)	An exclusive society creates "barriers that prevent certain groups from accessing resources and opportunities, often leading to marginalization and disenfranchisement" (Young, 1990)
Equality	Equal vs unequal society	An equal society is where "all individuals have equal rights and opportunities, and where disparities in wealth and power are minimized" (Sen, 1999)	In unequal societies "the concentration of wealth and power in the hands of a few [leads] to systemic disadvantages for large segments of the population" (Piketty, 2014)
Justice	Just vs unjust society	A just society is "structured to ensure that the basic rights and liberties of all its members are protected" (Rawls, 1971)	An unjust society "fails to provide its least advantaged members with the resources and opportunities necessary to thrive" (Rawls, 1971)
Collectivism	Collaborative vs individualistic society	A collaborative society is where "individuals recognize that they are part of a larger community and that their actions can significantly affect others" (Ostrom, 1990)	An individualistic society is where "individuals are expected to take care of only themselves and their immediate families" (Hofstede, 1984)
Order	Orderly vs disorderly society	An orderly society possesses "collective consciousness that ensures that individual actions are aligned with the norms and values of the community" (Durkheim, 1893)	In disorderly societies "social norms are challenged, leading to a state of anomie where individuals feel disconnected from the collective" (Weber, 2019)
Democracy	Democratic vs undemocratic society	A democratic society allows "citizens to participate in the political process, including the right to vote and the right to run for public office" (Dahl, 1998)	In undemocratic society there is "absence of competitive elections, the suppression of political opposition, and the restriction of civil liberties" (Diamond, 2008)

3. Methodology

The research question guiding this work is "Does digital government strengthen or weaken a society?". The question was motivated and justified in section 1 and grounded and theoretized based upon existing literature in section 2. In the current section, we explain how we approached developing an answer to this question. We followed a three-step approach based on qualitative research and secondary literature data.

First, we searched the literature for different social qualities and in what sense their presence or absence make societies stronger or weaker. In this step, we used the descriptive literature review (Paré et al., 2015) to identify representative work on different qualities of social development, and inform the scoping review in step 2. The process and result are presented in section 2 and summarized in Table 1.

Second, for each quality identified in step 1, we conducted two searches in the Scopus database to gather evidence in what sense and how exactly digital government can contribute to the presence or absence of this quality, and

thus to making the society stronger or weaker. Each search used a conjunction of two terms. One representing "digital government" and its various synonyms such as "digital governance", "e-government", "e-governance", "electronic government" or "electronic governance". Another representing the presence or absence of a given quality in society. For example, the presence of "inclusion" is expressed by: "inclusive", "equitable", "non-discriminatory", "non-racist", "unbiased" and "unprejudiced", the absence of "inclusion" is expressed by: "exclusive", "biased", "discriminatory", "inequitable", "prejudiced" and "restricted". To provide an initial indication of the size and scope of the literature, we followed the scoping literature review (Arksey, 2005).

Third, data analysis proceeded as follows. For each quality, we considered two sets of digital government-related papers, one representing the presence and another the absence of this quality. After reading the titles, abstracts and keywords, we selected the papers that most meaningfully document how digital government can contribute to the presence or absence of this quality, thus making society stronger or weaker. Based on the selected papers, we synthesized different approaches, experiences, evidence and mechanisms – policies, strategies, programs, projects, systems, etc. through which digital government contributes to the presence or absence of the quality. The findings are presented in the six subsections of Section 4, one subsection for each quality.

4. Findings

This section presents the research findings on the impact of digital government on the six qualities of social development presented in Table 1, one section each: inclusion – Section 4.1, equality – Section 4.2, justice – Section 4.3, collectivism – Section 4.4, order – Section 4.5, and democracy – Section 4.6.

4.1 Digital government for inclusive vs exclusive society

An inclusive society is "a society for all" in which every individual has rights and responsibilities, and an active role to play (United Nations, 1995). According to UNDESA (2016), five out of 11 principles of effective governance for sustainable development focus on inclusiveness – leaving no one behind, non-discrimination, participation, subsidiarity, and intergenerational equity. Social exclusion occurs on three levels – "economic exclusion from labour markets, social exclusion between people in civil society and the ever-expanding exclusionary activities of the criminal justice system and private security" giving rise to the "movement from an inclusive society of stability and homogeneity to an exclusive society of change and division" (Young, 1999).

Digital government enables reaching out to more citizens using multiple channels to deliver public services, where people can opt for the channels most suitable for them, and can shape the delivery format to make it more accessible to people with disabilities (Estevez, et al., 2024). Pro-inclusion digital government include the India Digital Ecosystem of Agriculture (Abhishek, 2022) which places farmers at the centre to promote their financial inclusion (Acharya et al., 2024). Another example is the provision of non-bureaucratic and transparent public services to citizens to supports their social inclusion and non-discrimination in Romania (Pripoaie et al., 2024). The contribution of digital government to a more inclusive society covers: 1) leaving no one behind – addressing the "needs and aspirations of all segments of society"; 2) non-discrimination – delivering "public services on general terms of equality, without distinction of any kind"; 3) participation – involving all political groups in matters that directly affect them so they can influence policy; 4) subsidiarity – being responsive to the needs and aspirations of all people; and 5) intergenerational equity – promoting prosperity and quality of life balancing the short- and long-term needs of today and future's generations (UNDESA, 2016).

According to the UNDESA (2024), governments overlook the importance of inclusivity and when public service delivery mostly relies on digital technologies, "those deprived of digital access, digital tools or digital literacy face obstacles in navigating the promises and potential of the digital era". Similarly, the automation of government can lower government decision quality. This includes street-level algorithms producing suboptimal decisions for borderline cases due to rules simplification, and the removal of exceptions to force binary decision. The most affected are the vulnerable groups who face increased bureaucracy for receiving services (Estevez, et al., 2024). For example, in South Korea, most web- and app-based information, financial, e-participation, and social welfare services are not inclusive for citizens of all ages and income levels (Kim et al., 2024). Excluding groups from accessing the Internet, increasing the burden for accessing public services to already marginalized persons, and not considering them in government decision-making are all building more exclusive societies (UNDESA, 2016).

4.2 Digital government for equal vs unequal society

Social equality means that individuals receive roughly the same resources and opportunities, while the "poorest 50% of the global population share just 8% of total income [and] the richest 10% […] earn over 50% of total income" (IISC, 2016). Economic inequalities depend on place of residence, gender, age, education, migration status, etc. Digital inequalities reflect historical patterns of inequality, such as employed vs. self-employed vs. unemployed, primary vs. secondary vs. tertiary education, urban vs. rural, men vs. women, etc. (ITU, 2018). Equality is intertwined with equity, which recognizes that people have different circumstances and allocates the resources

and opportunities to achieve equal outcomes (SSIR, 2025). Policy interventions can reduce or exacerbate inequalities (Zach et al., 2023), including digital government.

A study from Florida, USA, showed how the 311 number provided information and services to citizens and engaged them in service coproduction, contributed to equity in power restoration after the Hurricane Michael (Xu et al., 2020). Using this number, minority groups having greater needs but less political capital were able to raise government attention, narrowing the service delivery gap. Additionally, a study of 64 Asian and African countries, part of the One Belt One Road initiative, showed that globalization and digital government improve income equality by leveraging investments, job creation, and wage increases of unskilled staff (Ullah et al., 2021).

Digital government enabling automated government decisions may lead to societal inequality. For instance, computational algorithms relying on biased data may produce discriminatory results that disadvantage people based on their race (Fountain, 2022). Thus data quality and the algorithms establishing public service eligibility, acting on such data, are potential sources of biased decisions. Data quality strategies can guard against this effect (Udoh 2020). An example from Nepal, poor accountability, and weak digital governance and institutionalisation of policies can cause inequity in universal coverage of maternal and newborn health services (Khatri et al., 2023).

4.3 Digital government for just vs unjust society

According to Rawls (1971), social justice is grounded on three principles: liberty of everyone's inalienable rights, equal opportunity, and ensuring rights for disadvantaged groups on the distribution of economic benefits. Justice is expressed by the fairness of public institutions, their management and service provision, ensuring that every citizen experiences similar outcomes (Frederickson, 2015; Ruijer et al., 2023) and cannot be compromised by efficiency gains or convenience of the privileged (Rawls, 2017). Injustice exists in two forms: moral wrongs and the denial of equal rights, and disparities in the possession or access to information and knowledge (Fricker, 2007) resulting in unfair treatment of certain people or groups (Hulstijn et al., 2024).

Digital government is enhancing justice by improving civic participation, and extending access to electronic public services (Hulstijn, 2024). The latter can reduce the distance between the public and institutions as well as among members of the public (Sanchez et al., 2013). I also offers platforms for online engagement, allowing citizens to be heard (Welby, 2019), including traditionally excluded voices, overcoming their disadvantaged positions and yielding social justice (Harrison et al., 2011). The type and quality of participation play a key role in the distribution of power and counteracting inequality and enhancing justice (Donoghue, 2017). This facilitates access to those who due to social, cultural and economic reasons cannot benefit from those liberties (Cappelletti, 1993). Thanks to open data platforms, *s*takeholders have a greater influence on the outcomes that are in their collective interest (Sanchez et al., 2013). Technology can reduce barriers to information exchange and generate stronger social bonds, partnerships and connections (Sanchez et al., 2013).

Digital government also frequently generates inequality (Hulstijn et al., 2024). Individuals lacking digital literacy and Internet connection are denied the advantages of online services (van Dijk, 2005) and subjected to inequitable treatment and disenfranchisement (McNeal et al., 2008). AI-based decision-making use rules based on the patterns found in historical data which may contain stigmatization and prejudice, producing decisions that disproportionately affect marginalized groups (Lippert-Rasmussen, 2023). Algorithms and rules are difficult to monitor and control, also for public employees or courts (Lundberg, 2019) and may contain errors that cause unjust treatment and negatively affect people's lives (Citron, 2007). Lacking human control, they expose citizens to fraud and wrong decisions (SNO, 2020). Additionally, people who lack knowledge, skills, or power to demand service are vulnerable to unfair treatment (Hulstijn et al., 2024). Technology can even amplify inequalities, as the eID system using identification through fingerprints (physical workers may be missing them) or irises (unscannable due to malnutrition), denying essential subsidies to many (Taylor, 2017).

4.4 Digital government for collaborative vs individualistic society

The complexity of modern societies is triggering the individualizing process, abandoning ways of functioning of traditional societies (Durkheim, 1893; Simmel, 1903). This effects the American society (Putnam, 1995), where individuals are constantly negotiating their identities (Giddens, 1990), and society reevaluates how institutions transmit norms of social action (Martuccelli, 2009). Increasingly, individuals are given more space to make sense of their life trajectories, expanding their capacity for self-reflection (Dubet, 1994). Technology, both a driver and a result of social transformation, acts as a catalyst for this individualization and lays the foundation for collaboration renewal. Both run in parallel but follow different rhythms: while technology's contributions to individualization are constant and latent, its contributions to collaboration are sporadic and deliberate. Technologies used in public administration, hence, can contribute in both directions. Technologies aligning with individualization are looking for user convenience and tailored service provision, while technologies fostering collaboration look for engagement and respond to the ideals of the common good.

Digital administration does make conscious efforts to create spaces for collaboration among individuals, aiming to connect them with common activities (Hammerschmid et al., 2023). Initiatives related to citizen participation often use digital technologies to encourage physical participation or to channel participation digitally, without direct contact but facilitating exchange and deliberation (Borge et al, 2023). Other forms of open government seek to engage the population in co-creation and co-management of administrative tasks (Nikiforova et al., 2023). However, these efforts face challenges similar to in-person initiatives. These include participants' segmentation, where only the most active engage, and the challenges of attracting certain groups even when they are central to the topic at hand. Many individuals feel ignored by the administration or lack the digital skills to participate.

Digital government has not escaped the individualistic trend. The availability of data on individual activity enables personalized forms of interaction, with governments being a major collector of such data. This facilitates personalized services, tailored to individual needs and driven by available data (Maksimova et al., 2021). This need not mean promoting individualization but adapting to the social process and reflecting the consumerization of digital government (Gaß et al., 2015). Other areas include the fragmentation of previously collective processes, such as social or electoral participation, which become remote (Unt et al., 2017), running in parallel with other processes that reduce interpersonal contact by depersonalizing service provision (Pieterson et al., 2007). The local administration which played a central role in social life, has its influence weakened due to digitalization. Digital government does not appear to be a primary driver of individualization, it adapts to this trend.

4.5 Digital government for orderly vs disorderly society

According to Durkheim (2018), social order entails the establishment of commonly shared beliefs, values, norms, practices, and interactions of daily life. Social order can be imposed (Kurawa, 2012) or part of "social contract" that transfers individual liberties to a coercive state in return for security of persons and their properties, and the establishment of dispute-resolution mechanisms (Hechte & Horne, 2003). Conversely, "disorder" is the non-compliance of norms (Weber, 2019) or delinquency of individuals against established rules (Wilson et al., 1982), resulting in unrest, crime, polarization, protests, etc. Not every disagreement is a disorder, e.g. worker strikes, but rigid response to unrest can lead to escalating levels of disorder. A certain degree of disorder may represent a democratic and inclusive society (Marshall, 2010) or give a rise to new order (Kurawa, 2012).

Digital government is recognized for its potential to enhance social order. Adequate service quality provisioned by government enhances stability and accountability (Amiantova et al., 2021). Enhanced efficiency and transparency represent predictability, a key element in social order (Janssen et al., 2015). Against citizen disappointment resulting in unrest, accessible and efficient services build trust and confidence (Bell et al., 2022). So is improved two-way interaction between government and citizens (Drummond et al., 2023). Digital government platforms (Bonina et al., 2021) facilitate collaboration, from information sharing through co-production to self-governance (Linders, 2012). They also channel dispute resolution, reducing dissatisfaction (Lukman et al., 2024), defusing collective action (Hu, et al., 2024), and enhancing respect to rules.

Governments can also use technology-based means to tighten social control through surveillance technologies like in China (Lee, 2019) or India (Rao et al., 2019). Using predictive policing (Graham, 1998), governments introduce 'data politics' (Ruppert et al., 2017) or 'digital authoritarianism' (Dragu et al., 2021) for political dominance and control (Bulman et al., 2021). Monitoring political opponents through technology-based mechanisms, so-called preventive repression (Dragu & Przeworski, 2019), results in extensive surveillance and control and destabilizing the balance of power between the state and citizens (Schlæger, 2013; Rao et al., 2019). The wide use of surveillance infrastructure increases the exposure to cyber-attacks, which ultimately destabilize society. In 2007, Estonia experienced cybersecurity incidents disrupting government and business institutions, heightening tensions among ethnic groups and raising social instability (Evron, 2008).

4.6 Digital government for democratic vs undemocratic society

Responding to political disaffection of citizens, recent years were prolific in technologies to improve democracy (Torcal, 2003). According to Fierro et al. (2022), this disaffection is the result of the lack of citizen engagement and responsiveness by the authorities. Technology, hence, has been called to help improve the capacity of citizens to engage with institutions and the institutions' capacity to interact with citizens (Sandoval-Almazán et al., 2017). We can also see how some technologies fail to produce the expected outcomes for technical (Duenas-Cid, 2024), organizational (Duenas-Cid et al., 2020) or societal (Toots, 2019) reasons. Certain technologies also challenge the democracy (Musiani, 2014) or are exploited by nondemocratic regimes (Romanov & Kabanov, 2020).

The evidence of technology use to improve the democracy is diverse. Some efforts are centred on increasing user convenience and lowering the participation barriers, the assumption being that those interested will participate (Duenas-Cid et al., 2025). The search for usability has been quite successful, and technology increased inclusivity (Bricout et al., 2021) and reduced the cost of participation (Ford, 2021). Technology also enriched participatory practices (Stein, 2025), and forms of engagement (James et al., 2023) and interaction with representatives (Scacco

et al., 2021). The COVID-19 pandemic forced a rethink of democratic practices and considering alternatives (Rodríguez-Pérez et al., 2020). One example is internet voting, i.e. casting election ballots online, which several countries consider for voting abroad and, increasingly, domestically.

Technology is also partly blamed for democratic decline. Some argue that it desacralizes democratic rituals and makes participation less social (Unt et al., 2017). Concerns are also raised that voting in non-supervised environments might facilitate coercion (Kulyk et al., 2020) or buying (Benoist et al., 2007) as happens with postal voting (Shenker et al., 2014). However, technology also provides preventive measures. Voting technologies are adopted by countries with dubious democratic standards, raising the risk of external attacks and manipulating results. The use of social media by political agents, including government, is also contributing to political tensions and undermining the democratic functioning (Reisach, 2021). Governments are generally unable to reduce the harm created by social media while political agents take advantage to gain influence (Gupta-Carlson, 2016) or use data irregularly to tailor their political campaigns (Hinds et al., 2020).

5. Conclusions

The main research question pursued in this article was: Does digital government strengthen or weaken society? To answer this question, we identified a rich body of literature documenting the impact of digital government, with varying direction, nature, scope and origin of impact, on six qualities of social development. We uncovered the use of many technologies – artificial intelligence, cybersecurity, digital identification, digital platforms, internet voting and social media; and design concepts – digital authoritarianism, co-creation and co-production, dispute resolution, multi-channel service delivery, open data platforms, predictive policing, self-governance, service personalization, street-level algorithms, surveillance, two-directional interaction, and unattended AI-based decision-making. We also uncovered system analysis – 311 number, electronic identification using fingerprints and iris scanning, and cybersecurity incidents; as well as national initiatives from China, Estonia, India, Nepal, Romania and South Korea, and international ones like the One Belt One Road. Table 2 summarizes some examples from Section 4 how digital government impacts the six qualities of social development.

Tab. 2 – Digital government impact on the six qualities of social development

Quality	Digital government impact on the quality	
	Positive impact	Negative impact
Inclusion	Delivering public services through multiple channels to reach out, shaping the delivery format to fit the needs of the audience.	Excluding groups lacking digital access or skills, increasing burden on the vulnerable from automated services.
Equality	Service coproduction by minority groups with greater needs but less political capital can narrow the service delivery gap.	Algorithms relying on historical data may be sources of bias, causing inequality treatment of different social groups.
Justice	Platforms for online engagement, allow excluded voices to be heard, and yield decisions characterized by social justice.	Closed algorithms and the rules/data on which they act expose citizens, especially the vulnerable, to wrongful decisions.
Collectivism	Creating personalized services, tailored to individual needs and driven by available data, depersonalizing service provision.	Creating collaboration spaces by connecting citizens with common activities – exchange, deliberation, co-creation, etc.
Order	Platforms channel dispute resolution, reduce dissatisfaction, and defuse collective actions, facilitate social order.	Digital surveillance, repression and authoritarianism destabilize the balance of power between the state and citizens.
Democracy	Increasing user convenience, new forms of engagement, and lowering the barriers to participation in democratic processes.	The use of social media contributing to political tension and undermining the functioning of the democratic life.

This work has four main research implications. Against predominant focus in digital government research on digital transformation of public administration and government-citizen relationships, it sets forth to study the impact of digital government on citizen-citizen relationships and social development in general. It outlines a methodology to tackle the research question based on qualitative research and literature review. It uncovers six qualities of social development – inclusion, equality, justice, collectivism, order and democracy, to measure the impact of digital government. It offers initial results on the nature of that impact - approaches, experiences, and designs, uncovering the complex nature of the relationship between digital government and social development.

This work also has some policy implications. First, digital government exerts a significant and wide-ranging impact on social development, documented across all six qualities of such development. Second, the evidence confirms positive and negative impact, strengthening or weakening society by ensuring the presence or absence of the qualities. Third, to impact societal development, digital government employs a wide range of technologies, designs and policy contexts. Fourth, this diversity may explain radically different outcomes and highlight the importance

of explicit social impact goals, and technology, design and policy decisions to match them.

This research has some limitations. The first its limited theoretical background and thus the coverage of relevant qualities of social development; some qualities like, e.g. coherence – integrated vs polarized society, and freedom – free vs oppressed society are missing from the study. The second is not strictly following the systematic literature review and employing rather liberal decisions about excluding certain literature positions. Thus, the documented impact of digital government on social development falls short of being comprehensive. The third is the analysis not accounting for different qualities influencing each other, e.g. inclusion influencing equality, equality justice, justice order, etc. and vice-versa. Thus, some qualities may share literature. The fourth is the lack of policy analysis to complement literature analysis, to establish measurable impact of digital government on social development in various national and sectoral contexts.

Future work might focus on overcoming some of these limitations. One direction of future research is pursuing a study of the qualities of social development impacted by digital government, aimed at producing a theoretical framework able to measure the nature, direction, source and scale of the impact. The second is applying this framework to landscape the impact of digital government on social development based on the systematic review of the scientific and policy literature. The third is focusing the impact studies on specific countries or regions, to inform digital government design for achieving the expected social development outcomes. How such outcomes (and indirectly digital government) can enable the whole-of-society response to major policy problems like pandemics, climate change, migration, etc. is yet another direction. Finally, the complex nature of the societal impact limits the mitigation/reinforcement strategies to be valid for every technology, administration or society. Thus the fifth direction is examining specific cases of technology use for concrete administrations and societies to assess their impact and inform relevant mitigation/reinforcement strategies for the negative/positive impact.

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