Would you like to Participate? – Stakeholder Involvement in the Development Process of Digital Strategies for Municipalities

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***Abstract*—Today there is a high pressure on municipalities to adapt to the digital demands of their citizens and to involve them in decision-making processes. One way to achieve this transformation is with the instrument of digital strategies to guide municipalities' way and to get them involved right at the start. In our case study, we analyzed strategic documents of 22 national and international smart cities regarding participation in the age of digitization. We conducted semi-structured interviews with seven of those cities asking about chances and challenges they had while developing their digital strategies using participatory elements. We also conducted expert interviews and a survey based on our findings from the interviews. One of the key aspects we looked at was the process of involving different stakeholders in the development process of digital strategies. As the development of a digital strategy, as guideline for the digital transformation process of municipalities, we look at the starting point of participatory processes when we look at the development of a digital city. Our results show, that the aim of cities is high to involve different stakeholders. However, it is often hard to encourage stakeholder to participate. We therefore propose important guidelines, which need to be taken care of for participatory processes regarding the development of digital strategies for municipalities.**

Keywords-Digital strategy; digital transformation; participatory process; stakeholder involvement.

I. INTRODUCTION

When it comes to digitization municipalities are often said to be slow and far behind technological developments. Nevertheless, nowadays there are many federal state projects helping to face municipalities' digitization. Federal states try to help their municipalities with state subsidies. The result is that many municipalities use those state subsidies to do projects regarding digitization in different sectors. However, those projects often last only for their duration of funding. Afterwards, the projects cannot be carried on. This is a phenomenon often seen in the public sector. Nevertheless, what can help municipalities to set their projects long lasting? At this point, digital strategies and stakeholder involvement become more and more important.

Recent literature had a look at digital strategies, for example from the business perspective. Digital strategies, in the context of businesses can be defined as "organizational strategy formulated and executed by leveraging digital resources to create differential value", aligned with the existing Information Systems (IS) Literature [1].

Aligning with recent literature that has contributed to a deeper understanding of digital strategies in the IS ([1]-[4]) and digital strategies regarding smart cities [5], we want to aim to continue this tradition in light of current developments regarding stakeholder involvement. Specifically, we seek to shift the focus from previous conceptualizations, to a new form of conceptualization that also takes into account participatory elements of digital strategies, especially for municipalities, regarding stakeholder involvement.

Recognizing the need to get a better understanding of the construct of digital strategies with the focus on stakeholder involvement, the first goal of our study is to contribute to the exiting literature. We want to give clear information about the questions on "how to develop a digital strategy focusing

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on stakeholder involvement?" and "What kind of actors are important to involve in the process of developing a digital strategy?". Our objectives are motivated by the fact, that due to emerging consumer technologies, citizens of different stakeholder groups are more familiar with technological possibilities and have great ideas of how public services should be made available in the digital era.

The remainder of the paper is structured as follows. The second Section gives an overview of digital strategies and participation in the context of smart cities and municipalities. The third Section describes the research design of this study. In Section 4, the findings of the case studies and the survey are presented and in Section 5, we give rise to guidelines for stakeholder involvement. The Discussion is shown in Section 6. Section 7 points out limitations and aspects for future research.

II. BACKGROUND AND BRIEF THEORETICAL REVIEWS

The construct of strategy has been discussed widely in existing literature (e.g., in the IS and management literature) [4]. As an example [3] conducted a comprehensive literature review on IS strategy starting with looking at strategies from the perspective of the management science literature [3]. In their study, IS Strategy was defined as "the organizational perspective on the investment in, deployment, use, and management of information systems" [3]. As a result of their literature review, [3] showed that a variation of expressions (e.g., Information technology (IT) strategy, IS strategy, IS/IT strategy or information strategy) have been introduced in literature to represent the same construct [3]. However, looking at digital strategies shows, that they are understood to be even more, looking not only for examples on the investment and management of information systems but rather on the whole business [1]. Aligning with [1] and [6], such a digital business strategy could be defined as an "organizational strategy formulated and executed by leveraging digital resources to create differential value" [1] and "to support or shape an organization's competitive strategy, its plan for gaining and maintaining competitive advantage"([6] and [15]).

Looking at participation, we notice that participation is widely used as construct for example in the management science literature but also in the smart city literature ([7]-[11],[21],[22]). Against this background and in the context of IS and management science literature, [11] defines participation as "allowing workers to have input regarding a proposed change" (p.134). When we looked at participation, we find that the adaption of the definition of [11] fits best our definition of participation. Aligned with [11], we define participation as allowing citizens to have input regarding a proposed change.

Existing theories have addressed contemporary developments regarding digital strategies or participation in various ways. As an example, Effing et al. [7] developed a Social Smart City framework, which includes a set of digital strategies (e.g., crowdsourcing strategy and open data strategy) for participatory governance in smart cities. Spil et al. [8] showed, using three cities (Hamburg, Berlin and Enschede) as case studies that a quadruple helix structure of citizens, companies, universities and government ensures effective participation. This phenomenon can be seen also by [9], who proposed suggestions regarding actions and projects in smart cities from the quadruple helix, thus creating a "360-degree" model for prioritizing smart city interventions in Greek cities. Ergazakis et al. [10] proposed a Digital City Concept and an integrated methodology for Digital City development in order to help regions and cities to adopt best practices from information technology. However, existing conceptualizations of digital strategies for municipalities and their process of development often did not look at the participatory process, explicitly the involvement of different stakeholders (e.g., politicians, companies, normal citizens, science) in the development process of a digital strategy for municipalities. In order to address our objective, this paper is guided by the following research question (RQ):

RQ: How can different stakeholder be involved in the development process of a digital strategy for municipalities?

III. RESEARCH METHODOLOGY

In order to explore how participatory elements and different stakeholders get involved in the development process of digital strategies for municipalities, we conducted a mixed-method approach of qualitative and quantitative research [13]. The study at hand only shows the results regarding participation. Other elements of the study are published in other formats or conferences. First, we conducted a case study [14] consisting of qualitative and quantitative content analyses of digital strategy documents (aligned to the definition by [15]) in practice (we aligned our process on [15] who followed this methodological approach to conceptualize structural features of digital strategies for municipalities). We looked for criteria as for example, the development process and steps municipalities took to write their digital strategy. Moreover, we looked at how municipalities involved different stakeholders at different levels of their process. From the results of the content analysis, we conducted a qualitative process analysis combined with expert interviews (employees who developed the digital strategy). Afterwards, we reflected our results back to experts (e.g., chief digital officers, chief information officers, digital experts and mayors) in a workshop. Next, we

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conducted with the results from our case studies and based on existing literature a survey addressed towards the digital experts of the municipalities. Our mixed-method approach, aligned with [15] can be seen in Figure 1.

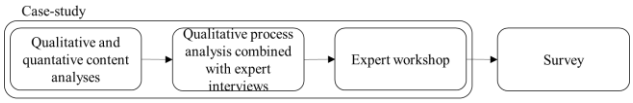

Figure 1. Research Design (aligned with [15])

We used case studies because they are a useful method while investing complex phenomena that have not been fully explored, and do not allow the analysis of causal relationships ([14] and [16]). Furthermore, aligning with [17], case studies allow us an in-depth analysis of phenomena that are related to the context where those phenomena occur [17]. Since our mentioned aspects are relevant to our objective and study, case study research is a well-suited method for the first part of our endeavor [15]. Especially, it is supposed that the strength of case studies lies in their internal validity whilst their weakness is often to be the external validity [15]. In order to increase the external validity of our case study, we introduced two forms of measures: First, our study was conducted in a team. This means, that at least three researchers conducted all phases, which are described in the following. With the use of multiple investigators, we were able to implement triangulation (investigator triangulation ([15] and [16])). As second measure, we included multiple cases to reduce case-specific findings ([14] and [18]). We selected our cases using content-related validity ([15] and [19]). We carefully choose the following 22 cities as cases: Birmingham, Brussels, Cape Town, Copenhagen, Den Haag, Dubai, Duesseldorf, Edmonton, Eindhoven, Gothenburg, Hamburg, Leipzig, London, Manchester, New Orleans, New York City, Oldenburg, Sonderborg, Stavanger, Sydney, Tallinn and Vienna.

With the findings of our case study, we started to develop a survey. Therefore, the survey is comprised out of the findings from different stages of the case studies. In detail, the survey consists out of elements and items, which we hypothesize having an effect on the involvement of stakeholders during the development process of a digital strategy for municipalities. These elements and items are direct findings out of existing digital strategies reflected into the existing literature. For example in our study, we focused on participation as an important dimension evolving out of the qualitative and quantitative analysis of the strategic documents. Participation as possible dimension was confirmed through the expert interviews and later on in the expert workshop. We found a construct fitting our understanding of participation in existing literature. We adapted the construct of participation from [11], e.g., “Which aspects regarding digital strategies play a role regarding participation of citizens? Citizens are able to take part in decision-making processes.”. Aligned with [11] every item of the survey was asked using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). In a next step, we cumulated the answers 1 and 2 from the Likert scale to one new scale called “fully disagree” and 4 and 5 to “fully agree”. Aligned with [15] number 3 of the Likert scale stayed as “neither”. Using relative frequencies [15], we were able to show how often and strong individuals of the municipalities agreed or disagreed with the proposed participatory elements in the development process of digital strategies for municipalities, where each participatory element stayed for itself.

We have to note that our study shows only a small part of a more comprehensive study we conducted regarding digital strategies for municipalities. Therefore, when rolling out our survey, we first run a pretest on 300 municipalities in Germany. We choose municipalities regarding their number of inhabitants in relation to the overall population of the state the municipality is located in. We calculated the number of municipalities taken for a state in relation to the number of municipalities in general [15]. As the survey was going to be run in the federal state of North-Rhine Westphalia (NRW) in Germany, the pre-test was conducted in every state in Germany leaving NRW out of the scope [15].

Afterwards, we adapted our survey regarding the results of the pre-test we conducted. We conducted our final survey in the state of NRW. Aligning with [15], we asked all 396 NRW-municipalities and 31 districts to participate in our study. With a response rate of 34%, 133 municipalities and 12 districts took part in our study.

IV. FINDINGS

Our first findings included findings from the analysis of the strategic documents of 22 smart cities. Those findings from our qualitative and quantitative document analysis showed that in 43% of our analyzed strategic documents of municipalities citizens got involved in developing the digital strategy. In 29% stakeholder from economy and in 52% science got involved. The interviews corroborate this aspect. Developing a digital strategy means setting the direction for the digital transformation. However, a small group of people cannot choose this direction. Different stakeholders need to be involved. Learnings from the interviews showed us that for each smart city it was hard to associate with different stakeholders and to motivate them to get involved in the

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development of a digital strategy as guideline for the digital transformation of their city.

Findings from our survey show that when we asked for responsibilities while developing and implementing a digital strategy we found that mayors take a big part of involvement at this stage. For example, when we asked for "who is responsible for the development of a digital strategy in your municipality?", we found that 82% of the municipalities filled in that the mayor is responsible. In 75% the city counselor, in 84% the head of department, in 42% an employee and in 72% a work group is responsible for the development. When we asked for "who is responsible for the implementation of a digital strategy in your municipality?", we found that 66% of the municipalities filled in that the mayor is responsible. In 64% the city counselor, in 84% the head of department, in 64% an employee and in 60% a work group is responsible for the development. Our findings show that the development stage is one of the responsibilities of the mayor. However, when it comes to the stage of implementing a digital strategy the head of department is responsible for further processes. With this finding, we get to know responsibilities at each stage of the development process of a digital strategy helping us to better understand, who the person in charge is for stakeholder involvement at each step.

Third, we also asked for important aspects regarding citizen participation ("Which aspects regarding citizen participation are important for digital strategies?). We found that in 88% of the municipalities citizens can ask questions. 62% of the municipalities involve citizens in decision-making processes and 51% are getting involved in the implementation of digital strategies. We found that even more than half of the municipalities who took part in our survey are given the possibility to get involved in the process of the development of a digital strategy.

As we concentrated in our study on the involvement of different stakeholders in the development process of a digital strategy for municipalities, we also asked for the involvement of different stakeholders beside citizens. We asked "To which information do you refer to while developing your digital strategy?" and "At your public administration expert knowledge is present." We found that 87% of the municipalities involve external experts in their development of a digital strategy. 50% refer to information from science or involve expert knowledge. 39% involve city-owned companies in the development of a digital strategy.

Aligning with [15], we wanted to control for the employees answering our survey. For this reason, we put a question in the survey, asking for the name and position of the employee. In our study, employees or mayors, who are concentrating on the topic of digitalization in their municipalities, answered each conducted survey.

V. GUIDELINE DEVELOPMENT

With our findings, we were able to give rise to four guidelines for the involvement of different stakeholders in the development process of digital strategies for municipalities. We found, that first, digitalization is a matter of executives, second digitalization needs participatory processes, third digital strategies need competences and fourth digitalization is a joint task.

Digitalization is a matter of executives. The findings show that talking about the development and implementation of digital strategies the person in charge are mayors and the head of the departments. This distribution of responsibility shows that digitalization is a matter of executives who lead the way to digital transformation.

Digitalization needs participatory processes. When we look at the way of how citizens get involved in the development of a digital strategy for their municipality we clearly see that digitalization needs participatory processes. Citizens are often able to ask questions. Nevertheless, when we look at the process of decision-making and implementation, we see that there are still more possibilities to get citizens involved. Municipalities need to work on these possibilities and on ways to get more citizens involved and to make it easier for them to take part in the different processes.

Digital strategies need competences. Looking at the involvement of different experts, science and city-owned companies, we see that the development of a digital strategy needs different competences and different perspectives from a variety of fields of action. Municipalities can still work on the references of information from science and city-owned companies. Different perspectives help municipalities to set their goals long lasting, taking into account different possibilities digitalization can have to help municipalities in their daily life.

Digitalization is a joint task. As last guideline, we see digitalization as a joint task of different stakeholders. Our findings showed us how important it is to get different stakeholders involved. We also could see on which stages of the development process different personas are in charge. Nevertheless, it is important that these different stakeholders

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involved are working together to develop a digital strategy for their municipality.

VI. DISCUSSION

Implications for theory. Aligning with references [7]-[11], we were able to look at participation in the development process of digital strategies. Especially we looked at digital strategies in the public sector for municipalities. Participation in the public sector involves many different stakeholders. Based on our case study we referred to different types of stakeholders extending recent literature ([7]-[9]). Our types of stakeholders involved citizens, economy, and science, functional roles of the public administration, external experts and city-owned companies. We were able to extend the construct of participation from [11] and to adapt it in the public sector.

Implications for practice. With our findings, we were able to give rise to guidelines for municipalities developing a digital strategy. Aligning with the guidelines should help municipalities to define participation their own way and to get different types of stakeholders involved in the development process of a digital strategy.

VII. CONCLUSION

Regardless of the theoretical and practical relevance of our study, it is pointed with difficulties and shortcomings that leave room for future research. Aligning with [15] we have to note, besides the regular limitations of case studies (e.g., its weak internal validations), that our study is of an explorative nature. Its intention is to extend current perspectives on the development process of digital strategies, especially for municipalities regarding the involvement of different stakeholders. Our research can therefore be used to further develop the way different stakeholders can get involved in the development process of digital strategies, but is somewhat weak in its theoretical contribution. Second, in our study the unit of analysis is the municipality. As we asked for the development process of digital strategies for municipalities focusing on stakeholder involvement, only one of the employees of the municipal administration answered our survey representing the whole municipality. We were relying on those employees who answered our survey. Third, as we looked at digital strategies from an IS and management perspective, we defined participation in our study aligning with the results from our case study and aligning with our context of our study. Nevertheless, when we look at participation, this is a construct, which can be seen in a variety of ways. We aligned with the definition of [11], but there are many different possibilities to define participation. We also looked at participation only at the level of the development process of a digital strategy. However, looking at a smart city and their participation processes there is much more which need to be considered as [7] and [8] shows.

In order to overcome these limitations, future research might ask, aligning with [15], more than one employee per municipality and make sure the employees answer the survey by themselves. Future research should also consider a variety of definitions for participation and not only stuck on definitions used in the area of development of digital strategies for municipalities from an IS and management science perspectives. There are more possibilities to define participation. Moreover, looking not only at the development process of digital strategies for municipalities but looking at a smart city gives a wider range of how participation can be defined and realized.

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