Digital strategy in the public sector: an exploratory literature review

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Abstract

Developing and implementing effective digital strategies is central to achieving successful outcomes in digital government initiatives. Despite the crucial role of digital strategy and the increasing prevalence of diverse approaches to technology-enabled public sector reform, a comprehensive understanding of theoretical knowledge of digital government strategies is lacking. This research-in-progress article presents the preliminary findings of a (provisional) 38-study systematic literature review adhering to the PRISMA protocol. The final analysis aims to synthesize existing research on digital strategy in the public sector context across various disciplines. Through a comprehensive exploration of the literature, the study identifies methodological, conceptual, and theoretical challenges, shedding light on areas for further research. This ongoing research article represents an initial phase in this endeavor and offers descriptive characteristics of the preliminary sample.

Keywords

E-Government, Digital Strategy, Literature Review

1. Introduction and theoretical background

Digital strategy is critical to successful digital government outcomes [10] [12]. The inherent complexity of digital government initiatives or projects significantly influences their success, frequently leading to partial or complete project failures. Alongside robust leadership and suitable governance arrangements, comprehensive digital government strategies must be considered in shaping digital government results [1] [10].

In the realm of Information Systems literature, there has been a notable evolution in how IT and organizational strategies interact, with IT strategy progressing from a subordinate role to alignment and potential fusion with organizational strategy [2] [4]. The body of literature sheds light on the emerging nexus between strategic management and information technology [17]. However, these insights are tailored to the dynamics of private sector organizations and thus may not directly apply to governmental contexts [10]. While extensive research on strategy in Public Administration as a discipline does address the unique governmental context and the importance of strategic approaches in addressing

complex challenges within the public sector, there is less emphasis on the role of digital strategy within this literature [3] [6] [7]. Therefore, considering these different complementary viewpoints is pertinent for enhancing the discourse on digital strategy in the public sector.

The scholarly understanding of digital strategy within the public sector is characterized by conceptual ambiguity arising from diverse terminologies, definitions, and fragmentation over different disciplines. There is a need for a more comprehensive understanding of digital strategy within the e-government domain. Adopting a broader perspective that integrates insights from allied disciplines enables a more holistic understanding, especially considering that various aspects of this subject have a well-established research tradition in closely related fields.

This study, therefore, aims to consolidate the current fragmented knowledge on digital strategy in the context of government by putting forward the following explorative research question: "What is known about digital strategy in the public sector?". We aim to address this research inquiry through a systematic literature review, adhering to the guidelines outlined in the PRISMA protocol. This research-in-progress focuses on the preliminary literature sample's descriptive characteristics.

2. Methodology

2.1. Eligibility criteria

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were used for article selection and reporting for the systematic review. Adhering to this protocol ensures transparent reporting and facilitates replication [11]. Our systematic review included studies that met all of the following inclusion criteria.

- Topic: studies should be positioned where the three key components of the research topic; digital, strategy, and public sector, converge.
- Field: only studies under the Web of Science categories relevant to the research subject were integrated into the subsequent analysis. Sixteen pertinent categories, situated at the nexus of various dimensions of the subject matter, were selected for inclusion. Illustrative examples encompass Public Administration, Political Science, Computer Science Information Systems, Management, and Information Science Library Science. An inclusive approach was adopted to mitigate the inadvertent exclusion of potentially relevant studies at this preliminary inquiry phase.
- Study design: the review encompasses both theoretical and empirical studies. This approach enables the comparison of findings and the identification of future research opportunities across various study designs and research areas.
- Language: only studies written in English were included, a standard practice in systematic reviews for practical and replication reasons.
- Publication status: studies included can be of all publication outlet types; therefore, no specific Web of Science Index was used. In the study domain of e-government

research, journal and conference contributions hold equal significance, which aligns with the field's multidisciplinary nature [13].

- Year of publication: no temporal constraints have been imposed to encompass the corpus of scholarly research on the topic comprehensively and to be able to track its development across time.
- Due to practical considerations, only articles available in full text online were included.

2.2. Search strategy and selection

We searched Web Of Science using the following query in the tile, abstract, or author keywords: "digi* AND strateg* AND (public OR gov* OR e-gov* OR egov*)". Web Of Science was selected as a database due to its extensive collection of high-quality research articles. This broad selection strategy, at the intersection of the three central concepts of the subject (digital, strategy, and public sector), allows us to cover an extensive range of relevant research. Since this is an exploratory study of a fragmented topic, it is important not to exclude any pertinent possible studies at this research stage. Our search generated 6.663 records between 1992 and March 7th, 2024. We screened these records using language (English) and Web of Science Categories. In this way, 3.010 records were excluded. Eventually, 3.653 studies were retained for analysis.
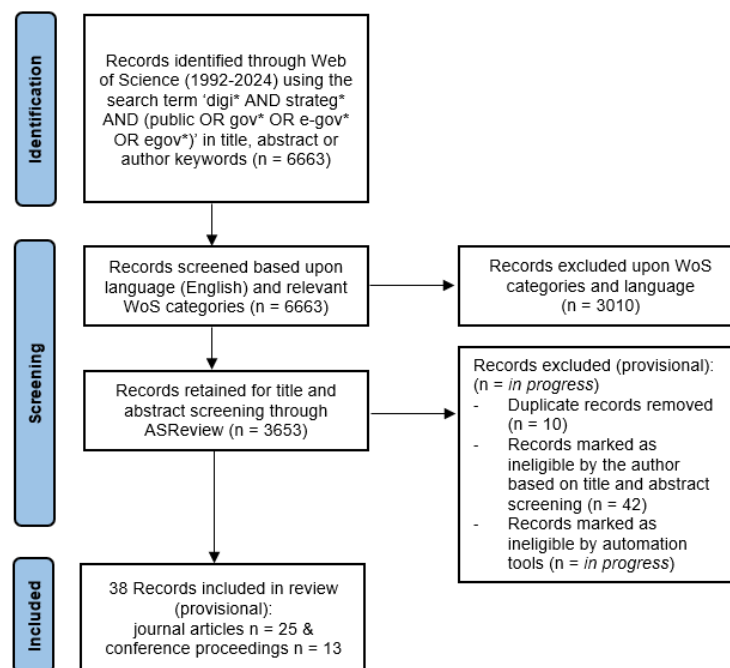
Figure 1: PRISMA flow diagram (own compilation based on [11])

These 3.653 records were screened by title and abstract using ASReview. ASReview is an open-source machine learning-aided system employing active learning techniques. The tool can be integrated into conventional systematic reviews, adhering to the procedures

delineated in the PRISMA guidelines. Its role is complementary, enhancing the abstract screening phase while preserving the essential initial step of compiling potentially relevant studies [15]. This unique human-machine interaction facilitated screening the first 80 abstracts and titles, resulting in the retention of 38 items in the provisional sample.

3. Preliminary results

3.1. Contextual characteristics

The 38 items included in our intermediate sample were published between 2005 and March 2024. Academic attention toward digital strategy within the public sector has predominantly expanded over the past decade, with particularly noteworthy growth observed in recent years. More than seventy-five percent of our sample was published in the last five years; 29 records included in the review were published between 2020 and March 2024.

The provisional sample of 38 records is composed of 25 journal articles and 13 proceeding papers. Seventeen different journals and nine different conference outlets were identified in our sample, covering a wide diversity of knowledge on digital government strategy within and outside the field of public administration. Most journal articles were published in Government Information Quarterly (n = 4) and Sustainability (n = 4). Most conference proceedings were published at the International Conference on Digital Government Research (DGO) (n = 5).

Digital strategy in the public sector is studied in various research areas. It is essential to indicate that one record can be assigned to multiple relevant categories. In our sample, 12 different Web of Science Categories were identified. Public Administration (n = 15) and Computer Science Information Systems (n = 11) are the most often mentioned categories. In addition, public digital strategy is frequently studied in public health and different types of computer sciences, information science, and political science.

The findings of our review show that research on digital strategy in the public sector has a broad geographical scope. The sample encompassed studies from all different continents. Studies were mainly conducted in Sweden (n = 5), South Africa (n = 5), at the EU level (n = 3), and in the United States (n = 2). While numerous studies were conducted in a single country (e.g., [14]), others examined digital strategies across multiple countries. Hammerschmid et al., for example, compare the approaches utilized in digitalization strategies across eight European countries [8]. Most studies predominantly focused on the country level, although some also delved into other levels of analysis. Some authors, for example, focus on local digital government initiatives (e.g., [9]). The topic was also researched across various economic contexts, including developed economies, economies in transition, and developing economies.

3.2. Methodological characteristics

Of the 38 studies reviewed, 32 utilized an empirical study design, and six were theoretical. Among the empirical works, the majority (n = 25) conducted qualitative analyses, while five studies employed a quantitative approach, and two used a mixed methods approach. The most commonly employed qualitative research methods were (multiple) case studies, which involved document analysis, interviews and focus groups, and content analysis. The content analyses focused mainly on examining national e-government or digitalization strategies and top steering or strategic documents (e.g., [16]). Quantitative empirical studies predominantly employed survey research methodologies utilizing questionnaires as a data collection method. Among the theoretical works (n = 6) in our sample, three compromised (systematic) literature reviews (e.g., [5]). The remaining three contributed to advancing or analyzing theoretical frameworks concerning digitalization in the public sector and its strategic role.

4. Conclusion, discussion, and next steps

The digital dimension of strategy within public administration is increasingly recognized as crucial. However, there remains a notable absence of comprehensive oversight regarding the literature on digital strategy. Insights derived from Information Systems on Digital Transformation Strategy and Public Administration on Strategy hold promise in further elucidating this domain.

Several crucial research steps remain before a comprehensive overview of the existing literature on digital strategy in the public sector can be provided. These steps include completing the title and abstract screening process using ASReview, finalizing the full-text screening to determine the final sample, conducting a thematic analysis of the dataset, reporting the findings, and identifying potential avenues for future research.

References

[1] AlNuaimi, B. K., Kumar Singh, S., Ren, S., Budhwar, P., & Vorobyev, D. (2022). Mastering digital transformation: The nexus between leadership, agility, and digital strategy. Journal of Business Research, 145, 636-648. https://doi.org/10.1016/j.jbusres.2022.03.038

[2] Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., & Venkatraman, N. (2013). Digital Business Strategy: Toward a Next Generation of Insights. *MIS Quarterly, 37(2)*, 471-482.

[3] Bryson, J., & George, B. (2020). Strategic Management in Public Administration. In *Oxford Research Encyclopedia of Politics.* https://doi.org/10.1093/acrefore/9780190228637.013.1396

[4] Chan, Y. E., & Reich, B. H. (2007). IT alignment: What have we learned? *Journal of Information Technology, 22(4)*, 297-315. https://doi.org/10.1057/palgrave.jit.2000109

[5] David, A., Yigitcanlar, T., Li, R. Y. M., Corchado, J. M., Cheong, P. H., Mossberger, K., & Mehmood, R. (2023). Understanding Local Government Digital Technology Adoption

Strategies: A PRISMA Review. *Sustainability, 15(12)*, Article 12. https://doi.org/10.3390/su15129645

[6] Ferlie, E., & Ongaro, E. (2022). *Strategic Management in Public Services Organizations: Concepts, Schools and Contemporary Issues*. Routledge.

[7] Gaddis, J.L. (2018). *On grand strategy*. New York: Penguin.

[8] Hammerschmid, G., Palaric, E., Rackwitz, M., & Wegrich, K. (2024). A shift in paradigm? Collaborative public administration in the context of national digitalization strategies. *Governance, 37(2)*, 411-430. https://doi.org/10.1111/gove.12778

[9] Heidlund, M., & Sundberg, L. (2023). What is the value of digitalization? Strategic narratives in local government. *Information Polity, 28(4)*, 523-539. https://doi.org/10.3233/IP-220063

[10] Lips, M. (2020). *Digital government: Managing public sector reform in the digital era*. Routledge.

[11] Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *Systematic Reviews, 10(1)*, 89. https://doi.org/10.1186/s13643-021-01626-4

[12] Sandoval Almazan, R., Luna-Reyes, L., Luna, D., Gil-Garcia, J. R., Puron-Cid, G., & Picazo-Vela, S. (2017). Building Digital Government Strategies. *Public administration and information technology, 16* https://doi.org/10.1007/978-3-319-60348-3

[13] Scholl, H. J. (2014). The EGOV Research Community: An Update on Where We Stand. In M. Janssen, H. J. Scholl, M. A. Wimmer, & F. Bannister (Red.), *Electronic Government (Vol. 8653, pp. 1-16)*. Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-662-44426-9_1

[14] Scupola, A., & Mergel, I. (2022). Co-production in digital transformation of public administration and public value creation: The case of Denmark. *Government Information Quarterly, 39(1)*, 101650. https://doi.org/10.1016/j.giq.2021.101650

[15] van de Schoot, R., de Bruin, J., Schram, R., Zahedi, P., de Boer, J., Weijdema, F., Kramer, B., Huijts, M., Hoogerwerf, M., Ferdinands, G., Harkema, A., Willemsen, J., Ma, Y., Fang, Q., Hindriks, S., Tummers, L., & Oberski, D. L. (2021). An open source machine learning framework for efficient and transparent systematic reviews. *Nature Machine Intelligence, 3(2)*, 125-133. https://doi.org/10.1038/s42256-020-00287-7

[16] van Noordt, C., Medaglia, R., & Tangi, L. (2023). Policy initiatives for Artificial Intelligence-enabled government: An analysis of national strategies in Europe. *Public Policy and Administration, 09520767231198411*. https://doi.org/10.1177/09520767231198411

[17] Venkatraman, N., Henderson, J. C., & Oldach, S. (1993). Continuous strategic alignment: Exploiting information technology capabilities for competitive success. *European Management Journal, 11(2)*, 139-149. https://doi.org/10.1016/0263-2373(93)90037-I