

# Digital Strategies as a Guideline for Digital Transformation Processes in Municipalities – A Literature Review

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**Abstract**—Digitalization is one of the words everyone gets to hear almost every day. The need to digitalize information and services is greater than ever. Municipalities try to digitalize themselves to service their citizens. First steps show municipalities starting different projects for digitalization. Nevertheless, a phenomenon, which is often seen, is that those projects do not have a common aim they are aligning to. As an instrument, digital strategies can help municipalities to align their projects, leading the way into digital transformation. However, what is a digital strategy and how is it structured? What can recent literature teach us about digital strategies? How can digital strategies help to support digital transformation processes in municipalities? To answer these questions, we conducted a systematical but selective literature research on digital strategies in the Information Systems (IS) and the public sector. We found that both literature streams show the development of a fusion between business and IS strategies leading to new concepts of capabilities, needed in municipalities to develop and monitor digital strategies.

**Keywords**-Digital Strategy; Literature Research; Public Sector.

## I. INTRODUCTION

Digitalization is becoming one of the most important words nowadays when we talk about transformation processes. With the digital age at hand, we seek for ways to digitalize the world around us, as everything needs to be digitalized. This is a phenomenon, which we can see in the private as well as in the public sector. Especially the public sector, which is interested in the needs of their citizen are on their way to digitalize e.g., their public services [1].

Looking at transformation processes in the past, we can see that strategies are instruments, which were often used to guide ways into the future. Mintzberg [2] defines strategies as patterns in a stream of decisions guiding the way for future actions.

In the last century, the concept of strategy developed in different ways regarding the stream of research we are looking at. For example, Jahn et al. [3] looked at strategies and tactics from the unit of analysis of employees, whereas Mintzberg [2] and Atkins and Lowe [4] looked at strategies from the perspective of businesses. Gottschalk [5] and Arvidsson et al. [6] looked at strategies from the perspective of Information Technology (IT) in organizations. As an

example from IT strategies, Chen et al. [7] conducted a comprehensive literature review on Information Systems (IS) strategies in the IS literature. As an example, Chen et al. [7] showed that different studies named IS strategies in diverse ways. However, after they conducted the reconceptualization, measurement and implications of IS Strategies, recent literature is missing a research based on new developments of strategies which occur due to digitalization. While there has been an extensive debate on digital strategies, especially for municipalities, in practice, recent research has not developed a clear theoretical understanding of the phenomenon describing what digital strategies are and how they can help municipalities as guidelines in digital transformation processes. In order to address our objectives, this paper is guided by the following research question (RQ):

RQ1: How does recent literature define and use digital strategies as a guideline for digital transformation processes?

The remainder of the paper is structured as follows. In the second section, we give a short background of the emergence of digital strategies in practice and science. Section 3, describes the research design of this study. In Section 4, the findings of the literature review are presented showing recent literature regarding the conceptual use of digital strategies. Section 5 discusses implications for theory and practice, especially municipalities, shows the limitations of the study, and gives recommendations for future research.

## II. BACKGROUND

An emerging topic for municipalities is the chances and challenges of digital transformation. With IT becoming ubiquitous, phenomena like IT consumerization emerge. IT consumerization describes the use of consumer market mobile devices (e.g., wearables, smartphones, tablets) and shows the phenomenon of how citizens are able to engage in diverse governmental topics from everywhere at any time [8]–[11]. Thus, digital services around citizens are becoming more and more important [12]. However, not only services are important but also the whole governmental digital transformation becomes necessary (e.g., transformation of internal administrative processes, engaging diverse actors in decision-making processes and planning and implementing projects). At this point, digital strategies can help

municipalities to set guidelines for digital transformation processes.

Recent literature has already studied the phenomenon of strategies, for example in the management studies [2][4], [13], in IS research [5][7] and of individuals regarding their use of mobile technologies [3][14][15]. In their literature review, Chen et al. [7] give a clear overview of different definitions of IS and IT strategy in literature. They also identified three conceptions of IS strategy: “(1) IS strategy as the use of IS to support business strategy; (2) IS strategy as the master plan of the IS function; and (3) IS strategy as the shared view of the IS role within the organization” [7] (p.233). Niehaves et al. [16] found in their case study structural features of digital strategies for municipalities. They found that the denomination of strategic alignment, strategy formation, core themes and fields of action are features, which structure digital strategies for municipalities. However, since Chen et al. [7] the emerging concept of digital strategies and their development from IS strategies has not yet analyzed from a theoretical point of view. The construct of digital strategies, especially for municipalities is yet understudied. We aim to enrich recent research on digital strategies by showing the development of the term digital strategy and by listing and describing recent research on the construct of digital strategy for municipalities.

### III. METHOD

For our literature review, we applied the framework for literature reviewing proposed by vom Brocke et al. [17] consisting of 5 steps: (I) definition of review and scope, (II) conceptualization of topic, (III) literature search, (IV) literature analysis and synthesis and (V) research agenda [17].

We first defined our review scope using Coopers taxonomy of literature reviews [18]. Aligned to Cooper [18], we conducted a literature review of digital strategies for municipalities. Aligned to the taxonomy, we focused during our literature review on research outcomes having the goal to summarize our findings to get a more comprehensive inside of the term of digital strategies for municipalities. We decided to organize our literature review theoretical, as the question we are trying to answer is given. We aim to a neutral representation perspective and choose our audience to be general scholars and practitioners/politicians. We also cover our reviewed literature to central/pivotal to our topic.

Table 1 summarizes our categories taken for the literature review.

Second, we conceptualised our topic. We conduct a literature review of digital strategies for municipalities concentrating on the term digital strategy and their support for digital transformation processes. Regarding vom Brocke et al. [17], it is important to pay attention to the fact that a review must begin with “a broad conception of what is known about the topic and potential areas where knowledge may be needed”( p.10).We, therefore, provided a working definition of the key term “digital strategy”.

In their study, Chen et al. [7] defined IS strategy as “the organizational perspective on the investment in, deployment, use, and management of information systems” (p. 237). Chen et al. [7] also found that a variation of expressions have been engaged to represent similar constructs such as IT strategy, IS strategy, IS/IT strategy or information strategy. However, aligning to Niehaves et al. [16] digital strategies 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 [19]. Such a digital business strategy could be defined as an “organizational strategy formulated and executed by leveraging digital resources to create differential value” [19] (p.472) and “to support or shape an organization’s competitive strategy, its plan for gaining and maintaining competitive advantage”[20] (p.191). Against this background and aligning to Niehaves et al. [16], we define digital strategy as an organizational strategy formulated and executed by leveraging digital resources to create differential value to support or shape an organization’s competitive strategy, its plan for gaining and maintaining competitive advantage. Summarized we define it as a fusion of a traditional IS/IT strategy with the business strategy of an organization in the digital age. For municipalities this definition offers a variety of possibilities how to align their digital strategy in practice. For example, it could be their own strategy itself aligned to an urban development strategy or it could be directly integrated in the urban development strategy.

In the third phase (III), literature search, we conducted the actual search-involving database, keyword, backward, and forward search, as well as an ongoing evaluation of the sources [17]. Table II shows the structure and results of our conducted literature review.

TABLE I. TAXONOMY OF LITERATURE REVIEW (FOLLOWING [17][18]) ALIGNED TO OUR RESEARCH

| CHARACTERISTICS |              | CATEGORIES             |                          |                           |                 |
|-----------------|--------------|------------------------|--------------------------|---------------------------|-----------------|
| 1               | focus        | research outcomes      | research methods         | theories                  | applications    |
| 2               | goal         | integration            | criticism                | central issues            |                 |
| 3               | organisation | historical             | conceptual               | methodological            |                 |
| 4               | perspective  | neutral representation |                          | espousal of position      |                 |
| 5               | audience     | specialised scholars   | general scholars         | practitioners/politicians | general public  |
| 6               | coverage     | exhaustive             | exhaustive and selective | representative            | central/pivotal |

TABLE II. STRUCTURE OF THE LITERATURE REVIEW PROCESS

| Journal | Database  | Search               | Search Item               | Hits per Item    | Reviewed Hits |   |
|---------|---|----------------------|---------------------------|------------------|---------------|---|
| 1       | Government Information Quarterly                  | Science Direct       | title, abstract, keywords | digital strategy | 11            | 3 |
|         |   |                      |                           | IS / IT strategy | 12            |   |
| 2       | Journal of E-Government Research                  | IGI Global           | all fields                | digital strategy | 12            | 3 |
|         |   |                      |                           | IS strategy      | 13            |   |
| 3       | Transforming Government: People, Process & Policy | Emerald Insight      | all fields                | digital strategy | 9             | 2 |
|         |   |                      |                           | IS strategy      | 15            |   |
| 4       | Information Polity                                | IOS Press            | all fields                | digital strategy | 8             | 1 |
|         |   |                      |                           | IS strategy      | 8             |   |
| 5       | European Journal of Information Systems           | Palgrave Macmillan   | all fields                | digital strategy | 5             | 1 |
|         |   |                      |                           | IS strategy      | 14            |   |
| 6       | Information Systems Journal                       | Wiley Online Library | all fields                | digital strategy | 5             | 0 |
|         |   |                      |                           | IS strategy      | 23            |   |
| 7       | Information Systems Research                      | Informs              | title, abstract, keywords | digital strategy | 0             | 0 |
|         |   |                      |                           | IS strategy      | 5             |   |
| 8       | Journal of the Association of Information Systems | AIS                  | all fields                | digital strategy | 2             | 0 |
|         |   |                      |                           | IS strategy      | 5             |   |
| 9       | Journal of Management Information Systems         | JSTOR                | all fields                | digital strategy | 2             | 0 |
|         |   |                      |                           | IS strategy      | 6             |   |
| 10      | MIS Quarterly                                     | MISQ                 | all fields                | digital strategy | 5             | 5 |
|         |   |                      |                           | IS strategy      | 12            |   |
| 11      | Journal of Strategic Information Systems          | Science Direct       | all fields                | digital strategy | 10            | 3 |
|         |   |                      |                           | IS strategy      | 23            |   |
| 12      | Journal of Information Technology                 | Palgrave Macmillan   | all fields                | digital strategy | 1             | 2 |
|         |   |                      |                           | IS strategy      | 11            |   |
|         |   |                      |                           | $\Sigma$ 218     | $\Sigma$ 20   |   |

As recommended by previous literature [17][21][22], we focused on the review articles of high quality. We also looked at rankings. For example, vom Brocke et al. [17] synthesized ranking for the AIS in order to select journals we would search in. Only to take the 10 best-ranked paper did not seem like a comprehensive overview for our topic, as we looked at the development of the term digital strategy since the literature review of Chen et al. [7] supplemented by governmental literature. This is the reason why we decided to look at the description and aim of each high quality journal ranked and take into account the journals, which fit into our topic the best. For our topic, we decided it is best to look at the eight highest ranked IS Journals (European Journal of Information Systems, Information Systems Journal, Information Systems Research, Journal of the Association of Information Systems, Journal of Management Information Systems, MIS Quarterly, Journal of Strategic Information Systems, Journal of Information Technology), in order to identify “digital strategies in IS”. Building upon the research from Chen et al. [7] we filtered, in a second step for research articles since the year 2010. As we look specifically at the formation of digital strategies for municipalities, we choose to look at high quality E-Government Journals with IS reference as well, namely Government Information Quarterly, Journal of E-Government Research, Transforming Government: People, Process & Policy, and Information Polity. As those were not included in the research of Chen et al. [7], we looked at those from their point of existence until now. In general, we looked for journal and publisher homepages in order to do a comprehensive literature search.

Applying our working definition, we used following search items, “digital strategy”, “IS strategy” and “IT strategy”, during the literature review process. Our working definition would lead us to look also for “digital business strategy” as well as “smart city strategy” or “e-government strategy”.

After we conducted the literature search (phase III, resulting list of literature can be seen in Table III), we analyzed and synthesised our literature (phase IV) as recommended and developed by and adapted by Webster and Watson [22]. As our aim was to focus on research outcomes with the goal of current issues, we analysed the current literature on digital strategies and derived key aspects out of the different research papers.

We report that we found 218 Articles in 13 Journals looking for our three search items. However, we have to note that as our working definition let us expect, and as already presented by Chen et al. [7], IS- and IT Strategy led to almost the same results. We found 20 articles to help us get a glimpse of digital strategies as guideline for digital transformation processes, in the public sector and across organizations. Aligning to our taxonomy of literature research and our definition of digital strategy, we were only able to identify 20 research articles, which were able to help us answering our research question. This also shows how understudied this phenomenon is in literature. We conducted our analysis focusing on the unit of analysis explored in each research paper, the context of digital strategy and the key aspects of the research outcomes summarized. We classified the Unit of Analysis in Organizations (O), Government (G) and the Individual (I). As our working definition shows,

digital strategies are important for the Institutional level. This is the reason why we excluded paper where the Unit of analysis is the individual and concentrated on paper examining governmental institutions and private sector companies.

The analysis of our listed research paper led us to phase V of the framework for literature reviewing proposed by vom Brocke et al. [17]. Phase V describes how the synthesis of literature (phase IV) results in a research agenda (V). In our study, the result of our synthesis is our resulting research questions (RQ1: How does recent literature define and use digital strategies as a guideline for digital transformation processes?).

#### IV. FINDINGS

The following section will show our findings which are divided into two parts: First, development of the term and use of digital strategies as a guideline for digital transformation processes in E-Government- Literature; Second, development of the term and use of digital strategies as a guideline for digital transformation processes in IS-Literature since 2010.

##### A. *Development of the term and use of digital strategies as a guideline for digital transformation processes in E-Government- Literature.*

We noticed a change in definition of the term digital strategy in the E-Government Literature showing that in 2005 Gil-Garcia and Pardo [23] described the term strategy as practical guidelines and systematic long-term approaches to problems in order to further e.g., e-government goals.

In 2009, Yoon and Chae [24] conducted a study of national strategies for ICT (also called “national e-Strategy”), which is supposed to contribute to economic transformation. In this study, the trend to contribute to economic transformation with higher aligned strategies developed.

In 2010, Shareef et al. [25] examined implementation strategies of electronic-government which are used to gain a competitive advantage. In this study, we notice that the development of digital strategies in the public sector seems to direct towards our definition of digital strategies, including competitive advantage of organizations.

Anthopoulos et al. [26] introduced conceptualization, benchmarks and evaluations of the smart city concept. In their study, they discovered eight classes of conceptual models. The classes address smart city architecture, governance, planning and management, data and knowledge, energy, health, people and environment and resulted in an unified smart city model (UFCM) [26].

In 2018, Pedersen [27] recommended in his study to develop more balanced strategies which focus more on eliminating the contextual and organizational challenges instead of just aiming to increase project level capabilities.

##### B. *Development of the term and use of digital strategies as a guideline for digital transformation processes in IS-Literature since 2010.*

In 2012, Benitez-Amado and Walczuch [28] found in their study IT capability to be an enabler of proactive environmental strategies. These strategies, as they found, mediate the effects of IT on firm performance. The finding of Benitez-Amado and Walczuch [28] can be seen also in our applied definition of digital strategies. In our literature review, we found in 2013 a special issue in the MIS Quarterly regarding digital strategies and their competitive advantage [19][29]–[31]. For example, Mithas et al. [29] found in their study that “IT both enhances the firm’s current (ordinary) capabilities and enables new (dynamic) capabilities, including the flexibility to focus on rapidly changing opportunities or to abandon losing initiatives while salvaging substantial asset value” (p. 511).

Arvidsson et al. [6] conceptualized in their study the concept of strategy blindness. Strategy blindness describes “the organizational incapability to realize the strategic intent of implemented, available system capabilities” [6] (p. 45).

In 2018, Yeow et al. [32] describe the blurring of the division between business and IT strategies which lead to a fusion between them. The fusion is described as digital strategy. Yeow et al. [32] study, found “an aligning process model that is comprised of three phases (exploratory, building, and extending) and generalizable organizational aligning actions that form the organization’s sensing, seizing, and transforming capacities” (p. 43).

With our study, we aim to enrich recent literature regarding digital strategies as a guideline for digital transformation of municipalities analyzing the development of the term and use of digital strategies in the E-Government Literature and the IS Literature (since 2010). A conceptualization of our findings can be seen in Figure 1. As our finding, Figure 1 only shows examples of the emerging literature streams. Every analyzed 20 papers can be seen in the Appendix in Table III.

As we proposed, aligning to Bharadwaj et al. [19] in both literature streams, the term and use of digital strategy develops into the description of a fusion of business and IS strategies. We also can notice that this development leads to new emerging concepts, such as dynamic capabilities and strategy blindness in the digital strategy literature [6][29]. We also found that the use of digital strategy and its definition does not vary if we are looking at smart cities or municipalities in the E-government literature or if we look at companies showing a consensus for digital strategies as guidelines for digital transformation.

#### V. DISCUSSION AND OUTLOOK

The following section will show the discussion and will give an outlook for future research.

##### A. *Implications for theory and practice.*

We aim to enrich recent literature regarding digital strategies as a guideline for digital transformation in E-

Government literature and the IS literature analyzing the development of the term and the use of “digital strategies”. We enrich research by Chen et al. [7] by extending their literature review of IS strategy giving an overview of the development of digital strategies in the IS literature since 2010. We also aim to extend research by Pedersen [27] giving empirical evidence that the fusion of business and IS strategies is taking place in theory and practice giving rise to new concepts like dynamic capabilities. Practice can also benefit from our study, as it gives guidance in which directions future digital strategies should be developed and

gives research recommendations where to look for even more guidance. But practitioners need to take care, as digital strategies have still special features e.g., in their structuration [16] even if our study shows a consensus on a meta-level. It also shows different ways of developing a digital strategy. For example, a digital strategy for municipalities can stand on its own as digital strategy or it could be integrated into the urban development strategy showing a real fusion of the main strategies.

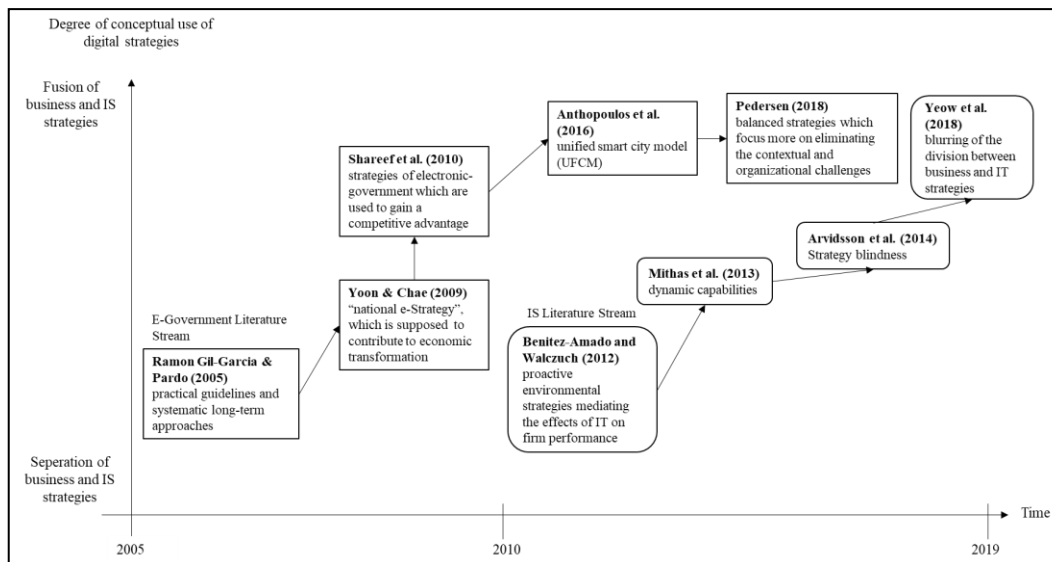


Figure 1. Conceptualization of the term and use of digital strategies as a guideline for digital transformation

## B. Limitations and Outlook.

Like every other empirical study, our research as well has limitations that leave room for future research. Apart from the typical limitations of literature reviews [17], it is important to acknowledge that we only searched the highest 8 and 5 ranked journals in the e-government and IS literature. Future research could extend our literature by including conference papers and book publication to extend our conceptualization.

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TABLE III. OVERVIEW OF THE REVIEWED ARTICLES

| Journal   | Article   | Autor                      | Year |
|---|---|----------------------------|------|
| Government Information Quarterly                  | Conceptualizing smartness in government: An integrative and multi-dimensional view  | Gil-García et al.          | 2016 |
|   | E-government success factors: Mapping practical tools to theoretical foundations  | Gil-García and Pardo       | 2005 |
|   | Varying criticality of key success factors of national e-Strategy along the status of economic development of nations                                 | Yoon and Chae              | 2009 |
| Journal of E-Government Research                  | E-Government Implementation Perspective: Setting Objective and Strategy   | Shareef et al.             | 2010 |
|   | The Örebro City Citizen-Oriented E-Government Strategy  | Ask et al.                 | 2008 |
|   | A Unified Smart City Model (USCM) for Smart City Conceptualization and Benchmarking   | Anthopoulos et al.         | 2016 |
| Transforming Government: People, Process & Policy | E-government transformations: challenges and strategies   | Pederson                   | 2018 |
|   | Managing continuity and change: a new approach for strategizing in e-government   | Saboohi                    | 2010 |
| Information Polity                                | Whole-of-government approach to information technology strategy management: Building a sustainable collaborative technology environment in government | Ojo et al.                 | 2011 |
| European Journal of Information Systems           | Information technology, the organizational capability of proactive corporate environmental strategy and firm performance: a resource-based analysis   | Benitez-Amado and Walczuch | 2012 |

|  |   |                      |      |
|--|---|----------------------|------|
| MIS Quarterly                            | Information Technology and Business-Level Strategy: Toward an Integrated Theoretical Perspective                              | Drnevich and Croson  | 2013 |
|  | How a Firm's Competitive Environment and Digital Strategic Posture Influence Digital Business Strategy                        | Mithas et al.        | 2013 |
|  | Design Capital and Design Moves: The Logic of Digital Business Strategy   | Woodard et al.       | 2013 |
|  | Visions and Voices on Emerging Challenges in Digital Business Strategy  | Bharadwaj et al.     | 2013 |
|  | Unifying the Role of IT in Hyperturbulence and Competitive Advantage Via a Multilevel Perspective of IS Strategy              | Nan and Tanriverdi   | 2017 |
| Journal of Strategic Information Systems | Aligning with new digital strategy: A dynamic capabilities approach   | Yeow et al.          | 2018 |
|  | Information systems use as strategy practice: A multi-dimensional view of strategic information system implementation and use | Arvidsson et al.     | 2014 |
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