



Delft University of Technology

## Digital citizen empowerment

### A systematic literature review of theories and development models

Sharma, Swapnil; Kar, Arpan K.; Gupta, M. P.; Dwivedi, Yogesh K.; Janssen, Marijn

#### DOI

[10.1080/02681102.2022.2046533](https://doi.org/10.1080/02681102.2022.2046533)

#### Publication date

2022

#### Document Version

Final published version

#### Published in

Information Technology for Development

#### Citation (APA)

Sharma, S., Kar, A. K., Gupta, M. P., Dwivedi, Y. K., & Janssen, M. (2022). Digital citizen empowerment: A systematic literature review of theories and development models. *Information Technology for Development*, 28(4). <https://doi.org/10.1080/02681102.2022.2046533>

#### Important note

To cite this publication, please use the final published version (if applicable). Please check the document version above.

#### Copyright

Other than for strictly personal use, it is not permitted to download, forward or distribute the text or part of it, without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license such as Creative Commons.

#### Takedown policy

Please contact us and provide details if you believe this document breaches copyrights. We will remove access to the work immediately and investigate your claim.

***Green Open Access added to TU Delft Institutional Repository***

***'You share, we take care!' - Taverne project***





**<https://www.openaccess.nl/en/you-share-we-take-care>**

Otherwise as indicated in the copyright section: the publisher is the copyright holder of this work and the author uses the Dutch legislation to make this work public.

RESEARCH ARTICLE



# Digital citizen empowerment: A systematic literature review of theories and development models

Swapnil Sharma <sup>a</sup>, Arpan K. Kar <sup>a</sup>, M. P. Gupta<sup>a</sup>, Yogesh K. Dwivedi <sup>b</sup> and Marijn Janssen <sup>c</sup>

<sup>a</sup>Department of Management Studies, Indian Institute of Technology, New Delhi, India; <sup>b</sup>Swansea University, Swansea, United Kingdom of Great Britain and Northern Ireland; <sup>c</sup>Technische Universiteit Delft, Delft, Netherlands

## ABSTRACT

Governments worldwide invest heavily in digital initiatives to develop information societies with connected and actively engaged citizens, but problems like lacking sustained engagement and quality of participation still plague them. We undertook a systematised literature review on the Scopus and Web of Science (WoS) databases, covering dispersed literature surrounding Digital Citizen Empowerment (DCE) from the past two decades. Categorising the literature under four thematic categories or strategies of DCE: Digital Activism (DA), Multi-channel Service Delivery (MCSD), Participatory Budgeting (PB), and Deliberative Governance (DG) critical comparative analysis is done. A conceptual model of DCE, covering how theories from different interdisciplinary areas of political, social, and information science influence the development of information societies and DCE is presented. Action points in our conceptual model are mapped to policy objectives targeting improved delivery of empowering policy goals by practitioners, and future research opportunities in the context of DCE are discussed.

## KEYWORDS

Digital empowerment; e-Governance; digital society; digital activism; citizen empowerment

## 1. Introduction

After the 2000s, the world shifted from New Public Management (NPM) towards 'digital-era governance' (DEG), focusing on reintegrating and transformative digital changes in administrative infrastructure to provide holistic services to citizens (Margetts & Dunleavy, 2013). These fundamentals are seen as key drivers in different initiatives worldwide, which help facilitate state–citizen interactions over digital media (Navarra & Cornford, 2012; Touchton & Wampler, 2014). In their latest e-government survey, the UN has noted that 65% of the 130 nations are at a high or very high level of the E-Government Development Index (EGDI) (United Nations, 2020). The three-level process of information dissemination, feedback and consultation, and collaborative decision-making using the internet aims to change the state of citizens from passive to active, improving the democratic process and overall governance (Naranjo-Zolotov et al., 2019).

Empowered citizens form the backbone of a well-functioning democracy (Sørensen, 1997). For some time, Information and Communication Technologies (ICTs) have been accepted and promoted by governments and civil society organizations (CSOs) as being instrumental in empowering their citizens by improving their capabilities and the control they have over their own lives (Chohan &

Hu, 2020a; Stone & Can, 2021). Empowerment as a concept is related to the word 'power', i.e. the ability and permission to achieve a specific goal. Also, the term 'to be empowered' relates to both a process and an outcome – to the effort to obtain a relative degree of ability to influence the world (Staples, 1990). In this context, Digital Citizen Empowerment (DCE) is not only about providing basic access to information and services, but is about achieving human capital improvement, transforming citizens from general users into empowered individuals who can act as problem identifiers and civic solution innovators, contributing back to the ecosystem within which they thrive (Pirannejad & Janssen, 2017). This process of using ICT for governance and reaching the marginalized social classes is a leveller for the digital divide experienced in developing countries (James, 2020; Simons et al., 2020). Internet and its usage for political participation are seen as an equalizer for the power imbalance in communities (Sasaki, 2017). Digital services for governance and the facilitation of openly available government data are promoters of involving and collaborative politics at the local and global levels (Meng et al., 2019; Tianru, 2020). Lately, online platforms have become highly involved and integrated with the realization of public values. Research establishes a need for joint responsibility between governments and citizens to actualize development policy objectives (Helberger et al., 2018). The context of DCE also becomes increasingly important as the modern youth spends a significant time socializing online, and digital platforms have become a prominent space of political discourse for them (Literat et al., 2018). Scholars note a shift towards a citizen-centric capability development approach for designing and managing initiatives in the area of developing human capabilities and delivering development and empowerment goals.

The Organization for Economic Co-operation and Development (OECD) sees citizen empowerment as a necessary condition for enhancing the quality of service delivery, establishing the credibility of government decisions, and supporting the legitimacy of governance in any country (OECD, 2001). Across the globe, we are witnessing the advent of smart cities and the development of digitally connected ecosystems with dis-intermediated, citizen–state interaction to solve social and administrative issues at local and national levels (Kar et al., 2019). Researchers have long believed in the potential of using engaging and empowering processes as a remedy for the problems of any democratic system, such as corruption, elite capture, and discrimination, among others. Multiple studies show a changing pattern in the strategies, theories, and frameworks that drive the DG initiatives aimed at DCE. Through our study, we are trying to understand how governments worldwide are building up their infrastructure and human capacity to develop these future information societies. We have attempted to present specific action and policy points for practitioners and researchers based on the theoretical underpinnings of the concept of DCE. The aim is to provide theoretical support for the phased development of information societies and the human capacity of people living in them. We will focus on exploring the literature for theories and models for achieving DCE. Our motivation stems from the fact that the literature notes that most information and communication technologies for development (ICT4D) initiatives fail because of their inability to deliver power to the hands of the people. Ensuring citizens' sustained voluntary participation as not mere consumers but co-creators and prosumers of these initiatives is crucial to deliver local and national social development goals. For these reasons, we aim to answer two research questions at the end of this review:

- (1) What are the different citizen–state interaction models through which governments are trying to achieve citizen empowerment using ICT?
- (2) What are the main supporting and obstructing factors that affect the development of a knowledge society as targeted in digital transformation initiatives by governments?

The remaining sections of the manuscript have been organized as follows: section 2 covers the background literature on the concept of empowerment; section 3 covers the selection of literature for review in this study; section 4 covers the analysis of selected literature; section 5 covers the findings of our in-depth review of literature based on identified themes and summarizes them

comparatively; section 6 has the theoretical discussion on ICT-based empowerment covered in the selected literature. Sections 7 and 8 cover contributions to theory and practical implications. Section 9 concludes the study by summarizing the main insights, and section 10 presents the limitations in our research and the problems we could identify for future explorations.

## 2. Background

### 2.1 Empowerment Theory

Empowerment has been a recurring theme among researchers of social and political sciences for five decades. It has been discussed in different contexts and related to various subjects or levels of enquiry chosen by them. Empowerment has been defined and studied as ethnocentric initiatives of social work for working with minority groups and the marginalized (Guitierrez & Ortega, 1991; Solomon, 1987); as a conservative-liberal approach to improve welfare services by mediating social institutions for improving the lives of weaker citizens in a community as a social unit (Berger & Neuhaus, 1996); and as a socialist approach for dealing with demands of equality and social responsibility in the context of social problems (Boyte & Evans, 1984). Empowerment can shape a person's character and the level of influence or degree of control they can assert over their life and their socio-political context as an actor (Gruber & Trickett, 1987; Pinderhughes, 1983). It is an interactive process between a person and the socio-political environment leading to external and internal change, where citizens develop their skills, abilities, and experience to drive societal change (Kieffer, 1984; Parsons, 1991).

Zimmerman defined an individual's empowerment as an active psychological process in the environment of a democratic setup (Zimmerman & Rappaport, 1988; Zimmerman, 1995, 2000). This process helps integrate self-acceptance and confidence, socio-political understanding, and an ability to play a significant part in decision-making and controlling resources. Zimmerman's framework is used extensively in the literature to understand and improve healthcare goals (Chandola et al., 2004; Goodman et al., 2004), to understand youth participation (Rodrigues et al., 2018), or other socio-political issues dealing with power imbalance among the players in any context. The *process of empowerment* is also defined as an active and iterative one, formed by the circumstances and the events (Cattaneo & Chapman, 2010). At its core is human endeavor attempting to shift from a passive state to an active one based on the ideas of participation and engagement (Altermark & Nilsson, 2018). This becomes even more critical as empowered citizens can contribute back to their communities and nations using their digital participation skills (Kar et al., 2019).

### 2.2 Ict and citizen empowerment

ICT4D literature has a clear divide based on two streams of thought and theory (Sein et al., 2019) regarding the relationship between ICT use and citizen empowerment. Some scholars doubt the potential of ICT in citizen engagement, stating that digital initiatives can potentially lead to exclusion and the reinforcement of social barriers (Fraunholz & Unnithan, 2009; Mariën & Prodnik, 2014). Scholars also warn that the data revolution in governance might further widen the digital divide as it builds upon pre-existing social differences (Cinnamon, 2020) and strengthens participation barriers (Krishna, 2021). In contrast, the other group believes in the potential of ICT to develop better knowledge networks in societies that can help the marginalized voice their opinions and have better control over their fate in a digital social setup (Brinkerhoff & Wetterberg, 2016; Tréré, 2016). Blakeley (2010) presents this divide through the perspective of governmentality and defines two paradoxes: first, the presence of multiple stakeholders doesn't necessarily dilute the State's power, and; second, the breadth of available participatory practices doesn't ensure citizen participation. Other scholars, like Boulding and Wampler (2010), employed the perspective of Amartya Sen's capabilities approach (Sen, 1999) and suggested that citizen empowerment positively facilitates the expansion of the

public sphere. This can allow citizens to exercise rights and forge bonds of solidarity with other citizens. Pandey and Gupta (2018) tried to establish and validate the relationship between ICT and developmental initiatives taken by governments employing a comprehensive evaluation framework focusing on different types of impacts created by such initiatives.

Recently, scholars have explored the possibility of DCE by changing the pre-existing power relations in the society with the help of strategically aligned public-value delivery using ICT (Mali & Gil-Garcia, 2017; Li et al., 2020). Scholars suggest that ICTs based value co-creation in e-governance, improvement in overall quality of service, feeling of accountability, and openness can improve citizens' trust and adoption of digital participation mechanisms (Chohan & Hu, 2020b; Hu et al., 2019). However, DCE can be sustainable only if initiatives can achieve long-term ICT engagement with the citizens. In some cases, short-term engagement could also improve citizens' feeling of empowerment if their interests are accounted for with immediate gratification in the form of incentives and feedback (De Mesquita et al., 2018; Gün et al., 2020; Mohamudally & Armoogum, 2019). The relationship between sustainable development goals (SDGs) given by the UN and the usage of ICT to achieve them is also explored in the literature. Researchers call for a conscious effort by policy practitioners and designers employing the idea of policy-coherent sustainable development (PCSD) (Rothe, 2020; Sánchez-Tortolero et al., 2019). We find a new conceptualization of the ICT4D field with contemporary issues, discussing ways to improve citizen e-participation in governance (Heeks, 2020b, 2020a). The growing role of social media in organizing collective action and participatory monitoring for evaluating local initiatives can help make DCE socially sustainable and more effective (Cieslik et al., 2021; Kibukho, 2021; Ye et al., 2021). Across all these deliberations in the research body, it is also established that governments cannot achieve sustainable DCE without improving individual capabilities. Only this can promote the feeling of voluntary participation and ownership over initiatives to tackle local issues (Hoque, 2020; Vaidya & Myers, 2021; van Biljon, 2020), and this forms our core motivation for taking up this study.

### 3. Selection of literature

To study the evolution of DCE literature, we chose the Scopus and Web of Science (WoS) databases. These are two of the most extensive repositories for research literature, allowing users to search and filter papers covering different fields of study. This is particularly useful as we expect the concerned literature for our review will be touching many areas of research and application. As a methodology, we followed the systematic literature review process as depicted in Figure 1 (Chauhan et al., 2016; Gupta et al., 2018; Kapoor et al., 2014; Williams et al., 2015).

A keyword search was conducted on these databases using three keywords: 'Digital Citizen Empowerment', 'Digital Empowerment' and 'Citizen Empowerment' with OR operator in 'Article-title, keywords or Abstracts' field, which resulted in a total of 656 results. De-duplication was done before moving ahead, which left us with 520 unique articles. To ensure a better quality of peer-reviewed literature, the studies were restricted to journal articles, resulting in 302 documents. In the next phase, fields of study were restricted only to 'Social-studies, Computer Science or Management' to keep the search relevant to the context of this study, leaving 210 documents to cover. Based on the reading of abstracts, we shortlisted 114 articles for in-depth reading. All this filtering was done by 15th April 2021. After reading these filtered papers in depth, we selected 72 documents for the review (the complete list of selected studies is available in the Appendix).

### 4. Literature analysis

The search resulted in a pool of literature distributed over two decades, of which more than 50% has been published in the last five years. The studies overlapped with a few other research fields, namely: Computer Science; Arts and Humanities; Business, Management, and Accounting; Economics,

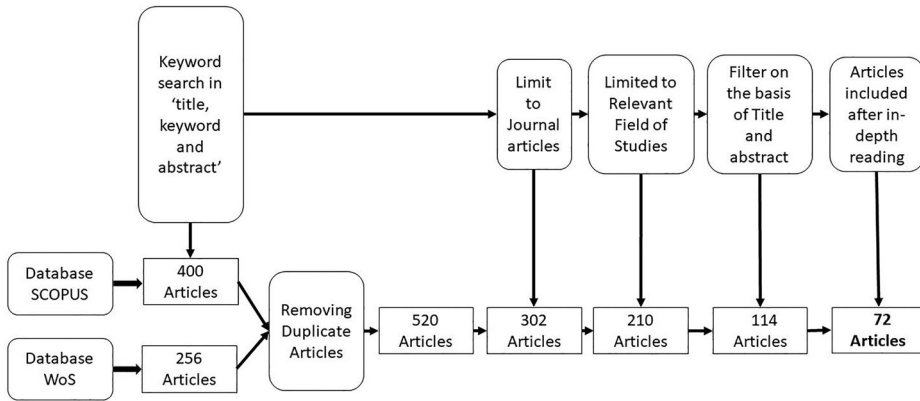


Figure 1. Stepwise selection process.

Econometrics and Finance; Environmental Science; Earth and Planetary Sciences; Engineering; Psychology; Energy; Mathematics; and Medicine, which is indicative of interdisciplinary research work (Figure 2).

Spain and the USA were leading nations of the authors in this area of research, with 37 articles each, followed by the UK with 21. Only three articles were found to be from India. The literature is mainly applied research and is based on cases from around the world. At the same time, some papers solely focus on the theoretical discussion around the concept of empowerment or a combination of both applied and theoretical research. In total, we identified 15 entirely theoretical papers, 22 descriptive case studies, 29 case studies that had a rich theoretical contribution, and 22 studies with an empirical method to support their findings (Figure 3).

Almost all the studies are related to the socio-political empowerment of the citizens of a region/state/country. The prominently discussed theme was engaging citizens through different types of government initiatives. Most of the literature revolves around top-down initiatives started by the governments and adopted by citizens. However, eight studies focus on bottom-up initiatives started by citizen activists, and one piece focused on the opinion of administrators or service providers on initiatives of citizen empowerment.

We uncovered four significant themes of literature based on different streams observed in selected corpus and internal discussion among the authors. These themes correspond to the

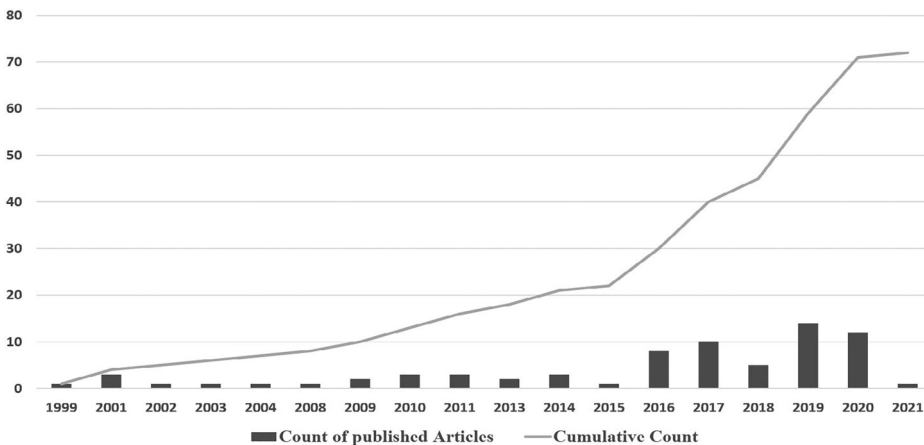
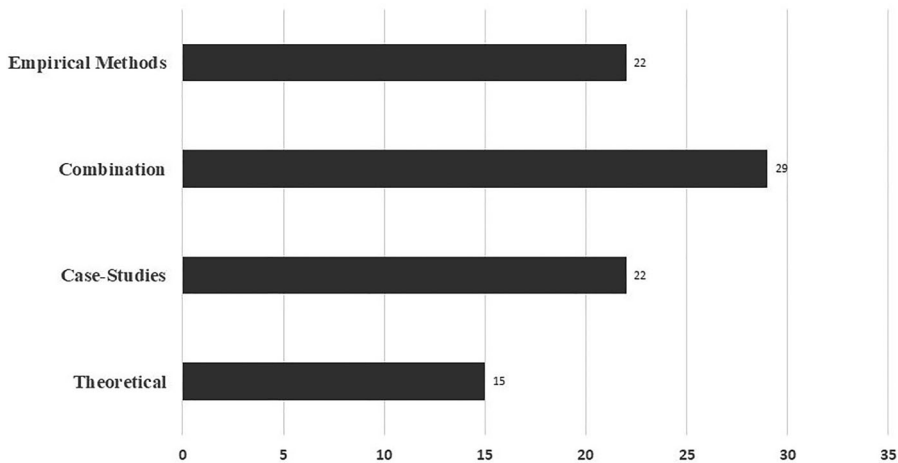


Figure 2. Distribution of selected articles.



**Figure 3.** Distribution of literature on methodology.

different types of strategies adopted by national, state, or municipal governments to improve citizen voice and participation in designing and deploying policy initiatives for e-governance:

- (1) Multi-channel Service Delivery for e-governance (MCSD) (Bay-Meyer, 2013) for a more service-delivery-oriented e-governance;
- (2) Participatory Budgeting (PB), a tool of civic engagement that allows citizens to participate in budgetary decision-making processes (Boulding & Wampler, 2010) with a focus towards financial inclusion;
- (3) Deliberative Governance (DG), a form of governance where every policy decision is based on deliberations with the citizenry and adopts both the elements of consensus decision-making and majority rule (Park et al., 2017);
- (4) Digital Activism (DA), the most citizen-inclusive approach that incorporates feedback and diversity in priorities even through online platforms (Bucy & Gregson, 2001).

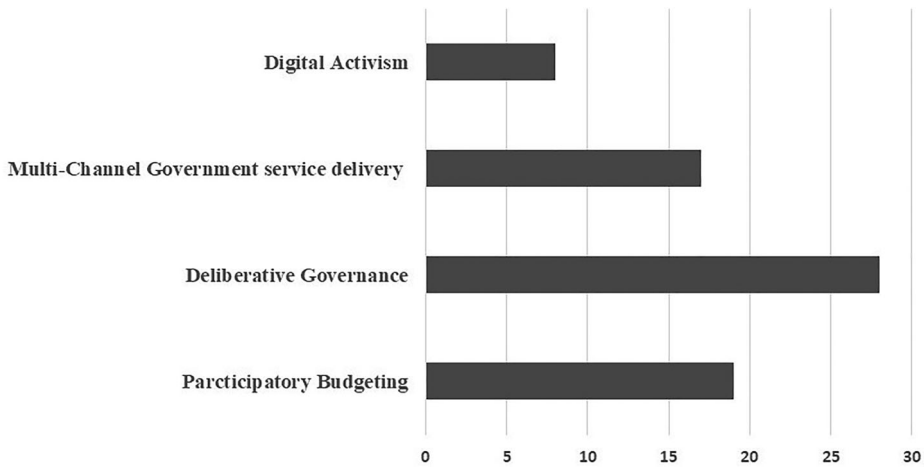
These themes are identifiable from the case studies covered in the selected corpus of papers, and a detailed discussion of them is covered in the following sections (Figure 4).

A keyword association map was generated using the VOSviewer software (van Eck & Waltman, 2010), short for visualization on similarities. This allowed us to check the consistency of the selected corpus with our research goals. We used a Scopus data file in RIS format containing authors, title, journal, publication year, keywords, affiliations, and references (Figure 5).

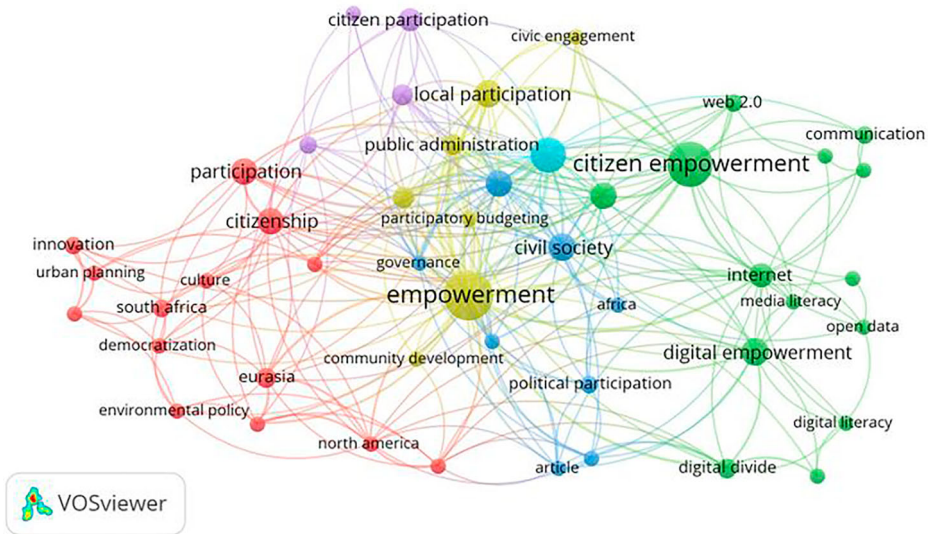
Since the area we chose to study intersected with multiple other areas of study, we chose another classification to study the distribution of literature selected in our study given by Barki et al. (1988). It lists out 1,100 keywords in nine top-level categories: Reference disciplines, including External environment; Technological environment; Organizational environment; Information Systems (IS); IS management; IS development & operations; IS usage; and IS education & research on the Information Systems area. The purpose of choosing this classification theme was to lay out the distribution of the selected studies into subclasses of the Information Systems area to observe different points of focus or enquiry in the chosen corpus of our research (Figure 6).

We saw that most of the studies fell into the reference discipline category. This can be explained, as we designed our search filters to focus on articles in the area of social sciences. This is because the context of our search was around the use of ICT in governance, while the second category was IS management.





**Figure 4.** Major themes in the literature.



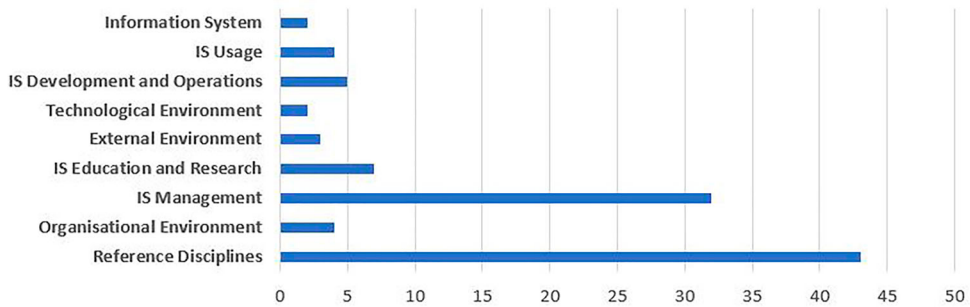
**Figure 5.** Keyword association map of the selected literature.

## 5. Findings of review based on major themes from literature

This section explores the four major themes identified to study the interaction of different stakeholders in a democratic setup for delivering DCE. We have also attempted to identify the significant supportive or obstructing factors for each of these themes. The objective was to uncover the contextual relationship between the different stakeholders.

### 5.1 Multi-Channel service delivery for e-governance

The use of ICT and digital strategies by democratic actors (governments, elected officials, media, political organizations, citizens/voters) for political and governance processes of local communities, nations, and the international stage has been termed as e-democracy. E-government is a subset of this setup and pertains to provisioning services, information, and e-participation of the public



**Figure 6.** Distribution of studies based on keyword classification.

(Riley, 2003; Vyas-Doorgapersad, 2009). It refers to the processes and structures that encompass all forms of electronic interaction between the government (elected) and the citizen (electorate). Information and knowledge sharing are essentials in its functioning, which can bring about change in the form of the citizenry from passive to active. Norris (2003) supports that the growth of e-governance can modernize and deepen democracy in countries or constituencies where the public has become disenchanted with the traditional channels of participation in representative democracy. ICTs in governance could be used to solve problems like corruption, poor information access, lack of transparency and accountability, high cost to citizens for access to services, and a lack of quality service delivery (Agrawal et al., 2007). Automation, informatisation, and transformation can help solve all the problems listed above in a democratic structure.

In contrast, Riley (2003) also argued that there is a move towards ‘surveillance societies’, which endangers the fundamental principles of democracy. May and Chadwick (2003) argued that e-governance leads to reinforced managerialism in the public sector rather than facilitating public consultation and participation. It may seem like a cost-effective option to deliver good governance, but it may work adversely in developing democracies due to a lack of infrastructure and education (Fraunholz & Unnithan, 2009; Kariuki & Tshandu, 2014; Mariën & Prodnik, 2014). After analysing the literature in depth, it can be summarized that the idea of e-governance has great potential for empowerment. However, it can still fail to deliver if the commitment of governments and citizens’ ability or motivation to act are lacking. This is of particular importance as in democratic setups, empowering processes are driven from both government and citizens.

The literature in this focus area outlines the following factors to ensure the success of state machinery for service delivery: first, development of a robust and transparent governance infrastructure for information sharing and service delivery with universal access; second, developing platforms as services to deliver governance to all in a transparent manner; third, minimizing offline state–citizen interaction to avoid opportunities for corruption; fourth, regular audits and public-feedback opportunities to maintain the quality of services delivered; and fifth, maintaining accountability through policy design to ensure service delivery and sustainability (Bhatnagar, 2002; Brinkerhoff & Wetterberg, 2016; Shelley et al., 2004; Svård, 2017).

## 5.2 Participatory Budgeting

PB is the process of involving citizens in decision-making for budget allocations in a constituency, with the hope that the involvement of low-income or marginalized groups in budget allocations can help improve their quality of life (World Bank, 2008). It is also influenced by Sen’s Capability Model for citizen empowerment, assisting citizens in exercising their rights and making collaborative bonds with others to expand their own sphere of influence (Sen, 1999).

This type of active citizenry helps keep the government officials and service providers in check while distributing and delivering resources to ensure efficiency and minimal leakage (Boulding &

Wampler, 2010). PB was developed and implemented first in Brazil, and it has found worldwide acceptance. It has helped deliver positive or mixed results in many democracies worldwide, like in Italy, Spain, Korea, and China. PB in the literature is seen to operate on three basic principles or logics of administrative strengthening. First, the administrative logic of introducing active citizens in governance; second, the political-reforms logic that can help strengthen citizen politics and community mobilization; and third, the empowerment logic of moving the power balance in favor of citizens in a state–subject relationship (Baogang, 2011).

The literature is unanimous on two caveats towards achieving empowerment goals: the government’s control over people’s participation in the decision-making process, and local government officials’ resistance. They contribute this condition to the debate of expert knowledge vs. popular mandate (Ganuza et al., 2016), leading to a divide between the opinions of the governed and the governing. Also, the literature suggests that although the long-term implications of PB may change the state–citizen interaction completely, the short-term social impacts are limited (Boulding & Wampler, 2010). The potential of crowdfunding projects run by citizens using a digital platform created and legitimized by the administration is also established (Gooch et al., 2020). Some crucial factors outlined in the literature regarding the success of PB initiatives are: first, strong state support to ensure inclusive representation of all stakeholders; second, availability and sharing of information in the same capacity to all stakeholders; third, provisions to express and record opinions of all stakeholder groups; fourth, avoidance of the problem of elite capture; and fifth, active targeting of the marginalized to maximize the benefits of budget goals for significant social change and reduction of the socio-economic divide.

### **5.3 Deliberative Governance**

In 1980, Joseph M. Besettee introduced the concept of Deliberative Governance, representing a democratic setup where deliberations are central to the decision-making process. The idea behind this concept was the belief that modifications and adjustments could be made to individual interests to create policies for the common good (Park et al., 2017). Researchers have discussed this method of engagement and outlined characteristics of successful deliberations in a democratic setup. First, all participants are considered and treated equally, free to question or intervene, and everyone has an equal weight of opinion. Second, deliberations should result in the process of social learning. Third, the deliberating body should be inclusive of all the stakeholders that can be affected by the decision taken; and fourth, there is enough relevant information, engagement, and discussion to be able to forge a consensus among conflicting interests (Newman, 2011; Parkinson & Mansbridge, 2012; van der Merwe & Meehan, 2012).

We see DG being adapted for two different types of structure. The first is the policy jury advocated by Robert Dahl in 1970, who viewed DG as a counter to the limitations of elective democracy. It has remained popular in recent times and is adopted by countries like South Korea nowadays for better municipal administration. In this structure, representatives from different stakeholder groups are chosen to assist the administration in reaching the best possible policy decisions and delivering the common goal for local development (Chaudhuri & Kendall, 2020). The second form is called Negotiated rulemaking, or ‘Reg-Neg’ (regulatory negotiations). Here a committee is formed with elected representatives, community leaders, civic body organizations, and subject-matter experts to discuss and develop policies. This disintermediation and direct involvement of the public in policy decisions result in citizen empowerment and democratization of the policy-setting process (García-Peñalvo et al., 2019; Garcia et al., 2020; Sixto-García et al., 2020). Long-term support for collaborative communities, imparting a sense of ownership over the design and operation of digital initiatives, is the key to achieve sustainable deliberative governance (Dusi, 2019). The use of ICT-based deliberative governance is also explored for empowering marginalized and tribal communities using digital innovation and tools to solve their local administrative issues. Researchers also see a reinforcement of the pre-existing societal divisions with explicitly visible benefits if the

designers and managers of the initiative are not careful (Leong et al., 2016; Okunola et al., 2017; Young & Gilmore, 2017). Local administrations also stand to improve in time by preparing the younger generation for participating in local democratic governance and using deliberative platforms (Thijssen & Van Dooren, 2016). The process of deliberative democratic decision-making may suffer when citizens, politicians, and administrators are strongly divided by ideology, religion, regional issues, ethnicity, generations, and other socio-political schisms, economic disparities, and identities (Bay-Meyer, 2013; Hendriks et al., 2013; Park et al., 2017; van der Merwe & Meehan, 2012). It is also essential to validate and generate support for deliberative decisions made with the public to legitimise the actions of reg-neg committees or the policy jury, ensuring acceptance and sustainability for such initiatives.

Scholars have discussed factors that facilitate and ensure the successful implementation of such initiatives targeting DG: first, inclusive participation of all stakeholders; second, setting up of an unbiased information-sharing infrastructure to break the silos; third, promotion of shared leading and mutual understanding of issues; fourth, setting up ground rules to run neutral debates with a focus on consensus-building; and fifth, designing an ICT platform based on these rules to facilitate transparent and open discussion on policy decisions. Similarly, factors that may hinder such practice are noted in the literature as: first, deeply divided representation based on creed, caste, religion, and other social constructs; second, the problem of elite capture, which may lead to concentration of power in place of distribution; third, an unbiased commitment of the state in providing support to these initiatives; and fourth, ensuring that the ICT tools used in the PB initiative are actively targeting the marginalized without bias so that the expected social goals can be achieved (Park et al., 2017; Saguin, 2018).

#### **5.4 Digital activism**

Political and social movements are the mainstays of democratic exercise of citizen power (Bucy & Gregson, 2001). DA refers to the phenomenon where civic protests and activist action takes shape and is conducted on the web sphere. Some of the most common forms seen throughout the literature are online petitions, cyber campaigns, and video activism (counter-surveillances) on social media platforms (Coromina, 2017). Literature gives us cases such as the Arab Spring and the #metoo campaign, where the internet and Web 2.0 technologies have been crucial in voicing people's concerns in oppressed political situations through user-generated content (Hermida & Hernández-Santaolalla, 2018; Soengas-Pérez & Assi, 2017). Access to information and the internet is now seen as a fundamental human right. It forms the foundation for promoting activist behavior online along with the low cost of access and basic digital literacy (Casero-Ripollés, 2017). Researchers call for a shift towards the context of connective action in place of collective action (Leong et al., 2019) and the association of human dignity with citizen activism and empowerment (Leidner & Tona, 2021). Digitally active citizens can use and leverage ICT to drive collective action by developing self-generating knowledge networks. They can engage in crowdsensing initiatives to monitor the performance of local governments, enforcing transparency and accountability (Fasoli & Tassinari, 2017; Georgiadou et al., 2011; Schradie, 2018).

The corruption of mainstream media and the dilution of their role in delivering information to the public has given rise to digital journalism (Gertrudis-Casado et al., 2016; Nothias & Cheruiyot, 2019). Studies were conducted on the need to generate a new type of political content based on big data (Tréré, 2016). Policymaker also have recognized the need to study citizen opinions and sentiments on digital platforms like twitter (Ahn et al., 2021; Ridhwan & Hargreaves, 2021). Research also highlights the need to be careful against elite capture and the algorithmic manufacturing of consent and privacy violations in the name of security (Svärd, 2017). Contextual factors that play a significant role in the promotion of cyber-activism are: first, ensured access to public ICT infrastructure; second, providing a low cost of access by employing proper policy mechanisms; third, ensuring a basic level of digital literacy across all social classes and active targeting of marginalized groups to avoid elite

capture of the medium; fourth, unrestricted and unregulated internet for all; and fifth, designing of internet governance policies by following a multi-stakeholder approach involving governments, civil society, and academia.

## 6. Discussion

Table 1 presents a comparative view of the four identified literature themes allowing us to see the bigger picture of DCE in modern democracies. It attempts to give a literature review exploring bridges between different research clusters, building up a single knowledge area based on a review method employed by Raghuram et al. (2019). The themes correspond with the ladder of citizen participation in policy development, as defined by Arnstein (1969) and improved by Connor (1988). Heeks (2020a) discussed a similar ladder of citizens' e-participation, outlining different roles taken by citizen users during the participation process. We found that the MCSD initiatives are identical to the rungs of Education and Feedback using ICTs; PB initiatives could be seen as similar to the rungs of Education, Consultation, and Joint Planning. If we consider Deliberative Governance, it is related to the higher rungs of Mediation, Litigation, and Resolution/Prevention. These initiatives are based on the state's efforts and participation in response to these efforts. From the point of citizen power, this comparison holds meaning as all these models require increasing levels of citizen education, feedback, and participation in the policymaking process.

We observed this similarity with one more framework of citizen participation given by Rosanvalon (2008), who defines democracy as being of expression, involvement, and intervention. We note that the MCSD and PB initiatives correspond to the Democracy of Expression. Service delivery and feedback networks for participation pave the way for informing people and soliciting their opinion on resource allocation decisions. The democracy of involvement dimension is reflected in the DG initiatives where policies are designed and operationalized based on the collective decision-making of state and citizen. At last, the democracy of intervention can be seen in the acts of DA taken up by citizens when they get together to make their voice heard and intervene in the state's functioning.

Our study aimed to move beyond the notion of citizen from a mere user to empowered individuals who can leverage ICT infrastructure as solution innovators or collaborators in designing and implementing policies and initiatives that govern society. Keeping this in mind, we suggest the matrix view of these e-governance initiatives based on political and IS standpoints for a better understanding (see Figure 7).

The axes here denote the theoretical foundations of the DCE process. The horizontal axis is inspired by the IS-dominant literature. It draws from the evolutionary model of e-governance given by Layne and Lee (2001), defining the different stages of developing an ICT infrastructure. The vertical axis draws from the social sciences side of the literature and majorly from the various models of citizen power, as discussed earlier. The matrix is divided into four quadrants. Each quadrant is associated with one of the themes identified, considering the level of interaction between the Government and its citizens.

One of the major issues covered in the literature is the persistence of the digital divide. Scholars used the theory of diffusion of innovations to explain this divide that is seen in society (Shelley et al., 2004), helping us understand that adopting any technology is a gradual process and differs from person to person depending on their attitudes. A method of crossing this divide to empower citizens through digital inclusion projects was discussed by Smith (2014). It involves a hierarchical structure of institutionalized inclusion projects based on a reliable technical infrastructure for all, leading to training citizens and increasing their awareness in terms of using the technology, providing equal opportunity for all to interact with and influence the technology, and finally, enabling transference of skills so that normal users could be transformed into digital innovators (Fraunholz & Unnithan, 2009).

**Table 1.** Comparative summary of literature themes of digital empowerment.

Dimension	Themes Covered in the Literature			
	Multi-Channel Service Delivery	Participatory Budgeting	Deliberative Governance	Digital-activism
Objective	Leveraging ICTs to ensure availability of governance to all (Vyas-Doorgapersad, 2009; Subramanian and Saxena 2008; Fraunholz & Unnithan, 2009)	Use of ICTs to crowdsource public opinion on matters of budget and resource allocation (Baogang, 2011; Blakeley, 2010; Naranjo-Zolotov et al., 2019)	Using ICTs to involve citizens in administrative decision making (Pirannejad & Janssen, 2017; Park et al., 2017; Bartoletti & Faccioli, 2016; Hendriks et al., 2013)	Leveraging ICTs to mobilise people on topics of public concern and oppose the abuse of state power (Treré, 2016; Nothias & Cheruiyot, 2019; Leong et al., 2019; Hermida & Hernández-Santaolalla, 2018)
Approach	Top-Down approach; pertaining to development of service delivery infrastructure and efficient operationalisation of channels (Ashman 2001; Shelley et al., 2004; Subramanian and Saxena 2008; Fraunholz & Unnithan, 2009; Vyas-Doorgapersad, 2009)	Top-Down Approach; Calls for crowdsourcing of public opinion of matters of budget allocation (Sanderson 1999; Bucy & Gregson, 2001; Maier 2001; Boulding & Wampler, 2010; Baogang, 2011)	Top-Down Approach; involvement of public as decision makers (Parkinson & Mansbridge, 2012; Mariën & Prodnik, 2014; Newman, 2011)	Bottom-up approach; can exist without government support but requires high citizen mobilization (Leong et al., 2019)(Penney 2020)
State-Citizen Interaction	Low; most of the effort is from government (Subramanian and Saxena 2008; Vyas-Doorgapersad, 2009; Kariuki & Tshandu, 2014)	Medium; Government initiates dialogue with people to make them aware and collect their opinions on resource allocation (Bhatnagar, 2002; Subramanian and Saxena 2008; Touchton & Wampler, 2014; Durnová 2019)	High; Both the State and Citizens are decision makers so equal power and responsibilities (Kim 2010; Blakeley, 2010; Hendriks et al., 2013; Bartoletti & Faccioli, 2016)	NA; Can exist without government support and mostly seen as a tool for dissent (Leong et al., 2019; Nothias & Cheruiyot, 2019; Soengas-Pérez & Assi, 2017)
Accountability	Accountability lies with the government (Vyas-Doorgapersad, 2009; Kariuki & Tshandu, 2014; Fox 2015)	Accountability lies with the government (Kim 2010; Baogang, 2011; Saguin, 2018; Altermark & Nilsson, 2018)	Accountability lies with both the government and citizen (Brinkerhoff & Wetterberg, 2016; Wenene et al., 2016; Pirannejad & Janssen, 2017; Fraunholz & Unnithan, 2009)	Accountability lies with citizens and civic bodies (Leong et al., 2019; Treré, 2016)
Scale discussed in literature	Discussion ranges from city to nation-wide networks for service delivery(Agrawal et al., 2007; Vyas-Doorgapersad, 2009; Subramanian and Saxena 2008; Bhatnagar, 2002)	Cases cover municipal, county and state-wide initiatives but no country-wide case (Blakeley, 2010; Baogang, 2011; Smith, 2014; Ganuza et al., 2016; Saguin, 2018)	Cases cover municipal and city-wide cases but no country or state level instance (Bartoletti & Faccioli, 2016; Bay-Meyer, 2013; Blakeley, 2010;	Has no restriction of scale as it can exist devoid of state support (Leong et al., 2019)

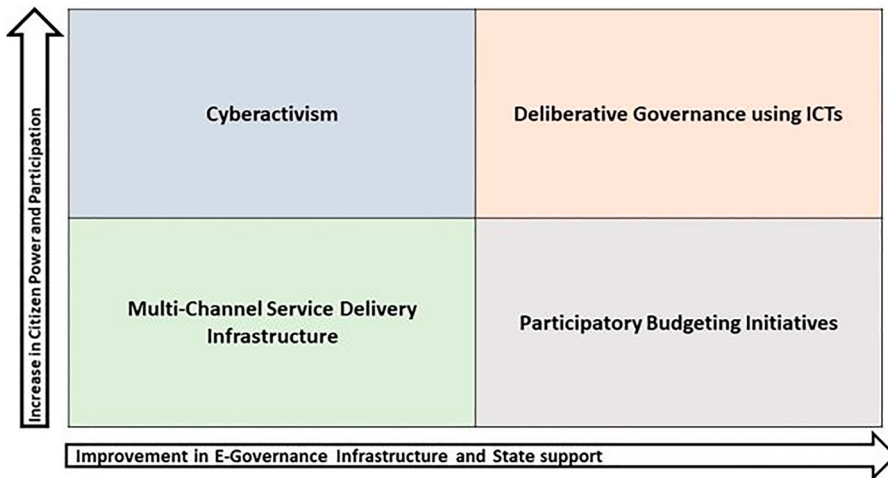
(Continued)



**Table 1.** Continued.

Themes Covered in the Literature				
Facilitating Conditions	Strong state commitment, availability and access of ICT infrastructure, Low cost of access, compulsory levels of digital literacy (Blakeley, 2010; Vyas-Doorgapersad, 2009; Fraunholz & Unnithan, 2009; Subramanian and Saxena 2008; C. Park 2003; Bhatnagar, 2002)	Strong state commitment, availability of ICTs to create awareness about budgetary issues, proper representation of all stakeholders (Shelley et al., 2004; Smith, 2014; Gertrudis-Casado et al., 2016; Svärd, 2017; Saguin, 2018)	Hendriks et al., 2013; Gün et al., 2020) Strong state commitment with high levels of citizen participation, ICTs to create collaborative platforms for governance (Svärd, 2017; Ganuza et al., 2016; Smith, 2014; Durnová 2019; Naranjo-Zolotov et al., 2019)	High level of citizen activism, unrestricted access to ICTs, freedom to express online (Hermida & Hernández-Santaolalla, 2018; Nothias & Cheruiyot, 2019; Leong et al., 2019; Soengas-Pérez & Assi, 2017)
Type of ICT Deployed	ICT Infrastructure to ensure availability and access for all; Platforms as services (May & Chadwick, 2003; Bhatnagar, 2002; Agrawal et al., 2007; Vyas-Doorgapersad, 2009; Subramanian and Saxena 2008)	Specialised platforms to provide budgeting information to citizens with feedback communication loops to crowdsource data (World Bank, 2008; Baogang, 2011; Bay-Meyer, 2013; Hendriks et al., 2013; Ganuza et al., 2016)	Networking Platforms were citizens can freely communicate with each other and Government officials over different issues concerning their lives (Park et al., 2017; Bartoletti & Faccioli, 2016; Hendriks et al., 2013; Parkinson & Mansbridge, 2012)	Typically involves citizen interaction over popular social media such as Twitter, Facebook etc. while also focusing on mobile devices which can enable citizen journalism by the use of audio-visual user generate content (Mariën & Prodnik, 2014; Leong et al., 2019; Hermida & Hernández-Santaolalla, 2018; Svärd, 2017; Soengas-Pérez & Assi, 2017; Gertrudis-Casado et al., 2016)

The literature also invokes the theory of elite capture (Saguin, 2018) and elite pluralism (Bucy & Gregson, 2001), which talks about governance driven by the technocratic elites as the general public are disengaged and disinterested in political action. This acts as a structural and social barrier for participation and engagement logic of e-governance and is a hindrance to citizen empowerment. Scholars have called for a change in such governance measures to involve the marginalized masses actively. The concept of *monitorial citizenship* is explored with the economic model of democracy (Bartoletti & Faccioli, 2016), discussing the cost and benefits of participation as an instrument of DCE. A monitorial citizen can evaluate government policies, services, and public administration performance through interaction with different sources of information and media. Three other forms of citizenship are also noted in the practice of e-governance for empowerment: the single-click citizen with primarily online activity and presence; the deliberative citizen who participates and promotes discussions on different forums; and finally, a citizen who can represent the ‘wisdom of the crowds’ and undertake crowdsourcing activities for citizen activism.



**Figure 7.** Stages of the evolution of Digital Citizen Empowerment.

Newman (2011) invokes the neo-institutional theory from political science, discussing the attitude of citizens towards digital means of service delivery and interaction with the administration. The study notes a shift of professional discourse towards co-production and collaborative design of e-governance mechanisms. The literature also warns of past experiences where these new mechanisms were reduced only to symbolic actions, and no substantial change was observed. Scholars point out crucial factors that affect the overall formulation and implementation of any initiative targeting the digital empowerment of citizens: first, organizational differences that arise due to the attitudes, notions, and personal goals of different people involved in the process; second, strategies adopted to communicate with the masses; third, how to select citizen representatives ensuring participation of the marginalized; and finally, bringing together the people responsible for designing and laying down any such initiative and the actual users of the initiative's service for collaborative design and policy formulation (De Mesquita et al., 2018; Fasoli & Tassinari, 2017; Fucg & Wright, 2001).

The discussion of empowerment in the context of public service paradigms is also noted following the rise of Digital Era Governance in the 2000s (Wenene et al., 2016). It describes the shift of citizens' role from mere consumers of e-services to collaborators and co-designers of these services. Scholars also discuss accountability as a remedy for lacunas in the current government models. We can also explore the same angle in our literature based on the Principal-Agent Accountability Model given by the World Bank (2003). It defines two routes through which accountability flows. The first is *state accountability*, which focuses on institutions that monitor or control abuse of citizen rights by public agencies or branches of the Government, also called Supply-side accountability. The second, *social accountability*, refers to action by citizens and civil society to hold government officials responsible for reporting and answering for their actions, also called demand-side accountability. The literature in the area of DCE has a lot of focus on social accountability as a remedy for government inefficiency and ineffectiveness. But scholars note that without the balance of both these sides of accountability, the goal of citizen empowerment may be a distant dream (see Bukenya, Hickey, and King 2012; Fox 2015; Gaventa and Barrett 2012).

## 7. Contribution to the theory

Through this study, we have attempted to explore the landscape of digital citizen empowerment for establishing the knowledge societies of the future. We tried to present a conceptual model of the



analysed literature during this review in Figure 8. The model encompasses the key stakeholders, themes, action points for the practitioner, and theoretical blocks covered in the literature, which are crucial for the phase-wise development of the information society (Rao, 2005).

The conceptual model presented in Figure 8 summarizes the literature we have reviewed to understand and explore the concept of DCE and different strategies deployed by governments to deliver empowerment to their citizens. It presents the theoretical foundations laid down in the literature for understanding DCE and how they relate to these four major strategic themes of empowerment initiatives which are complete fields of knowledge in their own right. The framework attempts to incorporate the four distinct stages of development of knowledge society which are defined in the literature as: first, provisioning ICT infrastructure for all; second, promoting active digital citizenry; third, provisioning free and open data access about government policy and actions, and fourth, the establishment of a digitally connected society with sustainable socio-political participation backed by digital commons.

These phases are supported by specific action points depending on the type of strategy needed to achieve them successfully. It is a compilation based on our internal discussions and our analysis of the selected literature. These phases are outlined based on available institutional support and level of citizen power, and active participation in the administrative process. The first two phases are the fundamental blocks of building the prerequisite ICT infrastructure, followed by promoting the public's participation and avoiding the problems of the digital divide and elite capture. There is an overlap between the literature for DG and PB as PB turns into DG with a gradual increase in citizen power and available opportunities to participate (Fischer, 2006). We have also noted that DA forms the backbone for such an interaction between the state and citizens. Without active citizens who participate voluntarily and are willing to make their voice heard, such initiatives would end up being there just for show (Naranjo-Zolotov et al., 2019).

By laying down the foundations of an MCSD framework of ICTs, governments could ensure fast and low cost of access to the web with a bare minimum standard of digital literacy (Nedungadi et al., 2018). This would help connect all corners of a state and citizens to the Government, reducing the number of intermediaries. The next phase is to be focused on the promotion of active citizen participation on these new democratic ICT platforms and portals by leveraging the ability of the internet to promote both collective and connective action. This would be augmented by the availability of open government data and active inclusion of the voice of the marginalized by the Government

Stakeholder Categories: State(Government Officials, elected representatives etc.) - Citizen(individuals, communities, CSOs) - Service Providers(Private players involved in service delivery)

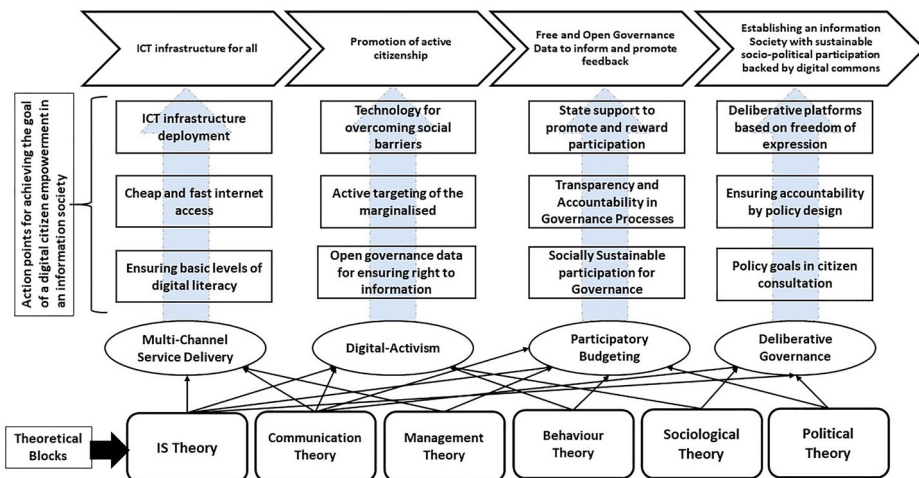


Figure 8. Conceptual Framework for Digital Citizen Empowerment.

to reduce elite capture (Hossain et al., 2018). The target here would be to improve the efficacy of people as individuals and members of communities socially or geographically. The third phase starts with the active collaboration with citizens using ICTs for budget planning and distribution of resources for the people they are meant for. This phase would be contingent on the success of the last two phases and would need better levels of accountability and transparency in government processes. With active recognition and awarding of participation efforts, governments can increase the public value of participation, making it socially sustainable (Batatineh & Abu-Shanab, 2016; Gupta & Suri, 2017).

The last phase of the conceptual model depicts the overlap PB shares with a deliberative democratic setup. We can only reach the utopian levels of DG when we have a participation-friendly base in the socio-political system to start with. Deliberative citizenship is the outcome of active and voluntary participation from citizens in local governance issues in their communities or geographical areas (Baogang, 2018). The action points laid out in the literature cover both the government and citizen issues. Governments must ensure the availability of deliberative platforms on which people could share, discuss and build consensus upon a common set of ideas and rules that govern them. The citizens are also expected to actively contribute to the deliberations to keep the conversation going as the policy outcomes, and associated social good would be contingent on the same (van der Merwe & Meehan, 2012). Such deliberative platforms would help achieve better transparency and accountability for governance and enable the people to consult on and contribute to policy decisions.

Our model would help researchers to better understand the phenomenon of DCE for better e-governance in developing nations. It could be used as a base to study the growth and establishment of information societies of the future in which cities and villages would be 'smart'. Every household and individual would be connected to each other and the Government and their service providers. This study attempts to give a macro view of the process of digital era governance with the active participation of people as prosumers of government services and initiatives to solve administrative and social problems at a local or national scale. This differentiates our paper from other ICT4D papers as most of them are focused on a single issue or a single instance from one of the identified themes. However, they acknowledge the presence of different contextual factors but do not explore them in detail as it falls out of scope of their study. Their contributions are also crucial as, without the detailed micro accounts of those studies, it would not have been possible to develop this conceptual framework for DCE. Our conceptual model focuses explicitly on the problem of citizen empowerment as that is the key to sustainable participation crucial for the success of any collaborative governance initiatives in digital societies of the future. Our study outlines the overall process of digital society development by defining it in a phased-out matter and laying down specific policy action points to focus on based on the different guiding objectives or problems of different phases of development.

## 8. Implications for practice

We studied the triadic model of State-Citizen-Service-Providers interaction, covering the flow of accountability and the factors that affect these interactions in the context of policymaking for digital empowerment. The paper created an overview of various strategies for the political empowerment of citizens using digital means, and from this a conceptual model (Figure 8) for working towards the digital empowerment of citizens was derived. The DCE framework can help governments at different phases of developing e-governance capability to focus and actualize their efforts to foster and create the information societies of the future wherein governance would be enabled via democratic platforms with equal powers and associated accountability for all stakeholders in the triad. The action points given in this model give out specific policy objectives to be targeted for delivering empowerment to the people. These factors could also be seen as points of policy evaluation in the context of DCE. The model also accounts for the rapidly changing nature of technology and how it interacts with social and political factors in any setting to deliver policy goals targeting the overall improvement of human capital and societal good.

Our findings outline a phased-out plan to develop knowledge societies with empowered citizens and break down all these phases into specific policy objectives based on theoretical understating and building upon governance use-cases worldwide. For example, let's take the case of the first phase, i.e. *ICT infrastructure for all*. It is the outcome of the MCSD strategy and includes three broad policy goals: first, ensuring basic levels of digital literacy in the citizen population; second, providing affordable and fast access to the internet, and third, developing and deploying the region-wide physical ICT infrastructure. Based on our understanding from the literature about government initiatives worldwide, we can see how these policy objectives are critical and instrumental in reaching necessary policy outcome and successfully implementing the strategy of MCSD. In the same way, we can explain and expand this understanding for all the phases of developing the information society and deliver DCE covered in the model. All the phases are drawn out from different stages of information systems development. They can act as guideposts for governments who want to move towards a better state than they are now in the context of DG. Practitioners and policymakers can use these theoretical blocks and specific policy objectives under each phase to develop a policy audit checklist or maybe as a check right from the beginning of policy deliberations and development to ensure achievement of the outcome of DCE.

When seen in the light of theoretical discipline they are drawing from, these objectives can also provide an idea of the type of human resource and academic or policy experts we might need to operationalize these objectives for achieving the overall goal of DCE. Along with this, the model can also help outline the need for specific technology infrastructure required at different stages to complete DCE. The infrastructure needed at different phases would be different. As for MCSD, it might need a service delivery network that will most probably be a one-way communication in essence. Such an infrastructure would be obsolete and limiting for other strategies like PB or DG as we need platform technologies there, which incorporate feedback and facilitate fully fledged dialogues and deliberations between different stakeholders in the governance process.

## 9. Conclusion

The area of Digital Citizen Empowerment explores how digital technologies could be leveraged to strengthen the core of the anthropocentric structure of a democratic government. Empowering citizens is the key to changing their state from mere consumers of DG services to prosumers, collaborators, and solution innovators who can partner with policymakers to deliver improved policy outcomes. It is crucial that participation from the citizens is voluntary and never mandated for the development of a democratic e-government ecosystem that is sustainable and works as a self-generating knowledge network. Transparency, awareness, and accountability are seen as solutions for this problem. Also, having more participation is just one part of the solution, but the complete goal is also dependent on the quality of participation.

Our study uncovered four distinct strategic streams used to engage citizens using ICTs: MCSD, PB, DG and DA. We further discussed these strategies in the light of citizen power and ICT frameworks. We concluded that governments and civic bodies should strive for a balance between social and state accountability to fill in the gaps left by older models of democratic governance. We were able to synthesize and present the different promoting and obstructing factors of these strategies and incorporated them into the conceptual framework of DCE. This conceptual model proposed by us outlines specific research and policy points based on different strategic themes and theoretical foundations for achieving stagewise development of empowering processes leading to the establishment of the information societies of the future.

## 10. Limitations and future research

We would like to acknowledge some limitations in undertaking this study, and the first one would be our inclusion of studies only from the Scopus and WoS platforms. The search string used by us might

also be particular and limiting in the mining of relevant literature, and maybe this can be expanded upon in future studies in the area. Only studies published and available in the English language were included in our review. Only articles published in peer-reviewed journals were considered, which may have resulted in some relevant conference papers being left out. Although these decisions were conscious and mutually agreed upon by the co-authors, we note that some studies might have been excluded.

Future research can also expand our study and focus on exploring problems like: How can we use behavior strategies to better design policies that promote participation for empowerment? Scholars working in the field of DG or IS could use the research design after improving on the limitations to studying the four covered themes of DG, PB, MCS, and DA separately and in detail to fill in the gaps and build upon our study.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

## Notes on contributors

**Swapnil Sharma** is a PhD research scholar in the Information Systems Area at Department of Management Studies, Indian Institute of Technology, Delhi. His area of research interests are ICT4D, e-Governance, digital public policy, digital marketing and social media.

**Prof. Arpan K. Kar** is Amar S Gupta Chair Professor in Indian Institute of Technology Delhi, India. Within IIT Delhi, he shares a joint appointment in the Department of Management Studies and School of Artificial Intelligence. Administratively he is the Chair of Corporate Relations (DMS) and is a member of Board of Academic Programme and Institute of Eminence Committee, among others. His research interests are in the domain of data science, digital transformation, internet ecosystems, social media and ICT-based public policy. He has authored over a 150 peer reviewed articles and edited 7 research monographs. He is the recipient of Research Excellence Award by Clarivate Analytics (Web of Science) for highest citations from 2015-2020. He is the recipient of Basant Kumar Birla Distinguished Researcher Award for the highest count of ABDC A\*/ABS 4/FT50 level publications in India between the period 2014 - 2019. In terms of teaching cases, he is the recipient of the Best Seller Award from Ivey Cases / Harvard Business Publishing in 2020. As of 2021, he has over 4500 citations with an H-Index of 35 and I-10 Index over 80. He is the Editor in Chief of International Journal of Information Management Data Insights, published by Elsevier. He is also Associate / Coordinating Editor in Int. Journal of Electronic Government Research, Journal of Public Affairs, Information Systems Frontiers and Global Journal of Flexible Systems Management. He has been a guest editor for journals like Industrial Marketing Management, International Journal of Information Management, Information Systems Frontiers and Australasian Journal of Information Systems. He has received reviewing excellence awards from multiple journals like I&M, GIQ, IJIM, LUP, JRCS, JOCS and ESWA. He has undertaken over 40 research, consultancy and training projects from organizations like BASF, PWC, Fidelity, EY, Facebook, CIPPEC, BitGrit, Govt. of India (DST, MOTA, MOT, MEITY, MHRD, etc). He has received numerous awards from reputed organizations like Clarivate Research Excellence, Basant Kumar Birla Distinguished Researcher, 3 International Federation of Information Processing Best Papers, ACM ICEGOV Best Paper, TCS Best Project, Project Management Institute Research Scholar, Association of Indian Management Schools Faculty Research, IIT Delhi Teaching Excellence, Best Seller Case Study from Ivey / Harvard Business Publishing, and many more best paper awards. Prior to joining IIT Delhi, he has worked in IIM Rohtak, Cognizant Business Consulting and IBM India Research Laboratory.

**M. P. Gupta** is Professor at Department of Management Studies, Indian Institute of Technology Delhi; and Modi Foundation chair professor. Known for pioneering works in the area of e-governance, he has been spending significant amount of resources in developing cases, tools and frameworks to promote e-governance research. These included 24 Doctoral thesis, 17 sponsored mega-projects, co-authored/edited 4 books and 200+ research papers. He has been closely following Government of India (GoI) National Plan on E-governance which developed subsequently into an umbrella program of 'Digital India'. His studies have suitably fed into these programs in general and 'Cyber Security Policy of India' in particular. His recent interest lies into exploring some the issues of smart cities. He is also steering a European Union funded (Horizon-2020) project, which deals with the setting up of cluster-to-cluster partnerships between India and EU for the convergence of Future of Internet & Digital Media (FI-MEDIA).

**Yogesh K. Dwivedi** is a Professor at the School of Business and Economics at Swansea University in the UK. He was awarded his MSc and PhD by Brunel University in the UK, receiving a Highly Commended award for his doctoral work by the European Foundation for Management and Development. His research focuses on the adoption and

diffusion of ICT in organizations and in addition to authoring a book and numerous conference papers, has co-authored papers accepted for publication by journals such as Communications of the ACM, the Information Systems Journal, the European Journal of Information Systems, and the Journal of the Operational Research Society. He is Senior Editor of DATABASE for Advances in Information Systems, Managing Editor of Journal of Electronic Commerce Research, Assistant Editor of Transforming Government: People, Process and Policy and a member of the editorial board/review board of a number of other journals, and is a member of the Association of Information Systems, IFIP WG8.6 and the Global Institute of Flexible Systems Management, New Delhi.

**Marijn Janssen** is Professor in ICT & Governance and chair of the Information and Communication Technology section of the Technology, Policy and Management Faculty of Delft University of Technology. He is also an honorary visiting professor at Bradford University, UK. His research interests are in the field of orchestration, shared services and algorithms in open and big data and infrastructures. He is co-Editor-in-Chief of Government Information Quarterly (GIQ), and associate editor of the International Journal of E-Business Research (IJEER), International Journal of Electronic Government Research (IJEGR), and Decision Support Systems (DSS). Janssen is on the editorial board of Information Systems Frontiers (ISF), Transforming Government: People, Process & Policy (TGPPP) and Information Polity (IP). He is also conference chair of the IFIP EGOV series and is chairing mini-tracks at the dg.o, ICEGOV and AMCIS conferences. He was ranked as one of the leading e-government researchers in surveys in 2009, 2014 and 2016, and has published over 400 refereed publications. He was nominated in 2018 by Apolitical as one of the 100 most influential people in the Digital Government <https://apolitical.co/lists/digital-government-world100>.

## ORCID

Swapnil Sharma  <http://orcid.org/0000-0002-1963-2062>  
 Arpan K. Kar  <http://orcid.org/0000-0003-4186-4887>  
 Yogesh K. Dwivedi  <http://orcid.org/0000-0002-5547-9990>  
 Marijn Janssen  <http://orcid.org/0000-0001-6211-8790>

## References

- Agrawal, A., Shah, P., & Wadhwa, V. (2007). EGOSQ - Users' Assessment of e-Governance online-services: A quality measurement instrumentation. *Foundations of E-Government*, 231–244.
- Ahn, J., Son, H., & Chung, A. D. (2021). Understanding public engagement on twitter using topic modeling: The 2019 ridgecrest earthquake case. *International Journal of Information Management Data Insights*, 1(2), 100033. <https://doi.org/10.1016/j.ijime.2021.100033>
- Altermark, N., & Nilsson, H. (2018). Crafting the “Well-rounded citizen”: Empowerment and the government of counter-radicalization. *International Political Sociology*, 12(1), 53–69. <https://doi.org/10.1093/ips/olx028>
- Arnstein, S. R. (1969). A ladder of citizen participation. *Journal of the American Institute of planners*, 35(4), 216–224.
- Ashman, D. (2001). Civil society collaboration with business: Bringing empowerment back in. *World Development*, 29(7), 1097–1113.
- Baogang, H. (2011). Civic engagement through participatory budgeting in China: Three different logics At work. *Public Administration and Development*, 410(31), 122–133. <https://doi.org/10.1002/pad>
- Baogang, H. (2018). Deliberative citizenship and deliberative governance: A case study of one deliberative experimental in China. *Citizenship Studies*, 22(3), 294–311. <https://doi.org/10.1080/13621025.2018.1424800>
- Barki, H., Rivard, S., & Talbot, J. (1988). An information systems keyword classification scheme. *MIS Quarterly*, 12(2), 299–322.
- Bartoletti, R., & Faccioli, F. (2016). Public engagement, local policies, and citizens' participation: An Italian case study of civic collaboration. *Social Media and Society*, 2(3), 1–11. <https://doi.org/10.1177/2056305116662187>
- Bataineh, L., & Abu-Shanab, E. (2016). How perceptions of E-participation levels influence the intention to use E-government websites. *Transforming Government: People, Process and Policy*, 10(2), 315–334. <https://doi.org/10.1108/TG-12-2015-0058>
- Bay-Meyer, K. (2013). Do ortega's citizen power councils empower the poor in Nicaragua? Benefits and costs of local democracy. *Polity*, 45(3), 393–421. <https://doi.org/10.1057/pol.2013.10>
- Berger, P. L., & Neuhaus, R. J. (1996). To empower people-from state to civil society, 2nd ed. In M. Novak (Ed.). The AEI Press.
- Bhatnagar, S. C. (2002). E-government: Lessons from implementation in developing countries. *Regional Development Dialogue*, 23(2), 164–173.
- Blakeley, G. (2010). Governing ourselves: Citizen participation and governance in Barcelona and Manchester. *International Journal of Urban and Regional Research*, 34(1), 130–145. <https://doi.org/10.1111/j.1468-2427.2010.00953.x>



- Boulding, C., & Wampler, B. (2010). Voice, votes, and resources: Evaluating the effect of participatory democracy on well-being. *World Development*, 38(1), 125–135. <https://doi.org/10.1016/j.worlddev.2009.05.002>
- Boyte, H. C., & Evans, S. M. (1984). Strategies in search of America-cultural radicalism, populism, and democratic culture. *Socialist Review*, 75(7), 72–100.
- Brinkerhoff, D. W., & Wetterberg, A. (2016). Gauging the effects of social accountability on services, governance, and citizen empowerment. *Public Administration Review*, 76(2), 274–286. <https://doi.org/10.1111/puar.12399>
- Bucy, E. P., & Gregson, K. S. (2001). Media participation-A legitimizing mechanism of mass democracy. *New Media & Society*, 3(3), 357–380. <https://doi.org/10.1177/1461444801003003006>
- Bukenya, B., Hickey, S., & King, S. (2012). *Understanding the role of context in shaping social accountability interventions: towards an evidence-based approach*. Manchester.
- Casero-Ripollés, A. (2017). Producing political content for web 2.0: Empowering citizens and vulnerable populations. *El Profesional de La Información*, 26(1), 13–19. <https://doi.org/10.3145/epi.2017.ene.02>
- Cattaneo, L. B., & Chapman, A. R. (2010). The process of empowerment: A model for use in research and practice. *American Psychologist*, 65(7), 646–659. <https://doi.org/10.1037/a0018854>
- Chandola, T., Kuper, H., Singh-Manoux, A., Bartley, M., & Marmot, M. (2004). The effect of control at home on CHD events in the whitehall II study: Gender differences in psychosocial domestic pathways to social inequalities in CHD. *Social Science and Medicine*, 58(8), 1501–1509. [https://doi.org/10.1016/S0277-9536\(03\)00352-6](https://doi.org/10.1016/S0277-9536(03)00352-6)
- Chaudhuri, B., & Kendall, L. (2020). Collaboration without consensus: Building resilience in sustainable agriculture through ICTs. *Information Society*, 0(0), 1–19. <https://doi.org/10.1080/01972243.2020.1844828>
- Chauhan, S., Agarwal, N., & Kar, A. K. (2016). Addressing big data challenges in smart cities: A systematic literature review. *Info*, 18(4), 73–90. <https://doi.org/10.1108/info-03-2016-0012>
- Chohan, S. R., & Hu, G. (2020a). Strengthening digital inclusion through e-government: Cohesive ICT training programs to intensify digital competency. *Information Technology for Development*, 0(0), 1–23. <https://doi.org/10.1080/02681102.2020.1841713>
- Chohan, S. R., & Hu, G. (2020b). Success factors influencing citizens' Adoption of IoT service orchestration for public value creation in smart government. *IEEE Access*, 8, 208427–208448. <https://doi.org/10.1109/ACCESS.2020.3036054>
- Cieslik, K., Cecchi, F., Assefa Damtew, E., Tafesse, S., Struik, P. C., Lemaga, B., & Leeuwis, C. (2021). The role of ICT in collective management of public bads: The case of potato late blight in Ethiopia. *World Development*, 140, 105366. <https://doi.org/10.1016/j.worlddev.2020.105366>
- Cinnamon, J. (2020). Data inequalities and why they matter for development. *Information Technology for Development*, 26(2), 214–233. <https://doi.org/10.1080/02681102.2019.1650244>
- Connor, D M. (1988). A new ladder of citizen participation. *National civic review*, 77(3), 249–257.
- Coromina, Ò. (2017). The struggle for the story in political disputes. The case of the 9n 2014 participation process. *Profesional de La Información*, 26(5), 884–893. <https://doi.org/10.3145/epi.2017.sep.10>
- De Mesquita, N. B., Cila, N., Groen, M., & Meys, W. (2018). Socio-technical systems for citizen empowerment: How to mediate between different expectations and levels of participation in the design of civic apps. *International Journal of Electronic Governance*, 10(2), 172–195. <https://doi.org/10.1504/IJEG.2018.093835>
- Durnová, A. (2019). Czech postcommunist trouble with participatory governance. Toward an analysis of the cultural agency of policy discourses. *Policy Studies*.
- Dusi, D. (2019). Social innovation driven by citizen-led digital innovation: Technologies of citizenship and the war on unemployment in Flanders. *Citizenship Studies*, 23(8), 853–869. <https://doi.org/10.1080/13621025.2019.1664407>
- Fasoli, A., & Tassinari, S. (2017). Engaged by design: The role of emerging collaborative infrastructures for social development. Roma makers as A case study. *Design Journal*, 20(sup1), S3121–S3133. <https://doi.org/10.1080/14606925.2017.1352819>
- Fischer, F. (2006). The cultural politics of discursive space. *American Review Of Public Administration*, 36(1), 19–40. <https://doi.org/10.1177/0275074005282582>
- Fox, J A. (2015). Social accountability: what does the evidence really say?. *World Development*, 72, 346–361.
- Fraunholz, B., & Unnithan, C. (2009). Does e-governance facilitate citizen empowerment in democracies? A critical discourse analysis. *International Journal of Electronic Governance*, 2(2/3), 131. <https://doi.org/10.1504/ijeg.2009.029126>
- Fucc, A., & Wright, E. O. (2001). Deepening democracy: Innovations in empowered participatory governance. *Politics & Society*, 29(1), 5–41.
- Ganuzo, E., Baiocchi, G., & Summers, N. (2016). Conflicts and paradoxes in the rhetoric of participation. *Journal of Civil Society*, 12(3), 328–343. <https://doi.org/10.1080/17448689.2016.1215981>
- García-Peñalvo, F. J., Vázquez-Ingelmo, A., García-Holgado, A., & Seoane-Pardo, A. M. (2019). Analyzing the usability of the WYRED Platform with undergraduate students to improve its features. *Universal Access in the Information Society*, 18(3), 455–468. <https://doi.org/10.1007/s10209-019-00672-z>
- Garcia, X., Gottwald, S., Benages-Albert, M., Pavón, D., Ribas, A., & Vall-Casas, P. (2020). Evaluating a web-based PPGIS for the rehabilitation of urban riparian corridors. *Applied Geography*, 125(February), <https://doi.org/10.1016/j.apgeog.2020.102341>
- Gaventa, J., & Barrett, G. (2012). Mapping the outcomes of citizen engagement. *World development*, 40(12), 2399–2410.

- Georgiadou, Y., Bana, B., Becht, R., Hoppe, R., Ikingura, J., Kraak, M. J., Lance, K., Lemmens, R., Lungo, J. H., Mccall, M., Miscione, G., & Verplanke, J. (2011). Sensors, empowerment, and accountability: A digital earth view from East Africa. *International Journal of Digital Earth*, 4(4), 285–304. <https://doi.org/10.1080/17538947.2011.585184>
- Gertrudis-Casado, M. C., Gétrudix-Barrio, M., & Álvarez-García, S. (2016). Professional information skills and open data. Challenges for citizen empowerment and social change. *Comunicar*, 24(47), 39–47. <https://doi.org/10.3916/c47-2016-04>
- Gooch, D., Kelly, R. M., Stiver, A., van der Linden, J., Petre, M., Richards, M., Klis-Davies, A., MacKinnon, J., Macpherson, R., & Walton, C. (2020). The benefits and challenges of using crowdfunding to facilitate community-led projects in the context of digital civics. *International Journal of Human Computer Studies*, 134(August 2019), 33–43. <https://doi.org/10.1016/j.ijhcs.2019.10.005>
- Goodman, R. M., Yoo, S., Weed, N. E., Lempa, M. L., Mbondo, M., & Shada, R. E. (2004). Collaborative community empowerment: An illustration of a six-step process. *Health Promotion Practice*, 5(3), 256–265. <https://doi.org/10.1177/1524839903257363>
- Gruber, J., & Trickett, E. J. (1987). Can we empower others? The paradox of empowerment in the governing of an alternative public school. *American Journal of Community Psychology*, 15(3), 353–371. <https://doi.org/10.1007/BF00922703>
- Gutierrez, L. M., & Ortega, R. (1991). Developing methods to empower Latinos. *Social Work with Groups*, 14(2), 23–43. <https://doi.org/10.1300/J009v14n02>
- Gün, A., Demir, Y., & Pak, B. (2020). Urban design empowerment through ICT-based platforms in Europe. *International Journal of Urban Sciences*, 24(2), 189–215. <https://doi.org/10.1080/12265934.2019.1604250>
- Gupta, P. J., & Suri, P. (2017). Measuring public value of e-governance projects in India: Citizens' perspective. *Transforming Government: People, Process and Policy*, 11(2), 236–261. <https://doi.org/10.1108/TG-07-2016-0043>
- Gupta, S., Kar, A. K., Baabdullah, A., & Al-Khowaiter, W. A. A. (2018). Big data with cognitive computing: A review for the future. *International Journal of Information Management*, 42(April), 78–89. <https://doi.org/10.1016/j.ijinfomgt.2018.06.005>
- Heeks, R. (2020a). Ict4d 3.0? Part 1—The components of an emerging “digital-for-development” paradigm. *Electronic Journal of Information Systems in Developing Countries*, 86(3), 1–15. <https://doi.org/10.1002/isd2.12124>
- Heeks, R. (2020b). Ict4d 3.0? Part 2—The patterns of an emerging “digital-for-development” paradigm. *Electronic Journal of Information Systems in Developing Countries*, 86(3), 1–13. <https://doi.org/10.1002/isd2.12123>
- Helberger, N., Pierson, J., & Poell, T. (2018). Governing online platforms: From contested to cooperative responsibility. *Information Society*, 34(1), 1–14. <https://doi.org/10.1080/01972243.2017.1391913>
- Hendriks, C. M., Bolitho, A., & Foulkes, C. (2013). Localism and the paradox of devolution: Delegated citizen committees in Victoria. *Australia. Policy Studies*, 34(5–6), 575–591. <https://doi.org/10.1080/01442872.2013.862450>
- Hermida, A., & Hernández-Santaolalla, V. (2018). Twitter and video activism as tools for counter-surveillance: The case of social protests in Spain. *Information Communication and Society*, 21(3), 416–433. <https://doi.org/10.1080/1369118X.2017.1284880>
- Hoque, M. R. (2020). The impact of the ICT4D project on sustainable rural development using a capability approach: Evidence from Bangladesh. *Technology in Society*, 61(December 2018), 101254. <https://doi.org/10.1016/j.techsoc.2020.101254>
- Hossain, M. N., Talukder, M. S., Hoque, M. R., & Bao, Y. (2018). The use of open government data to citizen empowerment: An empirical validation of a proposed model. *Foresight (Los Angeles, Calif)*, 20(6), 665–680. <https://doi.org/10.1108/FS-03-2018-0027>
- Hu, G., Yan, J., Pan, W., Chohan, S. R., & Liu, L. (2019). The influence of public engaging intention on value co-creation of e-government services. *IEEE Access*, 7, 111145–111159. <https://doi.org/10.1109/ACCESS.2019.2934138>
- James, J. (2020). The smart feature phone revolution in developing countries: Bringing the internet to the bottom of the pyramid. *Information Society*, 36(4), 226–235. <https://doi.org/10.1080/01972243.2020.1761497>
- Kapoor, K. K., Dwivedi, Y. K., & Williams, M. D. (2014). Rogers' innovation adoption attributes: A systematic review and synthesis of existing research. *Information Systems Management*, 31(1), 74–91. <https://doi.org/10.1080/10580530.2014.854103>
- Kar, A. K., Ilavarasan, V., Gupta, M. P., Janssen, M., & Kothari, R. (2019). Moving beyond smart cities: Digital nations for social innovation & sustainability. *Information Systems Frontiers*, 21(3), 495–501. <https://doi.org/10.1007/s10796-019-09930-0>
- Kariuki, S., & Tshandu, Z. (2014). Service delivery frameworks as instruments of citizen empowerment: A tale of two experiences, India and South Africa. *Development Southern Africa*, 31(6), 796–811. <https://doi.org/10.1080/0376835X.2014.952401>
- Kibukho, K. (2021). Mediating role of citizen empowerment in the relationship between participatory monitoring and evaluation and social sustainability. *Evaluation and Program Planning*, 85(November 2019), 101911. <https://doi.org/10.1016/j.evalprogplan.2021.101911>
- Kieffer, C. H. (1984). Citizen empowerment. *Prevention in Human Services*, 3(2–3), 9–36. [https://doi.org/10.1300/J293v03n02\\_03](https://doi.org/10.1300/J293v03n02_03)
- Kim, S. (2010). Public trust in government in Japan and South Korea: Does the rise of critical citizens matter. *Public Administration Review*, 70(5), 801–810.

- Krishna, S. (2021). Digital identity, datafication and social justice: Understanding aadhaar use among informal workers in south India. *Information Technology for Development*, 27(1), 67–90. <https://doi.org/10.1080/02681102.2020.1818544>
- Layne, K., & Lee, J. (2001). Developing fully functional E-government: A four stage model. *Government Information Quarterly*, 18(2), 122–136. [https://doi.org/10.1016/S0740-624X\(01\)00066-1](https://doi.org/10.1016/S0740-624X(01)00066-1)
- Leidner, D. E., & Tona, O. (2021). The CARE theory of dignity amid personal data digitalization. *MIS Quarterly*, 45(1), In press. <https://doi.org/10.25300/MISQ/2021/15941>.
- Leong, C., Pan, S. L., Bahri, S., & Fauzi, A. (2019). Social media empowerment in social movements: Power activation and power accrual in digital activism. *European Journal of Information Systems*, 28(2), 173–204. <https://doi.org/10.1080/0960085X.2018.1512944>
- Leong, C., Pan, S. L., Newell, S., & Cui, L. (2016). The emergence of self-organizing e-commerce ecosystems in remote villages of China: A tale of digital empowerment for rural development. *MIS Quarterly: Management Information Systems*, 40(2), 475–484. <https://doi.org/10.25300/MISQ/2016/40.2.11>
- Li, Y., Thomas, M. A., Stoner, D., & Rana, S. S. J. B. (2020). Citizen-centric capacity development for ICT4D: The case of continuing medical education on a stick. *Information Technology for Development*, 26(3), 458–476. <https://doi.org/10.1080/02681102.2020.1756730>
- Literat, I., Kligler-Vilenchik, N., Brough, M., & Blum-Ross, A. (2018). Analyzing youth digital participation: Aims, actors, contexts and intensities. *Information Society*, 34(4), 261–273. <https://doi.org/10.1080/01972243.2018.1463333>
- Maier, K. (2001). Citizen participation in planning: Climbing a ladder. *European Planning Studies*, 9(6), 707–719.
- Mali, N. V., & Gil-Garcia, J. R. (2017). Individual empowerment through digital governance: Proposing an assessment framework for India. *Proceedings of the Special Collection on EGovernment Innovations in India* (pp. 140–145). <https://doi.org/10.1145/3055219.3055237>.
- Margetts, H., & Dunleavy, P. (2013). The second wave of digital-era governance: A quasi-paradigm for government on the Web. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 371(1987), <https://doi.org/10.1098/rsta.2012.0382>
- Mariën, I., & Prodnik, J. A. (2014). Digital inclusion and user (Dis)empowerment: A critical perspective. *Info*, 16(6), 35–47. <https://doi.org/10.1108/info-07-2014-0030>
- May, C., & Chadwick, A. (2003). Interaction between states and citizens in the age of the internet: “ e-government “ in the United States, Britain and the European union. *Governance*, 16(2), 271–300.
- Meng, A., DiSalvo, C., Tsui, L., & Best, M. (2019). The social impact of open government data in Hong Kong: Umbrella movement protests and adversarial politics. *Information Society*, 35(4), 216–228. <https://doi.org/10.1080/01972243.2019.1613464>
- Mohamudally, N., & Armoogum, S. (2019). Citizen empowerment in newly born smart cities in Mauritius. *ACM International Conference Proceeding Series*, <https://doi.org/10.1145/3368756.3369056>
- Naranjo-Zolotov, M., Oliveira, T., & Casteleyn, S. (2019). Citizens' intention to use and recommend e-participation: Drawing upon UTAUT and citizen empowerment. *Information Technology and People*, 32(2), 364–386. <https://doi.org/10.1108/ITP-08-2017-0257>
- Navarra, D. D., & Cornford, T. (2012). The state and democracy after new public management: Exploring alternative models of E-governance. *Information Society*, 28(1), 37–45. <https://doi.org/10.1080/01972243.2012.632264>
- Nedungadi, P. P., Menon, R., Gutjahr, G., Erickson, L., & Raman, R. (2018). Towards an inclusive digital literacy framework for digital India. *Education and Training*, 60(6), 516–528. <https://doi.org/10.1108/ET-03-2018-0061>
- Newman, J. (2011). The involving public sector. *Distinktion*, 12(3), 331–341. <https://doi.org/10.1080/1600910X.2011.619929>
- Norris, P. (2003). World Public Sector Report Deepening Democracy via E-Governance (Issue October 1994).
- Nothias, T., & Cheruiyot, D. (2019). A “Hotbed” of digital empowerment? Media criticism in Kenya between playful engagement and co-option. *International Journal of Communication*, 13, 136–159.
- OECD. (2001). OECD Annual Report 2001.
- Okunola, O. M., Rowley, J., & Johnson, F. (2017). The multi-dimensional digital divide: Perspectives from an e-government portal in Nigeria. *Government Information Quarterly*, 34(2), 329–339. <https://doi.org/10.1016/j.giq.2017.02.002>
- Pandey, V., & Gupta, S. (2018). A comprehensive four-stage framework for evaluation of information communication technologies for development interventions. *Information Technology for Development*, 24(3), 511–531. <https://doi.org/10.1080/02681102.2017.1371108>
- Park, T. I., Kim, P. S., & Rosenbloom, D. H. (2017). The Burgeoning but still experimental practice of deliberative governance in South Korean local policy making: The Cases of Seoul and Gwangju. *Administration and Society*, 49(6), 907–934. <https://doi.org/10.1177/0095399716669782>
- Parkinson, J., & Mansbridge, J. (2012). Deliberative SYSTEMS- Deliberative democracy at the large scale. In J. Parkinson, & M. John (Eds.), Cambridge University Press. [www.cambridge.org/9781107025394](http://www.cambridge.org/9781107025394)
- Parsons, R. J. (1991). Empowerment: Purpose and practice principle in social work. *Social Work with Groups*, 42(2), 7–21. [https://doi.org/10.1300/J009v14n02\\_02](https://doi.org/10.1300/J009v14n02_02)
- Penney, J. (2020). ‘It’s So Hard Not to be Funny in This Situation’: Memes and Humor in US Youth Online Political Expression. *Television and New Media*, 21(8), 791–806.



- Pinderhughes, E. B. (1983). Empowerment for our clients and for ourselves. *Social Casework*, 64(6), 331–338. <https://doi.org/10.1177/104438948306400602>
- Pirannejad, A., & Janssen, M. (2017). Internet and political empowerment. *Information Development*, 35(1), 80–95. <https://doi.org/10.1177/0266666917730118>
- Raghuram, S., Hill, N. S., Gibbs, J. L., & Maruping, L. M. (2019). Virtual work: Bridging research clusters. *Academy of Management Annals*, 13(1), 308–341. <https://doi.org/10.5465/annals.2017.0020>
- Rao, S. S. (2005). Bridging digital divide: Efforts in India. *Telematics and Informatics*, 22(4 SPEC. ISS.), 361–375. <https://doi.org/10.1016/j.tele.2005.01.007>
- Ridhwan, K. M., & Hargreaves, C. A. (2021). Leveraging Twitter data to understand public sentiment for the COVID-19 outbreak in Singapore. *International Journal of Information Management Data Insights*, 1(2), 100021. <https://doi.org/10.1016/j.ijime.2021.100021>
- Riley, C. (2003). *The changing role of the citizen in the e-governance & e-democracy equation* [Commonwealth Centre for e-Governance]. [http://www.tanzaniagateway.org/docs/Changing\\_role\\_of\\_the\\_citizen\\_in\\_the\\_E-governance\\_E-democracy\\_equation\\_2003.pdf](http://www.tanzaniagateway.org/docs/Changing_role_of_the_citizen_in_the_E-governance_E-democracy_equation_2003.pdf)
- Rodrigues, M., Menezes, I., & Ferreira, P. D. (2018). Validating the formative nature of psychological empowerment construct: Testing cognitive, emotional, behavioral, and relational empowerment components. *Journal of Community Psychology*, 46(1), 58–78. <https://doi.org/10.1002/jcop.21916>
- Rosanvallon, P. (2008). *Counter-Democracy: Politics in an age of distrust*. Cambridge University Press.
- Rothe, F. F. (2020). Rethinking positive and negative impacts of 'ICT for development' through the holistic lens of the sustainable development goals. *Information Technology for Development*, 26(4), 653–669. <https://doi.org/10.1080/02681102.2020.1756728>
- Saguin, K. (2018). Why the poor do not benefit from community-driven development: Lessons from participatory budgeting. *World Development*, 112, 220–232. <https://doi.org/10.1016/j.worlddev.2018.08.009>
- Sánchez-Tortolero, R., Márquez-González, J., & Vénaez-Hernández, G. (2019). Participation and citizen empowerment platform for e-governance: Communal integration system (SINCO). *ACM International Conference Proceeding Series, part F1481* (pp. 212–219). <https://doi.org/10.1145/3326365.3326393>
- Sanderson, I. (1999). Participation and Democratic Renewal: from 'instrumental' to 'communicative rationality'?. *Policy and Politics*, 27(3), 325–341.
- Sasaki, F. (2017). Does Internet use provide a deeper sense of political empowerment to the less educated? *Information Communication and Society*, 20(10), 1445–1463. <https://doi.org/10.1080/1369118X.2016.1229005>
- Schradie, J. (2018). The digital activism gap: How class and costs shape online collective action. *Social Problems*, 65(1), 51–74. <https://doi.org/10.1093/socpro/spx042>
- Sein, M. K., Thapa, D., Hatakka, M., & Sæbø, Ø. (2019). A holistic perspective on the theoretical foundations for ICT4D research. *Information Technology for Development*, 25(1), 7–25. <https://doi.org/10.1080/02681102.2018.1503589>
- Sen, A. (1999). *Development as freedom*. Anchor Books.
- Shelley, M., Thrane, L., Shulman, S., Lang, E., Beisser, S., Larson, T., & Mutiti, J. (2004). Parameters of the digital divide. *Social Science Computer Review*, 22(2), 256–269. <https://doi.org/10.1177/0894439303262580>
- Simons, R. N., Fleischmann, K. R., & Roy, L. (2020). Leveling the playing field in ICT design: Transcending knowledge roles by balancing division and privileging of knowledges. *Information Society*, 36(4), 183–198. <https://doi.org/10.1080/01972243.2020.1762270>
- Sixto-García, J., Rodríguez-Vázquez, A. I., & Soengas-Pérez, X. (2020). Co-creation in North American and European digital native media: Web, social networks and offline spaces. *Journalism*, <https://doi.org/10.1177/1464884920984698>
- Smith, C. (2014). An analysis of digital inclusion projects: Three crucial factors and four key components. *Journal of Information Technology Education: Research*, 14, 179–188. <https://doi.org/10.28945/2262>
- Soengas-Pérez, X., & Assi, M. (2017). Cyberactivism in the process of political and social change in Arab countries. *Comunicar*, 25(53), 49–57. <https://doi.org/10.3916/C53-2017-05>
- Solomon, B. B. (1987). Empowerment: Social work in oppressed communities. *Journal of Social Work Practice*, 2(4), 79–91. <https://doi.org/10.1080/02650538708414984>
- Sørensen, E. (1997). Democracy and empowerment. *Public Administration*, 75(3), 553–567. <https://doi.org/10.1111/1467-9299.00074>
- Staples, L. H. (1990). Powerful ideas about empowerment. *Administration in Social Work*, 14(2), 29–42. <https://doi.org/10.1300/J147v14n02>
- Stone, J. A., & Can, S. H. (2021). Gendered language differences in public communication? The case of municipal tweets. *International Journal of Information Management Data Insights*, 1(2), 100034. <https://doi.org/10.1016/j.ijime.2021.100034>
- Subramanian, M., & Saxena, A. (2008). E-Governance in India: From Policy to Reality, a Case Study of Chhattisgarh Online Information System for Citizen Empowerment (Choice) Project of Chhattisgarh State of India. *International Journal of Electronic Government Research (IJEGR)*, 4(2), 12–26.
- Svärd, P. (2017). Freedom of information laws and information access: The case of Sierra Leone. *Information Development*, 33(2), 190–198. <https://doi.org/10.1177/0266666916642829>

- Thijssen, P., & Van Dooren, W. (2016). Going online. Does ICT enabled-participation engage the young in local governance? *Local Government Studies*, 42(5), 842–862. <https://doi.org/10.1080/03003930.2016.1189413>
- Tianru, G. (2020). Comparative political communication research in the digital epoch: A typology of national communication spaces. *Information Society*, 36(2), 59–70. <https://doi.org/10.1080/01972243.2019.1703866>
- Touchton, M., & Wampler, B. (2014). Improving social well-being through new democratic institutions. *Comparative Political Studies*, 47(10), 1442–1469. <https://doi.org/10.1177/0010414013512601>
- Treré, E. (2016). The dark side of digital politics: Understanding the algorithmic manufacturing of consent and the hindering of online dissidence. *IDS Bulletin*, 41(1), 127–138. <https://doi.org/10.19088/1968-2016.111>
- United Nations. (2020). E-Government Survey 2020 - Digital government in the decade of action for sustainable development: With addendum on COVID-19 response. In *United Nations E-Government surveys* (Vol. 1, Issue 1). <https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2020>
- Vaidya, R., & Myers, M. D. (2021). Symbolic practices and power asymmetries in ICT4D projects: The case of an Indian agricultural marketing board. *Journal of Information Technology*, 36(1), 2–15. <https://doi.org/10.1177/0268396220964813>
- van Biljon, J. (2020). Knowledge mobilization of human–computer interaction for development research: Core issues and domain questions. *Information Technology for Development*, 26(3), 551–576. <https://doi.org/10.1080/02681102.2020.1767022>
- van der Merwe, R., & Meehan, A. (2012). Direct deliberative Governance online: Consensual problem solving or accommodated pluralism? *Journal of Information Technology and Politics*, 9(1), 46–63. <https://doi.org/10.1080/19331681.2012.635963>
- van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, 84(2), 523–538. <https://doi.org/10.1007/s11192-009-0146-3>
- Vyas-Doorgapersad, S. (2009). The application of e-government for increased service delivery in South Africa. *The International Journal of Interdisciplinary Social Sciences: Annual Review*, 4(1), 455–466. <https://doi.org/10.18848/1833-1882/cgp/v04i01/52824>
- Wenene, M. T., Steen, T., & Rutgers, M. R. (2016). Civil servants' perspectives on the role of citizens in public service delivery in Uganda. *International Review of Administrative Sciences*, 82(1), 169–189. <https://doi.org/10.1177/0020852315576704>
- Williams, M. D., Rana, N. P., & Dwivedi, Y. K. (2015). The unified theory of acceptance and use of technology (UTAUT): A literature review. *Journal of Enterprise Information Management*, 28(3), 443–448. <https://doi.org/10.1108/JEIM-09-2014-0088>
- World Bank. (2003). *World development report 2004: making services work for poor people*. The World Bank.
- World Bank. (2008). *Brazil: toward a more inclusive and effective participatory budget in Porto Alegre* (Vol. 2, Issue 40144). [http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2008/03/05/000333037\\_20080305020620/Rendered/PDF/401440v20EROP01sclosed0March0302008.pdf](http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2008/03/05/000333037_20080305020620/Rendered/PDF/401440v20EROP01sclosed0March0302008.pdf)
- Ye, L., Pan, S. L., Li, M., Dai, Y., & Dong, X. (2021). The citizen-led information practices of ICT4D in rural communities of China: A mixed-method study. *International Journal of Information Management*, 56(October 2020), 102248. <https://doi.org/10.1016/j.ijinfomgt.2020.102248>
- Young, J., & Gilmore, M. (2017). Participatory uses of geospatial technologies to leverage multiple knowledge systems within development contexts: A case study from the Peruvian Amazon. *World Development*, 93, 389–401. <https://doi.org/10.1016/j.worlddev.2017.01.007>
- Zimmerman, M. A. (1995). Psychological empowerment: Issues and illustrations. *American Journal of Community Psychology*, 23(5), 581–599.
- Zimmerman, M. A. (2000). Empowerment theory. *Handbook of Community Psychology*, 1984, 43–63. [https://doi.org/10.1007/978-1-4615-4193-6\\_2](https://doi.org/10.1007/978-1-4615-4193-6_2)
- Zimmerman, M. A., & Rappaport, J. (1988). Citizen participation, perceived control, and psychological empowerment. *American Journal of Community Psychology*, 16(5), 725–750. <http://www.ncbi.nlm.nih.gov/pubmed/3218639>

## Appendix

**Table A.1.** List of selected studies

S. No	Authors	Title	Year	Source title
1	Sanderson, I.	Participation and democratic renewal: From 'instrumental' to 'communicative rationality'?	1999	Policy and Politics
2	Bucy, E.P., Gregson, K.S.	Media participation: A legitimizing mechanism of mass democracy	2001	New Media and Society
3	Maier, K.	Citizen participation in planning: Climbing a ladder?	2001	European Planning Studies
4	Ashman, D.	Civil society collaboration with business: Bringing empowerment back in	2001	World Development
5	Bhatnagar, S.C.	E-government: Lessons from implementation in developing countries	2002	Regional Development Dialogue
6	Park, C.M.	Quality of local government and democratic citizenship	2003	Social Indicators Research
7	Shelley, M., Thrane, L., Shulman, S., Lang, E., Beisser, S., Larson, T., Mutiti, J.	Digital Citizenship: Parameters of the Digital Divide	2004	Social Science Computer Review
8	Subramanian, M., Saxena, A.	e-Governance in India: from Policy to reality. a Case study of Chhattisgarh online information system for Citizen empowerment (CHoiCe) Project of Chhattisgarh state of india	2008	International Journal of Electronic Government Research
9	Fraunholz, B., Unnithan, C.	Does e-governance facilitate citizen empowerment in democracies? A critical discourse analysis	2009	International Journal of Electronic Governance
10	Vyas-Doorgapersad, S.	The application of e-government for increased service delivery in South Africa	2009	International Journal of Interdisciplinary Social Sciences
11	Kim, S.	Public trust in government in Japan and South Korea: Does the rise of critical citizens matter?	2010	Public Administration Review
12	Blakeley, G.	Governing ourselves: Citizen participation and governance in Barcelona and Manchester	2010	International Journal of Urban and Regional Research
13	Boulding, C., Wampler, B.	Voice, Votes, and Resources: Evaluating the Effect of Participatory Democracy on Well-being	2010	World Development
14	He, B.	Civic engagement through participatory budgeting in China: Three different logics at work	2011	Public Administration and Development
15	Newman, J.	The involving public sector	2011	Distinktion
16	Georgiadou, Y; Bana, B; Becht, R; Hoppe, R; Ikingura, J; Kraak, MJ; Lance, K; Lemmens, R; Lungo, JH; McCall, M; Miscione, G; Verplanke, J	Sensors, empowerment, and accountability: a Digital Earth view from East Africa	2011	International Journal of Digital Earth
17	Hendriks, C.M., Bolitho, A., Foulkes, C.	Localism and the paradox of devolution: Delegated citizen committees in Victoria, Australia	2013	Policy Studies
18	Bay-Meyer, K.	Do ortega's citizen power councils empower the poor in Nicaragua? benefits and costs of local democracy	2013	Polity
19	Touchton, M., Wampler, B.	Improving Social Well-Being Through New Democratic Institutions	2014	Comparative Political Studies
20	Kariuki, S., Tshandu, Z.	Service delivery frameworks as instruments of citizen empowerment: A tale of two experiences, India and South Africa	2014	Development Southern Africa
21	Mariën, I., Prodnik, J.A.	Digital inclusion and user (Dis)empowerment: A critical perspective	2014	Info

(Continued)

**Table A.1.** Continued.

S. No	Authors	Title	Year	Source title
22	Smith, C.	An analysis of digital inclusion projects: Three crucial factors and four key components	2015	Journal of Information Technology Education: Research
23	Bartoletti, R., Faccioli, F.	Public Engagement, Local Policies, and Citizens' Participation: An Italian Case Study of Civic Collaboration	2016	Social Media and Society
24	Ganuza, E., Baiocchi, G., Summers, N.	Conflicts and paradoxes in the rhetoric of participation	2016	Journal of Civil Society
25	Gertrudis-Casado, M.-C., Gétrudix-Barrio, M., Álvarez-García, S.	Professional information skills and open data. Challenges for citizen empowerment and social change	2016	Comunicar
26	Brinkerhoff, D.W., Wetterberg, A.	Gauging the Effects of Social Accountability on Services, Governance, and Citizen Empowerment	2016	Public Administration Review
27	Wenene, M.T., Steen, T., Rutgers, M.R.	Civil servants' perspectives on the role of citizens in public service delivery in Uganda	2016	International Review of Administrative Sciences
28	Treré, E.	The dark side of digital politics: Understanding the algorithmic manufacturing of consent and the hindering of online dissidence	2016	IDS Bulletin
29	Leong, C; Pan, SL; Newell, S; Cui, LL	THE EMERGENCE OF SELF-ORGANIZING E-COMMERCE ECOSYSTEMS IN REMOTE VILLAGES OF CHINA: A TALE OF DIGITAL EMPOWERMENT FOR RURAL DEVELOPMENT	2016	MIS Quarterly
30	Thijssen, P; Van Dooren, W	Going online. Does ICT enabled-participation engage the young in local governance?	2016	Local Government Studies
31	Park, T.J., Kim, P.S., Rosenbloom, D.H.	The Burgeoning but Still Experimental Practice of Deliberative Governance in South Korean Local Policy Making: The Cases of Seoul and Gwangju	2017	Administration and Society
32	Casero-Ripollés, A.	Producing political content for web 2.0: Empowering citizens and vulnerable populations	2017	Profesional de la Informacion
33	Soengas-Pérez, X., Assi, M.	Cyberactivism in the process of political and social change in Arab countries	2017	Comunicar
34	Svärd, P.	Freedom of information laws and information access: The case of Sierra Leone	2017	Information Development
35	Pirannejad, A., Janssen, M.	Internet and political empowerment: Towards a taxonomy for online political empowerment	2017	Information Development
36	Coromina, O	The struggle for the story in political disputes: The case of the 9n 2014 participation process	2017	Profesional De La Informacion
37	Young, J; Gilmore, M	Participatory Uses of Geospatial Technologies to Leverage Multiple Knowledge Systems within Development Contexts: A Case Study from the Peruvian Amazon	2017	World Development
38	Okunola, OM; Rowley, J; Johnson, F	The multi-dimensional digital divide; Perspectives from an e-government portal in Nigeria	2017	Government Information Quarterly
39	Fasoli, A; Tassinari, S	Engaged by Design: The Role of Emerging Collaborative Infrastructures for Social Development. Roma Makers as A Case Study	2017	Design Journal
40	Sasaki, F	Does Internet use provide a deeper sense of political empowerment to the Less Educated?	2017	Information Communication & Society

(Continued)

**Table A.1.** Continued.

S. No	Authors	Title	Year	Source title
41	Saguin, K.	Why the poor do not benefit from community-driven development: Lessons from participatory budgeting	2018	World Development
42	Hermida, A., Hernández-Santaolalla, V.	Twitter and video activism as tools for counter-surveillance: the case of social protests in Spain	2018	Information Communication and Society
43	Altermark, N., Nilsson, H.	Crafting the 'Well-rounded citizen': Empowerment and the government of counterradicalization	2018	International Political Sociology
44	Naomi Bueno de Mesquita*, Nazli Cila, Maarten Groen and Wouter Meys	Socio-technical systems for citizen empowerment: How to mediate between different expectations and levels of participation in the design of civic apps	2018	International Journal of Electronic Governance
45	Schradie, J	The Digital Activism Gap: How Class and Costs Shape Online Collective Action	2018	Social Problems
46	Durnová, A.	Czech postcommunist trouble with participatory governance. Toward an analysis of the cultural agency of policy discourses	2019	Policy Studies
47	Naranjo-Zolotov M., Oliveira T., Casteleyn S.	Citizens' intention to use and recommend e-participation: Drawing upon UTAUT and citizen empowerment	2019	Information Technology and People
48	Nothias T., Cheruiyot D.	A 'Hotbed' of digital empowerment? Media criticism in Kenya between playful engagement and co-option	2019	International Journal of Communication
49	Leong C., Pan S.L., Bahri S., Fauzi A.	Social media empowerment in social movements: power activation and power accrual in digital activism	2019	European Journal of Information Systems
50	Kwak S.	Deconstructing the multi-layered nature of citizen participation in Vietnam: conceptual connotations, discourses of international development, and the country's institutional context	2019	Asian Journal of Political Science
51	Roberts A., Kelly G.	Remixing as Praxis: Arnstein's Ladder Through the Grassroots Preservationist's Lens	2019	Journal of the American Planning Association
52	Gibson J., Hendricks M.D., Wells J.C.	From engagement to empowerment: how heritage professionals can incorporate participatory methods in disaster recovery to better serve socially vulnerable groups	2019	International Journal of Heritage Studies
53	Abu-Shanab E., Bakier R., Bataineh M.	Can e-government empower Jordanian citizens and reinforce citizenship?	2019	International Journal of Electronic Governance
54	Piñeira Mantiñán M.J., Lois González R.C., González Pérez J.M.	New models of urban governance in Spain during the post-crisis period: the fight against vulnerability on a local scale	2019	Territory, Politics, Governance
55	Boldbaatar D., Kunz N.C., Werker E.	Improved resource governance through transparency: Evidence from Mongolia	2019	Extractive Industries and Society
56	Rodríguez R.A.M., Barreto A.C.	The library park project: Proposal for redesigning the spaces in the Martí provincial library to facilitate the implementation of services impacting community development	2019	Library Trends
57	Salapuddin R.A.	Is education a right or a privilege? A direction to the twenty-first century	2019	Asian EFL Journal
58	Dusi, D	Social innovation driven by citizen-led digital innovation: technologies of citizenship and the war on unemployment in Flanders	2019	Citizenship Studies

*(Continued)*

**Table A.1.** Continued.

S. No	Authors	Title	Year	Source title
59	Garcia-Penalvo, FJ; Vazquez-Ingelmo, A; Garcia-Holgado, A; Seoane-Pardo, AM	Analyzing the usability of the WYRED Platform with undergraduate students to improve its features	2019	Universal Access In The Information Society
60	Quaicoe J.S., Pata K.	Teachers' digital literacy and digital activity as digital divide components among basic schools in Ghana	2020	Education and Information Technologies
61	De S.J., Shukla R.	Privacy policies of e-governance initiatives: Evidence from India	2020	Journal of Public Affairs
62	Balathandayutham P., Anandanatarajan K.	Digital marketing through social networking sites (Sns): A field of digital empowerment	2020	International Journal of Scientific and Technology Research
63	Penney J.	'It's So Hard Not to be Funny in This Situation': Memes and Humor in U.S. Youth Online Political Expression	2020	Television and New Media
64	Gün A., Demir Y., Pak B.	Urban design empowerment through ICT-based platforms in Europe	2020	International Journal of Urban Sciences
65	Cook J.B., Kogan V., Lavertu S., Peskowitz Z.	Government privatization and political participation: The case of charter schools	2020	Journal of Politics
66	Buettner A.	'Imagine what we could do'— the school strikes for climate and reclaiming citizen empowerment	2020	Continuum
67	Casademont Falguera X., Prieto-Flores Ö., Brugué Torruella Q.	Local consultations on public space management: between political legitimation and citizen empowerment	2020	Space and Polity
68	Sixto-Garcia, J; Rodriguez-Vazquez, AI; Soengas-Perez, X	Co-creation in North American and European digital native media: Web, social networks and offline spaces	2020	Journalism
69	Garcia, X; Gottwald, S; Benages-Albert, M; Pavon, D; Ribas, A; Vall-Casas, P	Evaluating a web-based PPGIS for the rehabilitation of urban riparian corridors	2020	Applied Geography
70	Medero, RS	Democratization in Political Communication	2020	Political Studies Review
71	Gooch, D; Kelly, RM; Stiver, A; van der Linden, J; Petre, M; Richards, M; Klis-Davies, A; MacKinnon, J; Macpherson, R; Walton, C	The benefits and challenges of using crowdfunding to facilitate community-led projects in the context of digital civics	2020	International Journal Of Human-Computer Studies
72	Leidner, DE; Tona, O	The care theory of dignity amid personal data digitalization	2021	MIS Quarterly