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CITIZEN PARTICIPATION IN INCREASINGLY DIGITALIZED GOVERNMENTAL ENVIRONMENTS – A SYSTEMATIC LITERATURE REVIEW

Research paper

Ann-Catrin Pristl, University of Kassel (Germany), pristl@wirtschaft.uni-kassel.de

Matthias Simon Billert, University of Kassel (Germany), billert@uni-kassel.de

Abstract

Citizen participation in increasingly digitalized governmental environments can introduce fruitful capabilities to encourage citizens to engage in municipal affairs and through this take actively part in fostering smart cities' effectiveness. However, the practical exploitation of recent knowledge is still not sufficiently operationalized, whilst research in this field yields various approaches focusing on diverse emphases. Therefore, the necessity of systematically collecting and afterwards analysing the existing literature towards this topic is obvious. This paper depicts a proceeding to systematically review the available literature towards the relevant research units on citizen participation. Overall, 48 topic-based papers were identified out of leading journals and conference papers about information systems. The main findings of the relevant papers were assessed to a proposed analytical framework consisting of increasing participation stages and two distinct focus groups namely government and citizens. Accordingly, the covered recent focus areas of research are identified to reveal where state-of-the-art research falls short. Consequently, the imperative of emphasising investigation regarding concepts for ICT-enabled services focusing the empowerment of citizens arises as being our contribution for guiding future research, whilst governments can practically benefit from the composed framework by using it for classifying, planning and implementing proposed participation activities.

Keywords: citizen participation, civic engagement, digital participation, literature review

1 Introduction

Due to the permanently increasing urbanism owing to a consistently growing population of cities, governments need to face accruing challenges (Caragliu et al., 2011; Hollands, 2008; Cocchia, 2014; Brandt et al., 2016). In response to the recent demands, the concept of smart cities provides a remedy by “[...] solv[ing] urban issues paying attention to the environment” (Cocchia, 2014, p. 14). Consequently, smart cities are geared towards the enhancement of energy and resource efficacy, the increase of the economic competitiveness and the augmentation of livability of municipal residents (Jakubowski, 2014; van Waart et al., 2016). Another often cited approach visualizes the issue smart city with characteristic main aspects namely smart economy, smart mobility, smart environment, smart people, smart living and smart governance (Caragliu et al., 2011; Jaekel and Bronnert, 2012). At this, ICT offers great chances to provide citizens with valuable services and transform cities into smart cities (Gagliardi et al., 2017; Corbett and Mellouli, 2017). This paper singles out the issue of municipal involvement of citizens making use of ICT. The importance emerged due to a soared need of openness, transparency and legitimacy to decision processes, governmental entities need to provide. This enlarged democratic thinking and its impact bred by the opportunities from ICT lead on to more weight of voice, expertise and knowledge of citizens (Kelty et al., 2015). It implies that it is essential to investigate the arising sphere of digitally enabled citizens supporting governmental processes in an

active manner. Citizen participation is indeed not a newly discovered appearance (Damodaran and Olphert, 2006), but the incorporation of innovative ICT and freshly designed applications using the advanced technological opportunities distinguish the development it passed through over the last decades (Olphert and Damodaran, 2007). With the scope of smart cities, the power of relevant stakeholders as governments and citizens need to be reshaped due to the increased need of interaction between both parties for gaining a satisfying outcome. To ensure that this becomes reality, it is not sufficient to only consider how to invite citizens to participate, what describes a top-down initiated approach implemented by the government (van Waart et al., 2016). As a counterpart, a bottom-up approach represents a try of participation offering a proposal to municipal agents initiated by citizens (van Waart et al., 2016). Hence, it seems to be of particular importance to examine, what enables citizens to actively take part in governmental decision processes accounted for by the governments' challenges how to get citizens involved in digitalized governmental environments. So far, only few results can be found in the information system literature. One possibility is to use smart service systems for value co-creation. According to Beverungen et al. (2019), value co-creation can take place in a smart service system, by considering both the service consumer and service provider equally. Both roles are separated by two visibility lines and one interaction line. The visibility line regulates the use of resources and activities among participating and non-participating actors. Whereas the interaction line regulates the resources, activities and captured usage value between the service consumer and the service provider. Smart products are boundary objects that function to facilitate the transfer of knowledge and information and to interface between roles. In this context, smart products can be interpreted differently by the service consumer than by the service provider. The service consumer (civic) is primarily interested in creating a value-in-use, while the service provider (governmental) is interested in optimizing, controlling and collecting data. However, digitalized governmental environments have not yet been associated with smart service systems. This leads to the following research question: What are requirements for digitalized governmental environments that participate both service consumers and service providers within the information systems research? As a result, this work aims at investigating the state-of-the-art literature concerning citizen participation in the field of ICT focusing on relevant influencing aspects using the methodology of conducting a systematic literature review. By this means the relevant topic is extrapolated and based on that issues are identified, which are auspicious to be worked on in the future (Webster and Watson, 2002). Thus, it is necessary to conduct this for the current topic of citizen participation in order to receive a general overview of research previously done before and being able to point out research gaps addressing them to both practitioners and researchers. In summary, this systematic literature review firstly contributes to a deeper understanding of the terminology and conceptualization of citizen participation applying ICT. Second, the developed framework as a consolidation of the smart service system framework and citizen participation stages for assessing the composed literature provides practical benefit aiding city administrations' attempts to generate accepted participation services in company with citizens. After having gained an extensive overview of the state-of-the-art research, it is consistent and literally mandatory to quote the uncovered research gaps. Thus, within the discussion section future research areas are revealed and addressed. The tabulation of this paper is described as follows. First, the underlying theoretical issues are depicted. Afterwards, the methodology of the searching process is characterized in detail. Subsequently, the findings are presented and discussed, also in front of potential limitations. Finally, a conclusion outlines the main insights highlighting future research opportunities.

2 Theoretical Background

2.1 Citizen Participation

By gaining a generic understanding of the expression citizen participation one will be confronted with various approaches how to put the meaning in a nutshell. In order to get a profound understanding, it seems necessary to consider umpteen characterizations starting with a conceptual distinction. Several

researchers use the phrase citizen participation within their research contributions (Kelty et al., 2015; Frecks, 2015; Olphert and Damodaran, 2007), while others apply the words citizen engagement (Olphert and Damodaran, 2007; Tritter and McCallum, 2006), civic engagement (Wastell and White, 2010) or public participation (Phang et al., 2015). A large number of researchers use the superordinate term e-Government (Atasoy et al., 2016; Lim et al., 2012; Srivastava et al., 2016; Tan et al., 2013; Venkatesh et al., 2016), which is not solely about citizen participation in the narrower sense, but rather incorporates various topics governments deal with in terms of electronic change. One less frequently applied expression is open government (Marjanovic and Cecez-Kecmanovic, 2017), whereby this expression is linked to a broader granting of transparency, whereby e-Government can be seen as the incorporation of ICT into municipal processes (Srivastava et al., 2016). Participation itself is a major research area in the light of information systems technologies, which can be about user-generated content, peer-production, crowdsourcing and right up to citizen enablement (Kelty et al., 2015). In describing the inherent meaning of citizen participation one general definition published already a few decades earlier cut right to the chase of the matter. “Citizen participation is a categorical term for citizen power” (Arnstein, 1969, p. 216). Accordingly, a reallocation process occurs within previously non-involved citizens obtaining authority and the main issue is about the balance of power (Arnstein, 1969). Thus, as another similar conceivable possibility, it can be described as a way of including citizens into the democratic process. This implies giving citizens the chance to actively take part in policy decision processes in partnership with governmental sections (Olphert and Damodaran, 2007). Another approach from a more overriding point of view focuses on participation as one topic, which contains the enablement of citizens to engage in municipal affairs, besides other forms of co-creating content (Kelty et al., 2015). Frecks (2015) emphasizes the collaborative work based on partnership between the government and citizens in order to design products and services. Occasionally the expression “e-democracy” is mentioned in respect of citizen participation including e-voting and e-participation, respectively, whereby the latter includes the dialogue between the aforementioned actors (Macintosh, 2004). Due to the existing diversity of used expressions and definitions, this literature review is constructed utilizing the following understanding of what is understood by applying the phrase citizen participation according to the research scope. Citizen participation constitutes the incorporation of citizens in democratic processes to attain a fruitful mutual relation between citizens and government.

2.2 Participation Levels

After having brought light into the darkness of defining citizen participation, the number of established models concerning municipal engagement needs to be depicted. Thereby, models differ in their underlying direction. There are patterns concentrating on the depth of participation and offered power to citizens (Arnstein, 1969; International association for public participation, 2014; Connor, 1988; Tritter and McCallum, 2006), the configuration of co-production between citizens and government (Linders, 2012; Macintosh, 2004) and influencing aspects for nonparticipation (Alcántara et al., 2014). One previous research endeavour concerning citizen participation yielded to the well-known “Arnstein ladder” characterizing main steps of participation levels (Arnstein, 1969). It consists of eight stages increasingly organized starting with nonparticipation degrees, which are about elected ways of giving citizens the feeling that their opinions have impact but literally they are cured through hypocritical proceedings. These stages express that the need for participation is treated by governmental units as not important and is took off by using harmless versions of it not affecting a decision anyhow. Accordingly, three stages of tokenism – informing, consultation and placation – affiliate. Indeed, these rungs express the conceded opportunity of legitimate citizen participation to some degree, but only to rigorously limited extent. Informing in this way is about telling citizens about their rights, responsibilities and opportunities, but often without any option of civic feedback. Consultation means the explicit invitation to pass a remark, whereby placation expresses the ostensible appointment of citizens but without enough power to really be able to influence decisions. Finally, real citizen power as partnership, delegated power and citizen control reveal true degrees of citizen participation through redistribution of power (Arnstein, 1969). As the phrase partnership shows, power

is indeed way of distributed and decisions are made together. One step further, the power is delegated to municipal agents by what they can operate partly independent. Lastly, citizen control depicts the case that citizens are allowed to control a governmental issue on their own (Arnstein, 1969). All in all, the whole model superficially expresses the degree of participation, which the government dedicates to their citizenry. This delineates the amount to which the civic entity takes an active part in the creation of the final product. As Macintosh (2004) refers to three stages of participation starting with “enabling” as providing the right information for citizens in an accessible manner, “engaging” depicts the bilateral information exchange between both acting parties. The highest level of participation - “empowering”- accredits citizens with the power to actively take part in decision making processes (Macintosh, 2004). In this context a suggestion for classification – especially constructed for practical usage – made by the International association for public participation can be mentioned. They apply a spectrum of participation stages similar to Arnstein with an increasing impact on the final decision by using two distinct dimensions, the goal of the undertaking and the comprised promise to the public (International association for public participation, 2014). These theoretical inputs reveal proceedings denoted by the granting of participatory rights instead of real reciprocal interaction between government and citizens. But exactly this can be seen as a pitch within digitalization of municipal actors, which needed to be challenged. The evolution those governments passed through by having novel ICT opportunities to interact with citizens relies on a soared willingness to collaborate with each other in order to implement the democratic thinking (Phang and Kankanhalli, 2005). On these grounds the present literature review aims at gaining a deeper understanding of the mechanisms urging citizens to actively engage in municipal projects. Thereby, aspects concerning both parties – governmental issues as well as citizen concerns – should be part of the investigation.

3 Methodology

For the purpose of conducting the review process in a comprehensive way the proceeding is guided by the methods documented by Webster and Watson (2002) and Vom Brocke et al. (2015). At the beginning the review scope is defined (Vom Brocke et al., 2009) using Cooper’s taxonomy (Cooper, 1988). The aim of this paper requires a focus on research outcomes because the current status of research concerning citizen participation in the field of information systems shall be depicted, whereby the goal is about the identification of central issues for showing what past research has done and therefore what future research can be about. Regarding the perspective this paper aims at presenting the results in a neutral way without any interpretations. It is attempted to investigate all selected papers for reviewing without any omission but to present not all of them individually, which hints at a case of exhaustive coverage with selection. All outcomes are displayed conceptually so that the target group consisting of both specialized researchers and practitioners and policy makers can easily get the main points of the content of each category (Cooper, 1988). A main requirement of generating a high qualitative literature review is a rigorous description of the complete searching process. Hence, a gapless documentation of the searching procedure is mandatory due to reasons of replicability. Therefore, the literature searching process by (Vom Brocke et al., 2009) is chosen to adequately execute the query. Owing to the issue being reviewed, it appears to be useful to focus on journals, which concentrate on research about the area of information systems covering the issue “citizen participation”. Only the journals included in the AIS “Basket of Eight” and publications from two main conferences (ECIS & ICIS) should be contained in the findings. This selection was made due to the high relevance of this eight top-ranked journals and subject-specific respective conferences (Webster and Watson, 2002; Vom Brocke et al., 2009). Thus, it can be inferred, that the findings depict the current state-of-the-art status concerning digital citizen participation in the area of information systems in an appropriate manner. It was determined, that all findings should meet the criteria “peer-reviewed” and should not be published earlier than 2007. During the execution of the searching process search strings were generated through “litsonar.com” and the databases Ebscohost, AISeL, ProQuest and ScienceDirect were examined using the evolved requests. After having selected the relevant journals and databases, initial keywords, namely citizen/s participation, civic participation, civic engagement and civic involvement were derived from the aim of this paper to

display research on the contribution of citizens to municipal affairs. They were chosen because all describe the same subject and are synonyms of each other. After having identified that the primarily used keywords might not yield sufficient results new expressions regarding the research area were added. Ensuring from the mentioned words, additional keywords were integrated through further inquiry, namely civic hacking, participation procedure, public participation, smart city/cities, open government, digital participation, collaborative governance, smart urban governance, political participation, e-participation/eParticipation/e-Participation/electronic participation, citizen engagement, participatory design and e-Government/e-government/eGovernment (Hafeez and Sher, 2006). This proceeding goes along with an iterative approach of examining the databases (Vom Brocke et al., 2015). In order to meet the requirements of the particular database being searched, necessary adoptions were performed concerning the used search strings. Furthermore, the papers identified by using forward-/ backward search need to meet the criterion of canvassing the topic of citizen participation within the field of ICT thereby reporting own research results. The forward-search-hits already contained within the first step of searching needed to be removed from the list, so that only new papers were added via forward-search. For backward-search this had to be checked, too. For conducting the backward-search the reference lists of all hits were screened for articles published in one of the AIS “Basket of Eight”-Journals or the ECIS and ICIS. Afterwards, the title, abstract and keywords of these extracted papers were checked if one of the previously defined keywords is included. If yes, a further check concerning the inclusion criteria was accomplished. As a result, the remaining hits were included within the review scope. For analysing, if the generated hits are of sufficient relevance, the criteria, which needed to be met, were a research focus on citizen participation in combination with the aid of ICT, and an independently investigated topic by the authors of a paper with results and contributions (no reviews, editorials e.g.).

4 Findings

4.1 Descriptive findings

The accomplishment of the keyword searching procedure resulted in 42 identified papers before selection. For conducting the very same thing, analysing the abstracts of each of the papers should yield in a rigorous range of only highly relevant papers for further analysis and characterization. As a consequence, there are the following exceptions based on relevance: Two papers were excluded for being an editorial (Hackney et al., 2008; Davison et al., 2012), another one owing to its research method, which is a review itself (Bélanger and Carter, 2012). Not part of the analysis is the output generated by using the keyword “participatory design” due to contentual mismatches (Yang et al., 2012; Germonprez et al., 2011) and a work for being a teaching case without own research contributions (Beynon-Davies, 2009). The same holds for the article by Fedorowicz and Gogan (2009). The research paper by Malhotra et al. (2013) is excluded for being only a preliminary preamble for the appropriate special issue version within the MIS Quarterly. The article by Wastell and White (2010) is excluded, because it is a polemic without own research attempts and contributions. The hit by Srivastava et al. (2007) cannot be included since no full text version of the paper could be found. Due to an inappropriate content reflecting within the abstract (Atasoy et al., 2016), (Gupta et al., 2008), (Corbett and Mellouli, 2017), (Otjacques et al., 2007), (Henningsson and Henriksen, 2011), (Cordella and Willcocks, 2012) and (Marjanovic and Cecez-Kecmanovic, 2017) were excluded. Consequently, an amount of 25 papers for further analysis arose. At that point of research, a backward and forward search was generated (Vom Brocke et al., 2009). This further searching step is guided by the inclusion criteria deployed within the previous proceeding, too. In more detail, the journals within the AIS “Basket of Eight” have been chosen before served also as criterion of quality for the backward and forward search, respectively. Also, the necessity of a mention of one of the previously defined keywords within the title, abstract or keywords had to be accomplished. However, the covered timespan needed to be expanded due to the reason that cited literature is older than the previous hit itself, as a matter of course (Vom Brocke et al., 2009).

Eventually, 12 articles were included extracted by backward search and 3 hits by forward search. One salient finding accrued from the vast majority of hits published in 2007 in the European Journal of Information Systems, which is attributable to the special issue version of the journal at that date. Interestingly, the work authored by Scott et al. (2016) is cited by a huge amount of the within this analysis generated hits out of the first step of literature searching. Another insight is that a huge amount of the articles captured within the previous step of literature search appears by conducting the backward as well as forward search. This fact in combination with the result of the backward and forward search can be considered as a token of saturation because no up to now disregarded articles could be identified (Webster and Watson, 2002). Overall, after summing up the hits conducted by the keyword as well as the backward and forward search an amount of 48 papers was identified. The appearing years with the highest quantity of published articles are 2007 and 2008. There is a standing to reason explanation for this event. Within 2007 the European Journal of Information Systems published a special issue regarding the topic of e-Government. This implies that a huge amount of hits are out of this journal in this year. The peak concerning the year 2008 can be explained by the appearance of a special issue, too, this time within the Journal of Strategic Information Systems (Bélanger and Carter, 2012). The results for the other years are mostly evenly distributed. Moreover, the mapping of the used research methodologies within the findings yielded the following results. Nearly half of the hits used case studies to examine their research questions, which is an applicable method to research topics concerning ICT usage within public sector operations. This is not surprising due to the going up in researcher's estimation during the past decades in information systems research. Although this technique is not clear of problems (Lee, 1989), nowadays the investigation using case studies is an admittedly common proceeding (Walsham, 1995). The remaining amount used investigation via quantitative methods as survey questionnaires.

4.2 Thematic Findings

In the following the results of the literature searching process are analysed and synthesized (Vom Brocke et al., 2009). For conducting the final analysis, a mapping of the underlying understanding of citizen participation arising from electronic government systems, the primary research objectives as well as the assignment of the findings derived from the research endeavour was accomplished. Thus, the out of this approach arising conceptual model serves as a guideline for outlining and defining the generated hits. For categorizing four classes are suggested: inform, consult, involve and co-create. Retrospectively, the previously mentioned Arnstein ladder admittedly affected the choice of the categories, but there had to be made some renewals owing to the model been developed some decades before (Arnstein, 1969). During the time of creation digitalization was far away from its breakthrough. Thus, in combination with the research scope of the generated literature and excerpts of Macintosh's framework concerning the element of "level of participation" it is possible to transform the old-fashioned model, adjust it to today's necessities and thereby recreate new relevance for the participation approach out of the traditional version of Arnstein. Resulting from the theoretical foundation, our proposed analytical framework will be briefly described at each suitable step within this section. The assignment of the findings to the concept model is based on the prevalent definition of what citizen participation constitutes in the opinion of the authors within each article mostly located in the introductory part. Moreover, the arrangement of all categories into a government-centred and citizen-centred investigation perspective serves as a superior subsumption, following the theoretical foundations of top-down and bottom-up approaches (van Waart et al., 2016) and the smart service system approach by Beverungen et. al. (2019). The allocation depended on if the government as the service provider is the main subject of research or if the general scholarly interest is guided by focusing on civic aspects, i.e., citizens as service consumers.

4.2.1 Inform

The first step of participation is expressed by an act of solely informing citizens, e.g. through information webpages or other sources offering information to citizens by the government (Arnstein,

1969). All findings summarized under this section have a conception of citizen participation along with informing citizens in common.

Governmental service provider

Starting with the synopsis of the articles belonging to the lowest level of possible participation of citizens focusing on the governmental perspective, the paper by Irani et al. (2008) seeks to clarify the issue of how to evaluate with e-Government associated issues concerning initiatives. Due to their prior definition on how the authors understand the concept of electronic government the viewpoint of informing citizens with appropriate service delivery is underpinned. They state that social factors as the involvement of senior executives, clarification of responsibilities, a general adoption of digital governance systems as well as responsibilities for evaluation and formalized structures for doing so and finally having an overview of evaluation processes is of relevance (Irani et al., 2008). Azad and Faraj (2008) investigate the impact of different involved stakeholders on the implementation process of a governmental project for enhancing service quality for citizens. Therefore, they applied technology frame thinking, ending up with the contribution, that by negotiating upon relevant steps of design and implementation a status of truce between related agents is required (Azad and Faraj, 2008). During the implementation of electronic government information services, there appear to be processes of learning within the government as organization. Phang et al. (2008) point out the interrelationships between organizational agents and its impact due to change resistance. In respect of the development of public information opportunities (Du and Dai, 2018) employ the theory of reference groups to the progress of electronic government services. They mention that the development within one governmental entity is influenced by the stage of deployment within other governments, which serves as a reference point due to comparable characteristics. Thus, data regarding the recent development in one region were used to investigate the influence which is emanated by cities. On the one hand, influence is asserted because of comparable traits a government shares with the average of referents. On the other hand, the regional proximity seems to matter (Du and Dai, 2018). Another topic increased information of citizens can benefit is the prevention of corruption through electronic government services, which is researched according to stakeholder service systems (Srivastava et al., 2016). Outlining successful e-government systems implementation, the authors suggest a model using resource enactment thinking for determining organizational resources needed (Chan et al., 2011). Tan and Pan (2003) explain an approach concerning the needed internal transformation while implementing electronic government services offered to citizens, providing them with greater access to municipal information. Regarding the evaluation of electronic service delivery and investment decisions of governments one research attempt exposes a suitable model containing the underlying organizational culture, the way who and how a decision is made and the respective evaluation method (Irani et al., 2005). Moon and Norris (2005) emphasise the required innovativeness of managerial municipal entities and the city sizes as influential aspects regarding the adoption of electronic services by the municipality. Cordella and Iannacci (2010) refer to the choice and design of used information systems based on prior determined electronic government strategy of the respective government. In the study by Bonina et al. (2018), the objective is to create a model based on Open Government Data (OGD) platforms that extends the concepts of marginal resources from demand to supply. Seetharaman et al. (2019) considers the incongruities in stakeholders' perspectives and their negotiations and opportunities to be reconciled based on the technological frame of reference theory. Marmier and Mettler (2020) investigate the cognitive structures of public managers in the context of different application areas of OGD. The results show to what extent managers understand OGD as a concept and how it can be used in different application areas.

Civic service consumer

From the citizen-centric point of view on informing citizens by offering services in a digitalized way, (Benbasat et al., 2007) compile a framework investigating the offered service quality as important for citizens to participate in governmental services. The authors point out that on the one hand the content of the delivered service serves as a critical variable but on the other hand the way, how a service is delivered, is influential, anyhow. Regarding the adoption of electronic services providing information by citizens, Chan et al. (2010) investigate influential factors for their satisfaction. Thereby, they point

out that awareness that a digital services is available, the compatibility to prior values of citizens, the self-efficacy being able to use an online service, the possibility of the service to fulfil changing needs, the avoidance of personal interaction with governmental agents, trust in the service system, the required time for using the service and available support when having problems with the system are of importance for citizen satisfaction (Chan et al., 2010). Another issue facing the usage of electronic government services by citizens is about the duration of utilization. Thus, Teo et al. (2008) investigate concerns related to trust concepts determining success of websites reached through adoption of them by citizens. They show that trust in the government is influential for trust in governmental websites. In turn, the former influences quality factors, which relates to the intention to continue usage and satisfaction with actual usage (Teo et al., 2008). Venkatesh et al. (2014) choose as a research objective the usage of electronic government information services for the public as well, applying the big five personality characteristics and demographic variables. They confirm, that usage can be highly predicted by characteristics as extraversion, consciousness and openness to new experiences as well as socio-demographically based income (Venkatesh et al., 2014). Besides the use of information services, continuous usage is an important extension. Thus, one finding investigates through which influencing variables impact the continuance of usage by combining the two-stage expectation-confirmation theory of IS continuance with predictors of the UTAUT model (Venkatesh et al., 2011). Concentrating on the service provision of information to citizens, the design of such services offering a high service quality is subject of research, too (Tan et al., 2013). Focusing on aspects as trust, innovation related characteristics and elements of the TAM to give insights in the adoption of electronic information services offered by governmental agencies Carter and Bélanger (2005) point out perceived ease of use as well as compatibility and trustworthiness as influential factors for citizen information systems.

4.2.2 Consult

When reaching the next higher step of citizen participation, issues concerning obtaining feedback from citizens, letting the public comment upon decisions or plans or surveys are examples (Arnstein, 1969). Consulting citizens can be seen as a way of bilateral exchange of information between government and citizens (Phang and Kankanhalli, 2005). As distinguished from ‘inform’ the government not only provides information but expresses openness to content offered by the public.

Governmental service provider

Mosse and Whitley (2009) focus on the reinterpretation of the citizen as a customer out of the view of governmental agents on the issue of benchmarking practices of government websites. Thereby, they conceive of integrating citizens in democratically processes via enhanced informing through offering governmental information websites with multiple functions such as a request function for reciprocal interaction. Researched elements of benchmarking include standardized components as imprint, contact data and FAQs, traceability of the website, design and navigation patterns and performance parameter. Lastly, interaction time with government agents is measured (Mosse and Whitley, 2009). The authors previously presented a work concerning classification and benchmarking issues with a sense of philosophical elements of investigation (Mosse and Whitley, 2004). The research endeavour by Lee and Rao (2012) reveals the impact of source and channel provision of services on the usage of web-based governmental services through informing themselves and providing information to the municipal agents. To depict the status of currently implemented strategies concerning electronic government for citizens’ benefits (Beynon-Davies and Williams, 2003) propose a model including a supply chain and a customer chain approach embedded in an electronic local government model. From the governmental point of view Lim et al. (2012) propose a guideline with recommendations for municipal actors for enhancing the trust of citizens in interacting via electronic services with their government addressing acceptance issues. Due to the possible assignment of the paper by Kokkinaki et al. (2008) to both researched perspectives it is depicted in total within the following subsection. According to Coelho et al. (2018), the impact of the use of e-participation platforms on the elaboration of a public policy is studied. It was found that the consideration of the control of critical resources, the aspects of formal authority, and the recognition of implemented interactions and mechanisms are indispensable in practice. Graf et al. (2020) looked at individual decision making in their study. Using

gamification, they developed a tool to visualize information with direct feedback for citizens. It was found that the tool influenced citizens' decision making.

Civic service consumer

From the viewpoint placing citizens in the centre of investigation, Phang et al. (2015) put their research emphasize on taking-part-mechanisms operationalized by online policy deliberation forums. Therefore, they not only use the well-investigated aspect of motivating current contributors to enhanced participation but to consider the reasons for lurkers not to actively take part in the discussion process (Phang et al., 2015). They point out, that for lurkers collective benefits are of great importance, whereby contributors are highly motivated by political career benefits and political efficacy. Skills of citizens are only weakly important for lurkers, as well as persuasion benefits and mobilization issues. Lastly, connectivity influences only contributors' intention to take part in an online feedback forum, whereby perceived communality is important for both. Besides the expected results, socio-demographic variables as education, sex and income level lead to detailed insights. More educated citizens are more sceptical about active participation. If focusing on contributors only, especially females accept online forums for actively taking part in policy making (Phang et al., 2015). Bélanger and Carter (2008) focus on the impact of trust and risk on the usage of governmental systems by citizens understanding their role as users of services offered by the government and also as providers of information for governmental usage. By applying the TRA, results exhibit, that the deposition to trust affects the trust of the internet as well as the government positively whereas the perceived risk has a negative impact on trust of the government. Both have influence on the intention to use the electronic system (Bélanger and Carter, 2008). Lee et al. (2003) emphasize the adoption of electronic services for citizens. Therefore, the authors utilized the TAM applying determinants affecting trust in the governmental provider of the service. The assignment is made due to the possibility, that citizens can provide information by their own to the system enriching it with urgently needed hints by what all stakeholders benefit (Lee et al., 2003). As seen before, trust in systems is an important research topic regarding electronic services enabling citizens, investigated by Li et al. (2008), too. Focusing on the potential uncertainty of citizens regarding electronic interaction with governments, Venkatesh et al. (2016) investigate the impact of trust facets and transparency issues on the usage intention in the first step and later on the actual use and resultant from this the satisfaction with the usage. Results suggest, that usage is determined by information quality and channel characteristics positively affecting the reduction of uncertainty (Venkatesh et al., 2016). Entailed by the interaction between governments and citizens, one finding contributes to the understanding of the segment of e-payment regarding transaction with governments outlining that trust is an important aspect (Treiblmaier et al., 2004). Lastly, a study by Kokkinaki et al. (2008) examines both perspectives – governmental and civic ones. Results suggest that the perceptions of what newly arranged electronic government services should offer to their users are far from unanimity. Governmental agents perceive providing information about services offered by the government as well as information on events as highly important, whereby citizens value the possibility to submit complaints as most important. Interestingly, both parties rank functions to complete a citizen survey and e-voting options as relatively unimportant. However, these results have to be treated with respect to the geographical area, where the study was conducted (Kokkinaki et al., 2008).

4.2.3 Involve

Going one step further, citizens can not only comment on governmental issues, but are directly involved in specific municipal processes, albeit they are not an active constituent of a collaborative team. Nevertheless, citizens' ideas and opinions are treated as valuable sources being integrated.

Governmental service provider

Applying the governmental perspective, the strategic planning of governments is investigated by applying SWOT technique and the AHP decision-making approach, depicting how governments can assign their potential strengths, weaknesses, opportunities – in this case increased citizen participation - and threats resulting in a prioritized decision-making tool (Kahraman et al., 2007). The study by Silal

et al. (2019) established a model by taking an end-to-end process view of e-government for promoting good governance through the mediating role of e-participation and the interdependencies between phases.

Civic service consumer

By considering the civic side of involvement in governmental issues (Scott et al., 2009) concentrate on the development of an e-Government success model based on the D&M IS Success Model. Therefore, they emphasize the need of a demand side perspective for gaining insights in what citizens value as beneficial concerning electronic government systems, proposing to do this by applying emphasizes on more effective and efficient services and the enhanced democracy aspect, including well-informedness and impact in decision-making (Scott et al., 2009). Considering potential benefits arising from the implementation of electronic government applications, Scott et al. (2016) investigate the three main purposes of e-Government, namely efficiency, effectiveness and improved democracy and their impact on the perception of citizens about e-Government success. Focusing on improved democracy as being related to citizen participation, the authors suggest validated measurements for e-Government success interpreted by citizens, namely trust, well-informedness and participation in decision-making (Scott et al., 2016). Lastly targeting citizen-specific aspects, Chan and Pan (2008) employ their approach of utilizing stakeholder theory on clarifying mechanisms to achieve and foster user engagement. Thereby, they emphasize the need of including citizens in the implementation process of e-government service implementations to enhance their later usage (Chan and Pan, 2008). Fegert et al.'s (2020) study is about visualizing public works projects through augmented reality and virtual reality to engage citizens in the decision-making process. They present forms and levels of participation citizens and initiators are interested in.

4.2.4 Co-Create

The highest step of the participation model is about co-creation. Within this, a real collaboration process occurs by putting citizens in the role of partaking actors beside the government, emphasizing the building of a relationship between governmental entities and citizens by enabling citizens to have an influential voice within the whole democratic process (Arnstein, 1969).

Governmental service provider

When considering co-production through citizens with governmental entities putting them in front, Rose et al. (2015) propose a research attempt about value perceptions of public sector managers. By emphasizing one inner meaning of electronic government as “co-production of policy”, they show four resulting value positions and relationships, namely professionalism, efficiency, service and citizen engagement ideal, governmental managers need to be aware of (Rose et al., 2015). Feller et al. (2011) put a research emphasis on the investigation of innovativeness within e-Government initiatives due to co-creation of services by governments and citizens. They present four resulting categories of open innovation of which one depicts the direct integration of citizens within the innovation process (Feller et al., 2011). Olphert and Damodaran (2007) investigate the impact, which can be generated through the participation of citizens towards the development and design of electronic governmental services, respectively. By exerting the systems design methodology they extend the model and transfer it to public concerns. Thus, they suggest treating e-government systems as socio-technical systems, which benefit from the inclusion of end-users –in this case citizens (Olphert and Damodaran, 2007). By emphasizing design process aspects of electronic service innovations, Kuk and Janssen (2013) contrast a backend with a frontend approach, whereby the frontend version displays increased citizen voice within the process of collaboration. According to Chatfield et al. (2019), the study is about identifying the key enablers and barriers to co-creating public value in a smart city ecosystem.

Civic service consumer

Grimsley and Meehan (2007) investigate the design of electronic government systems through applying Moor's theory of public value in order to determine citizens' expectations and experiences regarding service provision. Thereby, they contrast trust and satisfaction with the influence of being well-informed, personal control and influence showing that the last named could contribute well to

design issues (Grimsley and Meehan, 2007). Huang (2007) points out that socioeconomic factors influence the adoption and diffusion of e-government systems concerning its development, whereby diffusion illustrates stages starting from information, communication, transaction and lastly democracy (Huang, 2007). Concluding, Gil-Garcia et al. (2007) give insights in the impediments hindering citizens in participating in collaborative e-government initiatives, whereby cultural and managerial impediments do affect but political impediments do not affect citizens perceived benefits (Gil-Garcia et al., 2007).

Participation stage	Line of interaction / Requirements	Literature	Service consumer / provider	
Inform	Service delivery	(Irani et al., 2008), (Irani et al., 2005), (Bonina et al. 2018), (Marmier and Mettler 2020)	Governmental service provider	
	Change process	(Phang et al., 2008), (Tan and Pan, 2003)		
	Development	(Du and Dai, 2018), (Cordella and Iannacci, 2010)		
	Implementation	(Chan et al., 2011), (Azad and Faraj, 2008)		
	Adoption	(Moon and Norris, 2005), (Srivastava et al., 2016)		
	Service provision	(Tan et al., 2013), (Benbasat et al., 2007)	Civic service consumer	
Consult	Adoption/ usage	(Chan et al., 2010), (Carter and Bélanger, 2005), (Teo et al., 2008), (Venkatesh et al., 2014), (Venkatesh et al., 2011), (Seetharaman et al. 2019)	Governmental service provider	
	Citizen as customer	(Mosse and Whitley, 2009), (Beynon-Davies and Williams, 2003), (Mosse and Whitley, 2004)		
	Source/ channel provision	(Lee and Rao, 2012)		
	Acceptance/ trust	(Lim et al., 2012)		
	Service offerings	(Kokkinaki et al., 2008), (Coelho et al. 2018), (Graf et al. 2020)		
	Adoption/ usage	(Phang et al., 2015)		Civic service consumer
	Trust	(Lee et al., 2003), (Venkatesh et al., 2016), (Treiblmaier et al., 2004), (Li et al., 2008), (Bélanger and Carter, 2008)		
Service offerings	(Kokkinaki et al., 2008)			
Involve	Strategic planning	(Kahraman et al., 2007), (Silal et al. 2019)	Governmental service provider	
	Success determinants	(Scott et al., 2016), (Scott et al., 2009)	Civic service consumer	
	Implementation	(Chan and Pan, 2008), (Fegert et al. 2020)		
Co-create	Value perceptions	(Rose et al., 2015), (Chatfield et al. 2019)	Governmental service provider	
	Innovativeness	(Feller et al., 2011), (Kuk and Janssen, 2013)		
	Inclusion of end-user	(Olphert and Damodaran, 2007)		
	Service provision	(Huang, 2007)	Civic service consumer	
	Diffusion	(Grimsley and Meehan, 2007)		
	Impediments	(Gil-Garcia et al. 2007)		

Table 1. Research model and appropriate findings based on the smart service system framework (Beverungen et al. 2019) and participation stages (Macintosh 2004; Arnstein 1969)

5 Discussion and Limitations

The previously depicted results give a profound insight in the research regarding ICT enabled citizen participation. As the outcome shows, diverse thematic topics are affected, whereby the categories inform, and consult appear to be well-investigated ones. Obviously, due to the reached number of findings reflecting each of the stages, research regarding involvement and co-creation of citizens with governmental agents is fewer discussed yet. As displayed within the initial section, results show that it is mandatory to jointly investigate both participating parties – governments as service providers and citizens as service consumers. At the same time, by extending the smart service systems framework for digitized governmental environments, it can be shown that certain requirements for implementing such an environment must be addressed by using the line of interaction. Thereby, a necessary requirement is available for each participation level for both service providers and service consumers. Especially for practitioners, the application requirements for participation can provide added value for an implementation of digitized governmental environments. As Macintosh suggests citizen participation can be seen as an underlying issue regarding e-democracy (Macintosh, 2004) in turn resulting from benefits offered due to implementation of electronic governments. The results of the systematic literature search signpost that there is still research work to do regarding this topic. The achieved hits lack a distinct approach of explicitly dealing with aspects surrounding genuine citizen participation expressed through having a say in decisions, whereas many of the articles focusing on informing citizens via e-Government services offered by municipal agents by digitalizing administrative transactions. A real readiness not only to transform municipal structures within novel ICT usage but beyond that activating citizens to put their word in the balance in every step of development is missing within the current state-of-the-art literature. The appearance of this conclusion may be caused by the distribution of the hits concerning the used keywords. The majority of derived articles were found by applying the phrase “eGovernment/ E-Government/ e-Government/ e-government”. It seems as if exactly these papers include content regarding already existing services and transforming them into “online-versions”. This may lead to the conclusion, that the utilized keyword does not sufficiently draw a likeness of the inner meaning of citizen participation. Otherwise, as described within the methodology section several other keywords (including citizen/civic participation/ engagement/ involvement) were used likewise yielding to extremely low or no results, respectively. Nevertheless, the cognition gained signposts that the state-of-the-art literature does not contain comprehensive material about citizen participation, because if so, the mentioned keywords would have led to more suitable results. Another issue accruing from the analysis is the exploitation of the actual objective of enhancing citizen participation for own governmental concerns. Thus, it seems as if providing information officiates as an attempt to implement a weak version of participation, which expresses the will of the government to let the public take part, but in a harmless manner (e.g. (Mosse and Whitley, 2009). This insight goes along with Arnstein’s perception of lower stages of citizen participation as way of pretending citizens to have power whilst indeed they do not have (Arnstein, 1969). Following from this, citizens are manifoldly interpreted as customers within the identified literature (e.g. (Mosse and Whitley, 2009; Lee and Rao, 2012). Due to this, it appears as if governments e.g. use greater sharing in information seen as participation as way of positive marketing for government and not as advantageous way for mutual benefiting caused by exchange of ideas. The huge amount of identified papers regarding service quality, provision and channels where they are offered emphasizes this conclusion (Lee and Rao, 2012; Tan et al., 2013; Irani et al., 2008; Azad and Faraj, 2008; Benbasat et al., 2007). Hence, the importance of combining previously mentioned top-down and bottom-up approaches is underlined. Moreover, induced by the utilized theoretical basis applied within the papers, a great number draw on well-known models as the TAM, the TRA or the UTAUT (Lee and Rao, 2012; Lee et al., 2003; Bélanger and Carter, 2008; Carter and Bélanger, 2005). Obviously, the gained insights can drive research theoretically forward, but it need to be stressed, that beneficial implications for practical application need to go further than this.

The following aspects are mentioned to reveal limitations the proceeded systematic literature process underlies. The chosen keywords are based upon the theoretic foundation previously characterized. That implies if keywords would have been selected grounding on another theoretic fundament, the

outcome of the literature search process could have been a different one. During the research process other suitable possible phrases occur, as “public policy” (Phang et al., 2014), “e-democracy” (Macintosh, 2004) “public engagement” (Pang et al., 2014a), “public sector” (Pang et al., 2014b) or “citizen coproduction” (Pang et al., 2014b). The choice of the searched journals can be challenged as well as the selection of the appropriate databases, the handling of the systematically generated hits and the accrued model itself. However, against the backdrop of the current research question the proceeding appears comprehensible and expedient.

6 Conclusion and Future Research

The current literature review depicts a goal-driven investigation towards the topic of citizen participation within the area of electronic government development. Therefore, relevant literature was systematically identified and replicable edited ending with a literature scope of 48 retrieved papers. The result is a representative overview of research hitherto realised within the field presented as an analytical framework based on pertinent theory regarding participation in political contexts. The framework utilizes the theoretical background of the Arnstein ladder of citizen participation applying it to the background of information systems research enriching it with a second dimension mapping the scope of investigation concerning each stage of participation. After having assigned the generated and exploited hits of the literature search to the framework, it was visible to determine that contributions out of the included articles focus on few research areas concerning citizen participation. Emerging from the discussion of the results, the necessity arises of conducting research in the future explicitly relevant to citizen participation with a crisper dissociation of e-government as an overall concept. Contrary to e-Government where authors meet a distinct description, citizen participation is lacking this concrete shared understanding. Therefore, future research should try closing this gap by emphasising a crisp definition on which research build upon. Moreover, few issues were canvassed within current research as determinants affecting trust, adoption, acceptance and usage of systems. Certainly, detailed deliberations regarding the integration of citizens in the policy process are missing. This insight leads to the requirement of future research to be generally guided by the research focus on a true collaboration between citizens and government. In the future, research within the field of ICT enabling new ways of citizen participation needs to emphasize and denominate the concept of putting citizens more in action carrying forward their transformation from citizens to customers to co-producers (Gutierrez et al., 2018). Latest findings suggest the implementation of integrated urban platforms including several interfaces through which citizens contribute to improved municipal life by being an active part of the development (Gutierrez et al., 2018). Furthermore, urban sensors are proposed for realization of increased participation as well as living labs and collaborative innovation platforms (Gutierrez et al., 2018; Tukiainen T. et al., 2015). These proposals express the prospective demand of going one step further in the direction of collaboration with citizens by empowering them.

Beyond all results, a missing connection of the cases to explicitly explained examples of citizen participation within initiatives is observable. That implies that literature remains vague regarding the implications for this special element of electronic government empowering citizens. Arising from this, future research should adduce e.g. cases providing insights in citizen participation programs for investigation leading to more in-depth contributions suitable for the topic of citizen participation in policy making. In closing, the present systematic literature review regarding the latest state of the art of citizen participation contributes to the prospective research by guiding future endeavours, it could be of practical guidance for city administrations by considering, designing and implementing citizen participation initiatives and it transfers a powerful theoretical model of participation to the area of ICT.

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