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Overcoming Barriers to Digital Transformation in Public Organizations using the McKinsey 7S Model

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Abstract. Considering digital transformation as organizational change, this paper aims to explore multifaced barriers that hinder governments journey toward digital transformation, using the McKinsey 7S model as an organizational change tool. Drawing on a comprehensive review of existing literature, this study identifies and categorizes these barriers into the seven dimensions of the McKinsey 7S framework: Strategy, Structure, Systems, Skills, Style, Staff, and Shared Values. The findings highlight the need for better systems and targeted strategies to address these barriers and pave the way for enhancing the complexities of digital transformation in public organizations by identifying where the need for change lies.

Keywords: *Digital transformation, Organizational change, Barriers, McKinsey 7S model, Public organizations.*

1. Introduction

By July 2024, there were 5.45 billion internet users around the world, accounting for 67.1 percent of the global population (Statista, 2024), making it a suitable floor for all entities around the world to digitally transform their services and procedures. Digital transformation has a major importance for all organizations around the world, in all sectors (Choi *et al.*, 2023; Sacoto-Cabrera & Perez-Torres, 2023; Vial, 2019; Zaoui & Souissi, 2020). Which is why governments are challenged to successfully lead and implement this transformation to improve their services, enhance efficiency, and satisfy the requirements and needs of citizens (Bjerke-Busch & Aspelund, 2021; Gong *et al.*, 2020). Moreover, when digitally transforming public organizations, this has an simultaneous impact on the society, the government, the organizations and all the different actors of the economy (Yuan *et al.*, 2023). In this regard, as digital transformation continues to shape research trends and because of the emergence of new technologies (Azouaoui *et al.*, 2023; Filali et al., 2020; Zaoui & Souissi, 2020), many barriers persist from the past, and many others are showing up, that's why it's crucial for research addressing barriers to digital transformation to remain continuously updated. The existing literature shows that barriers in public organizations remain inadequately identified and discussed (Bjerke-Busch & Aspelund, 2021), consequently, there is a noticeable lack of focused research on public organizations.

To address these gaps, we aim to provide a comprehensive examination of the barriers to digital transformation, and we propose to analyze these barriers through the McKinsey 7s model, although McKinsey 7S framework' role is to helps to understand which areas are most likely to be affected by transformation and identifying restructuring initiatives to pinpoint areas where their efforts should be concentrated (Masilela & Nel, 2021). McKinsey 7S framework was used in different types of applications, but it was primarily used to measure organizational performance, through the analysis of internal factors of an organization (McKinsey, 2008). Hence, it provides solutions

for all types of organizations, private or public, through enhancing both the hard and soft aspects of an organization in order to address issues that arise within it (Meijuan & Jiangdi, 2020). These issues include enhancing organizational performance, determining whether impending changes will have the desired effect, and coordinating the components and procedures of the suggested plan. The paper focusses on a specific type of change, the digital transformation.

The originality of this paper lies in its novel application of the McKinsey 7S model to pinpoint the specific areas within public organizations that are most affected by barriers to digital transformation. While many studies address digital transformation broadly, this research focuses on identifying which components of an organization (strategy, structure, systems, shared values, style, staff, and skills) are most impacted by these obstacles. By isolating these critical areas, the paper shows targeted components for addressing and overcoming obstacles, offering a practical approach for public organizations' managers to implement effective solutions and facilitate smoother transitions into the digital age.

The main contributions of this paper can be summarized as follows:

- We identify the barriers to digital transformation that were the most frequently cited in the literature.
- We assign to each barriers the adequate McKinsey 7S element.
- We identify the organization's elements that are most affected by the digital transformation based on the previous assignments or allocations.

The paper is structured as follows. Section 2 provides a theoretical background by reviewing the relevant literature. Section 3 explains the reasoning behind using the McKinsey 7s tool. Section 4 presents the methodology adopted. Section 5 analyzes and discusses the results. The paper is concluded in the section 6 with limitations and future works.

2. Theoretical background

In this section, we will provide concise overview of digital transformation in public organizations, transitioning from the discussion on digitalization to the exploration of digital transformation and digital maturity, we will also explore the McKinsey 7S framework as a theoretical lens for understanding organizational change and digital transformation in public organizations.

a. Digital transformation

To understand digital transformation, it's important to clear up the confusion between digitization, digitalization, and digital transformation. We clarify the differentiation between the three terms by providing definitions for each one.

To comprehend the distinctions among digitization, digitalization, and digital transformation, we must analyze them in a manner that illustrates digital transformation as the most advanced and superior, digitalization as more developed than digitization, and digitization as the initial stage in this progression. For the sake of clarity, Fig.1 elucidate the process.

Digitization is the process of transforming data from a physical format into a digital one. This frequently entails converting analog data into digital formats via the use of digital technologies, making it simpler to store, retrieve, and manipulate the data. It is the process of using digital technologies to change operations, customer experiences, and business processes in order to adjust

to shifting market conditions and spur company expansion (Yoo *et al.*, 2010; Gartner, 2018). While digitalization is the process of using digital technologies to alter a business model and create new chances for value creation and revenue, digitalization is more than just digitizing current procedures, it's a complete rethinking of how companies function in the digital era (Muro & Liu, 2023; Gartner, 2018). And digital transformation is the process of leveraging digital technologies to develop new or alter current business procedures, organizational culture, and customer experiences in order to adapt to shifting market and business demands. Adopting new technologies is only one aspect of digital transformation; another is radically altering how businesses function and provide value to clients in the digital era (Holmström, 2022). It entails rethinking company strategies, goods, and services in order to take advantage of the opportunities given by digital technologies and maintain competitiveness in a quickly changing digital market.

Figure1: From digitization through digitalization to digital transformation

Source: The authors

b. McKinsey 7S framework

The McKinsey 7S framework is a strategic management model developed in the late 1970s by Thomas J. Peters and Robert H. Waterman, McKinsey consultants (Waterman *et al.*, 1980). This model focuses on understanding the interrelationship between seven key aspects of an organization that contribute to its overall effectiveness and ability to change (Waterman *et al.*, 1980). Moreover, it is "useful in diagnosing the causes of organizational malaise and in formulating programs for improvement" (Zuñiga *et al.*, 2024).

As illustrated in the Fig.2 and the Table.1, the seven elements of the model are described as follows:

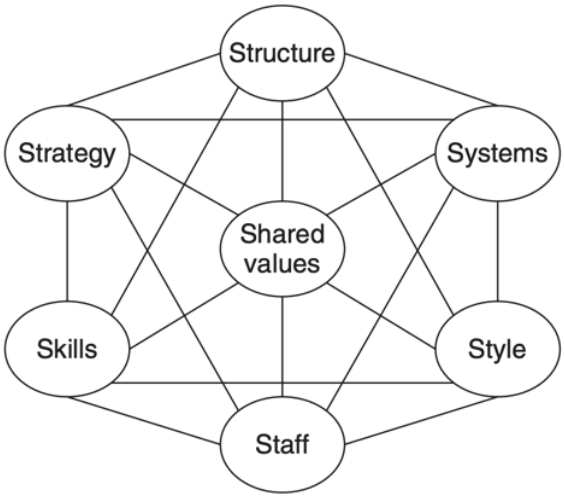
Table 1: Description of the seven elements of McKinsey model

Strategy	Strategy refers to the planned course of action that a company takes in reaction to or ahead of changes in its external environment. With these steps, the company should be able to strengthen or maintain its competitive position by offering its clients a special value. A successful strategy should be transparent, succinct, and achievable. It should match the organization's resources and abilities, while also taking into account the competitive environment
Structure	To create a culture of organizational change for implementing changes within the organization, it is necessary to assess whether the changes align with the current structure or not? (Meijuan & Jiangdi, 2020). The structure contributes to competitiveness if it is flexible, adaptable and efficient to promptly adapt to market fluctuations.
Systems	Refers to "the processes and procedures that the organization uses to operate", in addition, efficient systems should be effective and user-friendly, aiding the organization in achieving its goals efficiently.
Style	The presence of a change-oriented leadership style. How do employees react to this style of leadership? If the organization's leadership style needs to change, which group(s) will be affected? It is the approach of the organization and its leaders.
Staff	refers to employees, their development, and their motivation needs. They should possess the skills and knowledge required to carry out their responsibilities proficiently. These individuals are visualized as a valuable resource that must be cultivated, developed, protected, and assigned effectively. It highlights the importance of senior managers ensuring that the organization attracts young, talented executives and provides them with thoughtfully designed career paths from their initial positions, focused on making significant contributions to the core operations of the busines.
Skills	Are the competencies necessary in the organization? It is necessary to assess and evaluate the skills of the organization and its employees to determine which skills are suitable and which ones need to be changed (Shaqrah, 2018).
Shared values	The core values and principles that shape the behavior of the organization. Corporations seeking to change their values often undergo significant transformations that require a fundamental reassessment of all aspects of their operations. According to (Zuñiga *et al.*, 2024), "effective shared values must be clear, concise, and shared by all employees. They must create a sense of belonging and commitment among employees".

Source: Waterman et al., 1980

The 7S model advocates three "hard" Ss (Strategy, Structure and Systems), and four "soft" Ss (Shared Values, Skills, Staff and Style). According to (Cox *et al.*, 2019), "Hard elements are easier to define or identify and management can directly influence them, Soft elements, on the other hand, can be more difficult to describe and are less tangible and more influenced by culture".

Figure 2: McKinsey 7s model



Source: Waterman et al., 1980

3. Why McKinsey 7S?

Although McKinsey 7S model is one of the most effective frameworks for understanding the entire organization (Waterman Jr *et al.*, 1980), it continues to be a valuable tool for businesses seeking to evaluate and improve their organizational design, especially during times of change, such as mergers, acquisitions, or technology implementations. It helps company leaders and employees understand which areas are most likely to be affected by transformation and restructuring initiatives and determine where to focus their efforts (Law, 2024).

The model covers the seven key elements we already discussed, that are crucial for understanding an organization's functioning. This comprehensiveness allows us to capture a wide range of barriers that might affect digital transformation in public organizations. Additionally, the 7S model emphasizes the interconnected nature of organizational elements. This is important because barriers to digital transformation often stem from the interplay between different aspects of an organization. For example, a lack of skills (staff) might hinder the implementation of new digital systems (systems). Moreover, The McKinsey 7S model is well-known and widely used in both academia and practice (Hanafizadeh & Ravasan, 2011). By using a familiar framework, we can enhance the credibility and applicability of our findings. Since digital transformation often involves significant organizational change, the 7S model, which is rooted in change management theory, provides a suitable lens through which to analyze the barriers.

In summary, the McKinsey 7S model offers a comprehensive, interconnected, and action-oriented framework that aligns well with the complexities of digital transformation in public organizations, making it a suitable choice for presenting the barriers to digital transformation.

4. Research questions

Given the scarcity of research and the need for a more profound understanding of digital transformation within public organizations, we pose the following research questions:

RQ1: What are the primary barriers hindering digital transformation in public organizations?

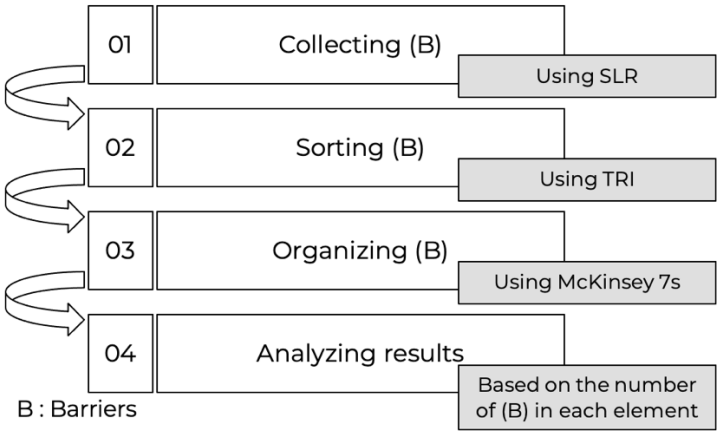
RQ2: How can these barriers be organised into the seven dimensions of McKinsey?

RQ3: Which elements of the McKinsey 7S model are most likely to be affected by the barriers to the digital transformation?

5. Methodology

To answer the research questions, we followed a four-step methodology. First, we collected barriers to digital transformation in public organizations that were most cited in the literature using a Systematic Literature Review (SLR) approach. Next, we filtered and sorted the barriers using the TRI method. Then, we organized the barriers into the seven dimensions of McKinsey. Finally, based on the number of barriers that each element contains, we analyzed the results. The Fig.3 elucidates the methodology we followed.

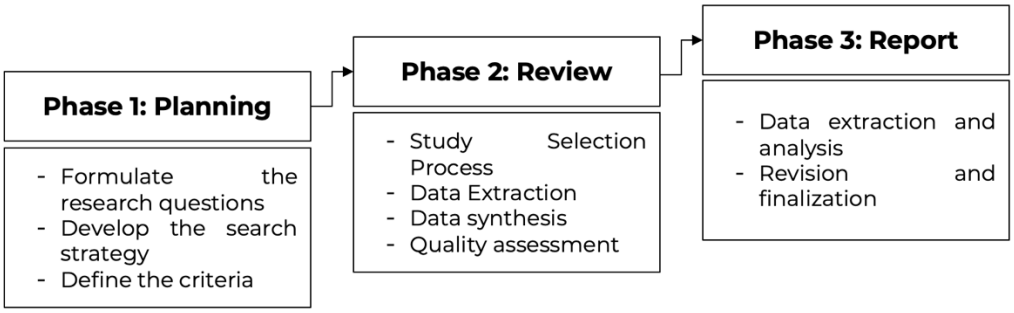
Figure 3: Methodology roadmap



a. SLR

We applied the basic Systematic Literature Review (SLR) method to develop a sophisticated understanding of the topic and a structured review of the literature. According to (Kitchenham and Charters, 2007), the Systematic Literature Review is “an evaluation and interpretation of all existing research that is relevant to a specific research question, an area of knowledge or a phenomenon of interest. SLRs aim to provide a fair assessment of a research topic through a reliable, rigorous and auditable methodology”.

Figure 4 : SLR summary



As Figure 4 elucidates, we conducted a mapping process, following nine key steps:

We first determined the research questions in the previous section. Following that, to answer the questions, the search strategy was about using the terms “Digital transformation”, “public sector”, “public organizations”, “barriers to digital transformation”, “McKinsey 7S” as principal terms. And “Digitalization”, “digital maturity”, “public organization”, “public institutions”, “E-government”, “challenges to digital transformation”, “obstacles to digital transformation”. In addition, we searched the combination of two terms or three terms as (“Digital transformation” AND “barriers”, “Digital transformation” AND “public sector”, “barriers” AND “public organizations” AND “Digitalization” …etc.

Then, five criteria were employed to identify pertinent publications: 1. Research focuses on conducting within public organizations, encompassing areas of the economy under state ownership, state-contracted entities, regulated or subsidized sectors serving the public interest. 2. The study targets both empirical and theoretical studies. 3. Only English-language articles are considered. 4. The timeline adopted is from 2018 to 2024. 5. We only include international journal, conference papers and book chapters from the databases: Scopus, Springer, Google scholar, Elsevier and Web of Science.

Next, we initially extracted data from 56 papers discussing barriers, and then proceeded to data synthesis of these papers, we continued by selecting the quality assessments to find out with 11 papers that tackled the barriers to digital transformation in public organizations (Table. 2), the eleven papers were selected based on the criteria outlined above. Following that, we proceeded to the data extraction and analysis by gathering all barriers that were cited in the ten papers and analyze them.

We finished with the revision and finalization step by adopting the most frequently cited barriers in the literature (Every barrier cited two times, or more was included, and only barriers cited just once were excluded).

Table 2: Papers tackling barriers to digital transformation in public organizations

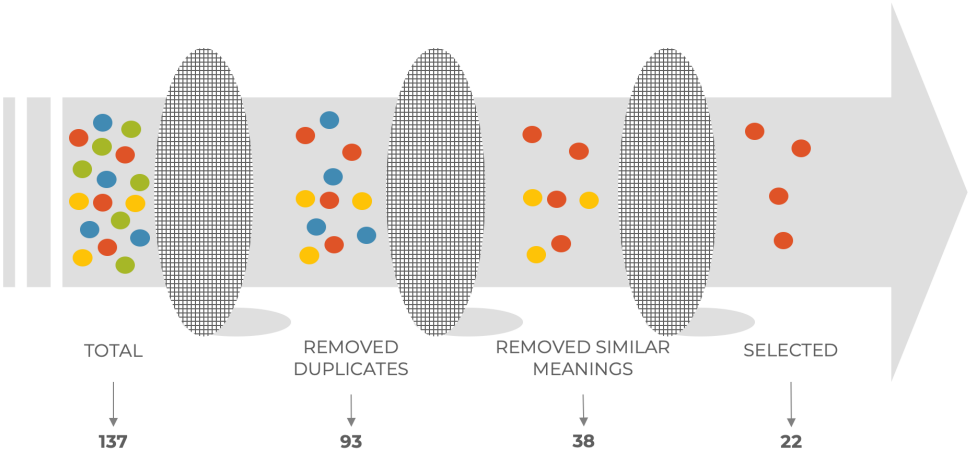
Ref.	Type	Findings
(Bjerke-Busch & Aspelund, 2021)	Book section	5 barriers
(Nachit *et al.*, 2021)	Journal	4 barriers
(Tangi *et al.*, 2020)	Conference	9 barriers
(Rusu *et al.*, 2020)	Conference	5 barriers
(Syed *et al.*, 2023)	Journal	23 barriers
(Manny *et al.*, 2021)	Journal	4 barriers
(Jakob & Krcmar, 2018)	Conference	10 barriers
(Aditya *et al.*, 2021)	Journal	22 barriers
(Gkrimpizi *et al.*, 2023)	Journal	20 barriers
(Wang *et al.*, 2024)	Journal	18 barriers
(Budiyanto *et al.*, 2024)	Journal	17 barriers

Source: The authors

b. TRI

Initially, we identified a total of 137 barriers by compiling all barriers from the eleven papers. After removing duplicate barriers, we were left with 93 unique barriers. Subsequently, we further refined the list by eliminating similar meanings and barriers cited only once, resulting in 38 unique barriers. Finally, we selected the 22 most frequently cited barriers from the literature. The Fig.5 presents the TRI summary.

Figure 5: Barriers TRI process



Source: The authors

We selected 22 barriers to digital transformation that were the most frequently cited in the literature in the context of public organizations. The summary of the barriers is illustrated in the Table.2,

which displays the dimensions of each barrier, the corresponding McKinsey's element linked to the barrier, and the unique barrier code assigned based on its denomination. These codes were created to provide a clear and simple schema for the McKinsey 7S model, as illustrated in Fig. 6.

6. Results and Discussion

6.1. RQ1: What are the primary barriers hindering digital transformation in public organizations?

To answer this question, we have identified twenty-two (22) barriers that were the most frequently cited in the literature. The Table. 3 presents the summary of barriers to digital transformation in public organizations.

Table 3: Barriers' summary

Barriers	McKinsey's element	Barrier's code
Lack of budget	Strategy	LB
Lack of government vision, plan, and policy	Strategy	LGVPP
Lack of clear vision	Strategy	LCV
Lack of IT strategy & plan	Strategy	LITSP
Bureaucracy	Structure	B
High power distance	Structure	HPD
Lack of agility	Structure	LA
Security & IT skills	Systems	SITS
Absence of performance-based evaluation system	Systems	APBES
Interoperability	Systems	I
Lack of IT infrastructure	Systems	LITI
Unadaptable IT infrastructure	Systems	UITI
Lack of IT skills	Skills	LITS
Lack of innovation	Skills	LI
Resistance to change	Staff	RC
Lack of knowledge	Staff	LK
Individualistic attitude	Staff	IA
Ineffective leadership	Style	IL
Lack of communication	Style	LC
Lacked an awareness of technology capabilities	Style	LATC
Lack of staff empowerment	Style	LSE
Lack of shared vision	Shared vision	LSV

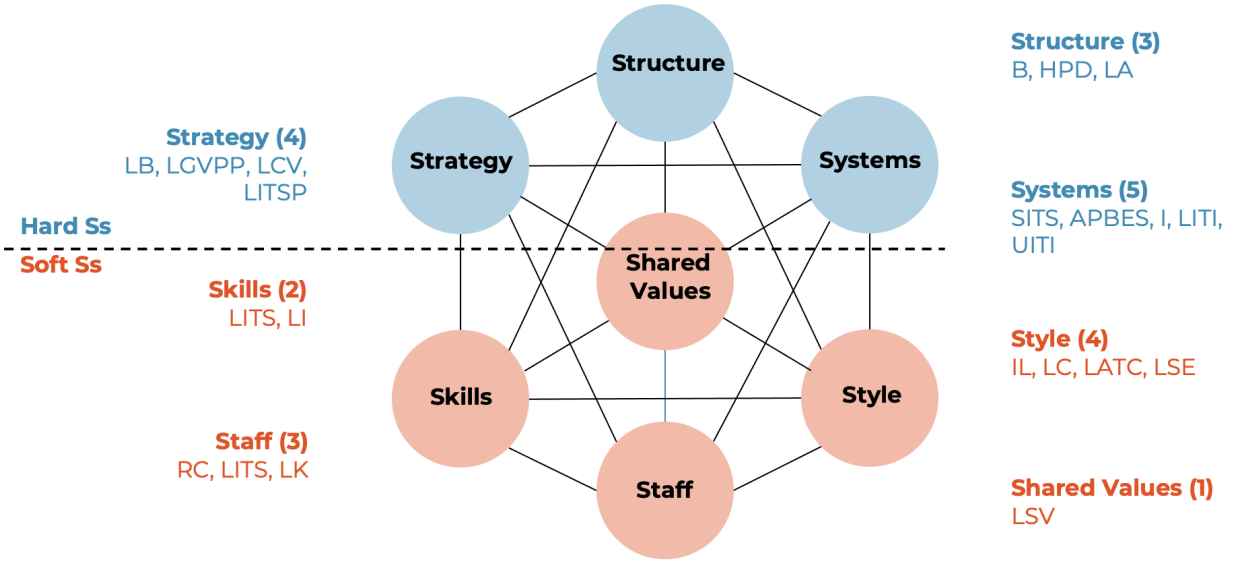
Source: The authors

6.2. RQ2: How can these barriers be organized into the seven dimensions of McKinsey?

Although, the McKinsey 7S model offers a comprehensive, interconnected, and action-oriented framework that aligns well with the complexities of digital transformation in public organizations (Waterman Jr *et al.*, 1980), making it a suitable choice for presenting the barriers to digital transformation. We have organized the barriers depicted in the previous section by assigning to

each barrier the adequate McKinsey 7S element, and as this theory can only use internal factors from the organization, all barriers are internal barriers. The Fig.6 elucidate the result.

Figure 6: McKinsey 7S model containing barriers to digital transformation

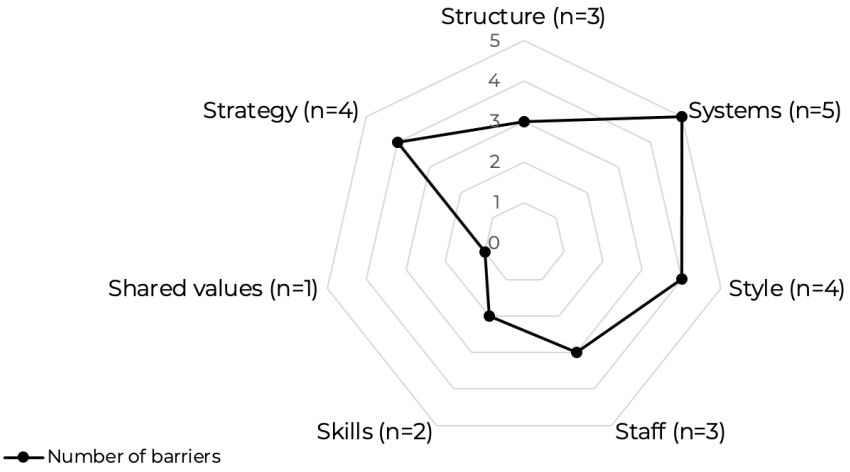


Source: The authors

6.3. RQ3: Which elements are most likely to be affected by the barriers to digital transformation?

The results show that all the seven elements that determine an organization's success are affected by the digital transformation barriers, with different level of impact. As can be seen clearly in the Fig.7 (radar chart), every element of the seven Ss includes a number of barriers that were the most cited in the literature, the element that contains the most barriers is systems, with five barriers, followed by elements strategy and style, which include four barriers each. After them, elements structure and staff have three barriers each, followed by skills, which comprises two barriers, and finally, shared values element which contains only one barrier. This order could indicate which element is more affected among all the components of the McKinsey model.

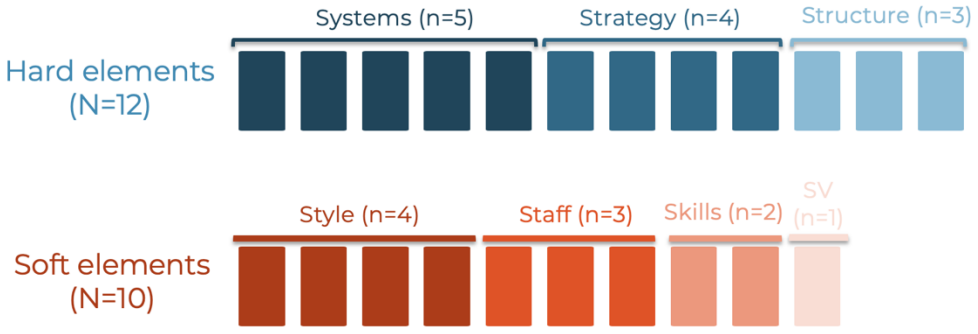
Figure 7: First result in a radar chart



Source: The authors

In addition, if we analyze considering the "Hard" Ss and the "Soft" Ss, we could also select the most affected elements. Indeed, our analysis is based on "how many barriers" are affecting each element of the McKinsey model, as "Hard" Ss components are Strategy (with four barriers), Structure (with three barriers) and Systems (with five barriers), the sum of all the barriers which forms the "Hard" Ss is twelve barriers (4+3+5=12). In the other hand, the "Soft" Ss components are Shared Values (with one barrier), Skills (with two barriers), Staff (with three barriers) and Style (with four barriers), therefore the sum of the barriers forming the "Soft" Ss is ten barriers (1+2+3+4=10). If we compare the two sums, the "Hard" Ss elements are affected by more barriers than the "Soft" Ss elements. (Fig.8)

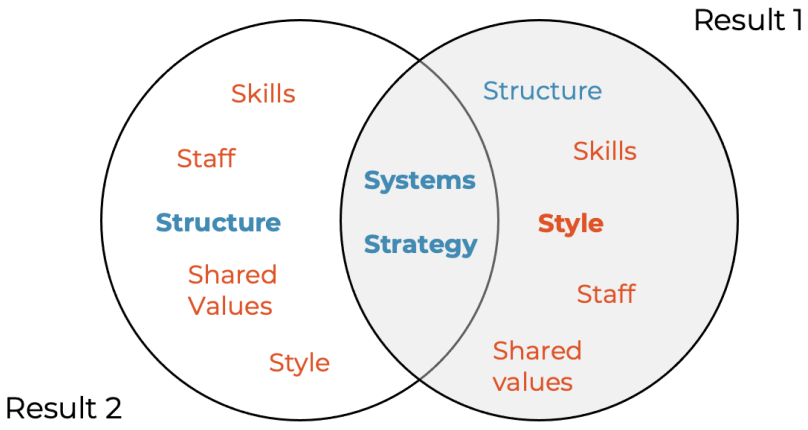
Figure 8: Second result



Source: The authors

If we choose to select the first three elements over each of the two previous analysis and results, according to the first result, the first three elements that contains most of the barriers are systems, strategy, and style. On the other hand, and according to the second result, the first three elements that include most of the barriers are the "Hard" Ss: Strategy, Structure and Systems. If we consider a simple Venn diagram (Fig.9), we can finally identify the elements that can be the most affected by the digital transformation in a public organization, strategy, and systems.

Figure 9: Venn diagram



Source: The authors

7. Limitations and future works

While this paper provides valuable insights into the barriers to digital transformation in public organizations, it is limited and based entirely on a review of existing literature, while this provides a comprehensive overview of current barriers, it may not include emerging barriers or the details of specific contexts. In addition, the study focuses on identifying barriers but does not deeply analyze or prioritize them, future studies could benefit from a more profound analysis to understand the relative importance and interrelationships of different barriers. Also, the McKinsey model consider only internal factors of an organization, so, the study has focused only on internal barriers that can hinder an organization's digital transformation.

To address the limitations and enhance our understanding of barriers to digital transformation in public organizations, we could conduct empirical studies to validate the findings of this review and explore new barriers that may have emerged since the literature was reviewed. Performing a more detailed analysis of the identified barriers, including their root causes, interrelationships, and potential mitigation strategies could be one of our future works. We could also, compare the barriers to digital transformation across different regions, countries, or types of public organizations to identify commonalities and differences.

8. Conclusion

To sum up the foregoing arguments and observations, it is now evident that digital transformation is gaining momentum with the emergence of new technologies such as Blockchain, Internet of Things, Artificial Intelligence, Big data, Cloud computing This paper has explored the various barriers and issues existing in the literature, through a systematic literature review (SLR). The paper has hence organized the barriers that were most cited in the literature, into the seven elements of McKinsey model, which is a widely accepted strategic tool in academic and professional circles that diagnoses the issues and problems and formulates the solutions and improvements.

The paper proposed McKinsey 7s model as a strategic tool to help managing the organizational change provided by the digital transformation of public organizations. It is beneficial to know which of the internal components of an organization are most likely to be affected by changes, "digital transformation" as a change. We also depicted the relation between digital transformation and its barriers to indicates which components are the most affected by the digital transformation.

Findings indicates that the systems and the strategy are the elements that contain more barriers than the other elements.

Even though the proposed contribution and its benefits to support the digital transformation in public organizations proved useful, it could be more beneficial if it is applied in a more specific context and considering specific barriers to an organization. Furthermore, future studies could be more profound to understand the relative importance and interrelationships of different barriers.

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