



Digital Transformation as an Influential Factor in the Knowledge Management of Public Servants Working Telework

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How to cite this paper: de Andrade, M.U.S., Silva, R.S. and Gaspar, M.A. (2025) Digital Transformation as an Influential Factor in the Knowledge Management of Public Servants Working Telework. *Open Access Library Journal*, **12**: e12624
<https://doi.org/10.4236/oalib.1112624>

Received: November 13, 2024

Accepted: February 7, 2025

Published: February 10, 2025

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Abstract

This study investigates the influence of Digital Transformation (DT) on Knowledge Management (KM) of teleworking employees at the Federal Institute of Bahia (FIBA). Using a quantitative approach with Principal Component Analysis (PCA) and Simple Linear Regression, the research is characterized as descriptive and exploratory, focusing on identifying and quantifying the relationships between DT and KM. The research analyzed 47 variables related to DT and KM, of which 42 were grouped into two main components (C1: KM and C2: DT). Simple Linear Regression revealed a strong influence of DT variables on KM, with emphasis on DT17, DT8, DT16, DT21, DT10 and DT19. The main results indicate that digital transformation has a significant impact on KM, improving internal processes and increasing the efficiency of teleworking employees' tasks. In addition, KM stands out as a critical factor for the success of digital transformation, being a strategic priority. The study emphasizes the importance of public policies that keep pace with digitalization, focusing on knowledge management as a strategic resource. The theoretical and methodological contributions of the study validate the hypothesis that DT and KM are interrelated, with digitalization intensifying KM and this, in turn, enhancing the effects of digital transformation. The methodological model used offers a replicable format for future research on the modernization of digital public management. From a social and managerial perspective, the research offers insights for the formulation of inclusive and efficient public policies, promoting digital inclusion and improving working conditions and productivity in digital environments. The findings are applicable to other spheres of public administration, contributing to academic advancement on the subject.

Subject Areas

Technology, Knowledge, Teleworking, Public Administration

Keywords

Digital Transformation in Public Administration, Knowledge Management, Teleworking in Public Administration

1. Introduction

Digital transformation has had a profound impact on the structure and functioning of organizations, making them more agile and closer to citizens. When combined with knowledge management, it can transform employees' knowledge into a strategic tool [1]. The public sector, characterized by bureaucratic rigidity, faces the challenge of adapting to the digital era, marked by efficiency and agility [2]. To this end, a more flexible administrative model is necessary, as proposed by New Public Management (NPM), inspired by private management and focused on results and efficiency [3] [4]. Digital transformation, combined with knowledge management, is seen as fundamental for the modernization of the public sector, with the use of digital technologies to increase the efficiency and quality of services [5]. In Brazil, digital advancements, such as the GOV.BR platform and the Electronic Information System (EIS), place the country as a global reference in digital government [6]. However, digital transformation requires effective knowledge management, which must be treated as a valuable organizational resource [7] [8].

Knowledge management in the public sector aims to improve the efficiency of services through the creation, sharing, and application of knowledge [9]. Despite the challenges, knowledge management can be an ally in digital transformation and teleworking, integrating new ways of working and promoting the flexibility needed to meet contemporary demands [2]. The regulation of teleworking, such as Normative Instruction No. 65/2020 and Decree No. 11072/2022, emphasizes the importance of measuring results and focusing on the quality of services provided in the federal public administration [10] [11]. Therefore, the integration between digital transformation and knowledge management creates the basis for the modernization of the public sector, especially in the context of teleworking, allowing greater efficiency, agility, and focus on results.

In the face of technological changes, it is crucial to understand the impact of digital transformation on knowledge management in the public sector, especially for employees who work remotely. NPM, characterized by flexibility and digitalization, offers rapid responses to changes, enabling public organizations to become more productive, effective and innovative, better meeting citizens' expectations. Although the search for efficiency and productivity is not new in the public sector [12], the transformative impact on the operational excellence of public organizations is

still limited [13]. Furthermore, the future of work has become a central concern for scientists and policymakers [14].

Therefore, the objective of this research is to investigate how digital transformation influences the knowledge management of teleworking employees, specifically from the Federal Institute of Bahia (FIBA), seeking to identify the profile of employees working remotely, verify whether digital transformation has changed the way FIBA employees working remotely carry out knowledge management processes, as well as identify knowledge management related to the digital transformation process from FIBA employees working remotely and, based on this, indicate the variables from the results of the Principal Component Analysis (PCA) and the linear regression of digital transformation that should be considered in knowledge management, resulting in the creation of a guide of good practices for FIBA administrative technicians working remotely. In view of this, this study presents 2 hypotheses: H1: “The digital transformation process has an impact on knowledge management”, as well as H2: “Knowledge management, in turn, is a critical factor in the success of digital transformation in the view of public employees working remotely”.

The text addresses the importance of digital transformation and knowledge management in public administration, focusing on teleworking employees and proposing that awareness of these issues can support leaders in formulating organizational and public policies. Successful digital transformation, combined with the recognition of knowledge management as a strategic resource, can improve the services provided and the quality of life of employees. Studies indicate that, in the private sector, knowledge management increases the capacity for innovation [15], while in the public sector, the aim is efficiency and social development [9]. However, the public sector still faces challenges, such as the lack of an efficient knowledge-sharing platform [8], but there are successful global examples, such as in Barcelona and in the governments of the USA and Canada, which show the positive impact of digital transformation on teleworking [16]-[18].

In Brazil, digital transformation in the public sector is progressing slowly and lacks consistent actions [19]. Studies conducted at federal universities indicate that teleworking can increase productivity and reduce costs, but it depends on the infrastructure and profile of managers and employees [20] [21]. The use of Information and Communication Technologies (ICTs) also facilitates the debureaucratization and innovation of public services [22]. The research highlights the lack of studies on digital transformation and knowledge management in the Brazilian public sector, especially involving teleworking, which justifies its development. In addition to contributing to the academic debate, the results of this study can help in the creation of policies to improve the efficiency of public services, promoting greater appreciation of employees and increasing the positive impact on society [23].

2. Theoretical Framework

This topic presents the theme of this research, such as digital transformation in

organizations, especially public ones, knowledge management and teleworking in public administration, in order to precisely favor the definition and contours of the problem to be studied.

2.1. Digital Transformation in Organizations

The Digital Revolution has required organizations, both public and private, to adapt to survive in a technological environment. This digital transformation involves the integration of new technologies, changes in organizational processes, and customer focus to improve experience and efficiency [24] [25]. According to [26], this revolution directly affects economic, social, and political structures around the world, influencing governments, companies and individuals. Digital transformation is not simply the adoption of new technological tools, but a broader restructuring that impacts organizations' processes and business models. It is divided into three main aspects: technological, organizational, and social [27].

In the governmental context, digital transformation also applies, bringing efficiency to public services and improving the relationship between the state and citizens, especially with the use of technologies such as AI, blockchain, and the Internet of Things [5]. ICTs are fundamental to this modernization, integrating services and anticipating citizens' needs [25]. In the public sector, digital transformation also demands a cultural change, where leadership needs to be prepared to guide the organization through this transition. The adoption of digital technologies is seen as a necessary step to improve efficiency, reduce costs and offer better quality services to citizens [28]. This includes the digitalization of processes, such as the use of the Electronic Information System (EIS) in Brazil, which aims to replace paper documents with electronic procedures, promoting administrative efficiency [29].

The impact of digital transformation, both in the private and public sectors, is redesigning the way organizations operate and interact with the world. Governments and companies are increasingly aligned with digital demands, implementing IT (Information Technology) strategies that create value, optimize resources and improve customer experience, while dealing with the socioeconomic challenges that these changes bring [24]-[30].

2.2. Knowledge Management

The literature discusses the evolution of knowledge management from the Industrial Revolution to the current scenario, highlighting the importance of knowledge sharing in organizations. In World War II, for example, knowledge sharing was essential to reduce defects in the mass production of airplanes [8]. From the 1980s onwards, knowledge became a competitive advantage [19], and currently, intangible capital, such as technology and human capital are crucial for organizational success.

Knowledge management involves the creation and dissemination of knowledge, both tacit (based on experiences) and explicit (formalized) [31]. It depends on

people, processes and technology [32], and in the public context, it promotes efficiency and innovation, in addition to meeting international demands and improving the quality of public services [25]. The ISO 30.401:2018 standard guides organizations to manage knowledge effectively, creating value [33] [34]. The public sector, however, faces challenges in applying knowledge management strategically, but prioritizing it is essential to improve services [13]. Knowledge management practices include benchmarking, brainstorming, and the use of digital tools, such as the SWOT Matrix, which are useful in teleworking [35]. These practices are divided into three groups: human resource management (corporate education, coaching), process structuring (best practices, knowledge mapping), and technological practices (IT tools) [36].

2.3. Teleworking in Public Administration

Teleworking is a technological innovation that offers flexibility in work management, driven by digitalization and intensified by the COVID-19 pandemic [37] [38]. In Europe, teleworking is defined by organizations such as EITO (European Information Technology Observatory) and the European Commission as new forms of work outside the traditional workplace, using telecommunications as a tool [37].

Digitalization has transformed production and management in organizations, with changes in working conditions and organizational communication [2]-[14]. In the public sector, the pandemic has accelerated digital transformation, allowing administrative activities that were previously face-to-face to be carried out remotely using ICTs [39]. Teleworking is defined as work outside the physical headquarters of organizations through digital technologies [40], and brings challenges in remodeling work processes [41]. The development of digital skills is essential to face the challenges of teleworking, including training in ICTs and cognitive skills [42] [43]. The exchange of knowledge and the use of digital technologies are fundamental for the creative performance of civil servants [41].

The digital transformation in the public sector was formalized with NI n° 65/2020, which regulates teleworking, promoting innovation, efficiency and flexibility [10]. This regulation establishes the MPP (Management and Performance Program), in which frequency control is replaced by productivity control, encouraging a culture of results and innovation [39]. The implementation of teleworking was expanded during the pandemic, becoming an efficient tool for increasing productivity and the quality of public services [40]. NI n° 65/2020 differentiates partial and full teleworking, establishing criteria for activities suitable for teleworking and highlighting benefits such as results-oriented management, better quality of life and incentive to innovation [10]. Decree n° 11.072/2022 improved the regulatory framework of the MPP, expanding the rules for teleworking [11].

Authors such as [23]-[44] emphasize that the success of digital transformation depends on strategic involvement with servers and the clear definition of objectives and priorities, ensuring the effectiveness of teleworking and innovation in the public sector.

3. Methodology

This descriptive and exploratory research investigates the relationship between Digital Transformation (DT) and Knowledge Management (KM) in the perception of federal public servants of FIBA in telework. Using a quantitative approach, the study applies Principal Component Analysis (PCA) and simple linear regression to analyze how DT impacts KM among Administrative Technicians in Educations (ATEs). The study was carried out based on the Management and Performance Program (MPP), implemented at FIBA after the publication of Resolution n° 53, of April 27, 2022, which establishes the telework modality.

The population studied is composed of 1129 ATEs, with the sample consisting of 514 ATEs in telework, and the sampling composed of 125 servers, calculated from the population size of 514 servers, with a confidence level of 80% and a margin of error of 5%, with this sample being considered representative. The selection criteria for ATEs are simple random, using the questionnaire as a research instrument, which is sent to institutional e-mail and institutional WhatsApp groups of ATEs teleworking at FIBA.

The questionnaire, adapted from the study by [25], investigates the profile of ATEs teleworking, presenting 9 questions, as well as investigating the influence of DT on KM, with 47 questions addressing these dimensions. The data were analyzed with the SPSS v.26 software, applying PCA to reduce the variables to two groups: DT (28 items) and KM (19 items), as shown in **Table 1**.

Table 1. Variables related to digital transformation and knowledge management.

Variables	Description
1. Variables related to DT	DT1: My organization invests in and encourages the development of employees in matters related to digital transformation. It promotes and/or offers courses, events, training, study material...
	DT2: Digital transformation is essential for better organizational performance.
	DT5: In my organization, there are policies that prioritize the use of information technology.
	DT6: Technological change and innovation have the advantage of optimizing work methodologies.
	DT7: In the process of digital transformation, I believe that I did not feel any resistance to change.
	DT8: Through technological innovation, manual operations have been modified and become digital.
	DT9: Digital transformation has changed internal processes.
	DT10: Digital transformation contributed to the improvement of internal processes.
	DT11: Digital transformation has made services more transparent and secure.
	DT12: Digital transformation has contributed significantly to the reduction in paper use.
	DT13: Digital transformation has reduced tasks performed manually.
	DT14: Digital transformation has made work simpler and more efficient.
	DT15: Digital transformation has contributed to increasing the speed at which I carry out my tasks.
	DT16: Digital transformation has contributed to a reduction in the number of tasks.
	DT17: I feel that with digital transformation I can be faster and more efficient in carrying out my tasks.

Continued

DT18: In my day-to-day work, I use digital technologies and products. In processes, management and internal communication, meetings...

DT19: The processes in my service are fully digitalized.

DT21: Digital transformation is the future of public administration.

DT22: I consider the digital transformation to be a motivating change.

DT23: My organization is prepared for the evolution of digital transformation.

DT24: Our example of organizational change can help other public sector organizations think about digital transformation projects.

DT27: My organization promotes the use of knowledge management practices.

DT28: My bosses prepared the digital change.

DT29: My bosses are committed to digital change.

DT30: Our bosses alert us to what is important to know.

DT31: I feel comfortable expressing my opinion and presenting my point of view to my colleagues and superiors. I feel that I will be heard.

DT33: I understand/clearly understand how my work contributes to the organization's goals and objectives.

DT35: The organization has good management of its data, making it available with quality and speed to the areas.

KM3: I am aware of the digital transformation objectives in my organization.

KM4: I seek to understand the vision, mission and strategies defined in my organization and apply them in my daily activities.

KM20: Digital transformation has increased knowledge sharing.

KM25: In digital transformation, my knowledge management activities were perfectly defined.

KM26: I am aware of the importance of knowledge management and its impacts on digital transformation.

KM32: My organization encourages employees to create and share new knowledge.

KM34: I understand/I try to understand what is most important that is happening in my organization.

KM36: The knowledge created is available and accessible across the entire organization.

KM37: With digital transformation, when there is a need for knowledge during daily activities, it is easily accessible.

KM38: Access to available knowledge allows each employee to feel supported in carrying out tasks.

KM39: The digital transformation has increased the amount of information stored.

KM40: I use the digital records and information that have been stored over time.

KM41: In my work, I have technological means to record the most important things I know/learn.

KM42: In my service, I know how to share knowledge.

KM43: In my service, I know how to gain knowledge.

KM44: In my work, we share information in work meetings.

2. Variables related to KM

Continued

KM45: The implementation of the EIS platform contributed to increased knowledge sharing among colleagues.

KM46: Knowledge gained during and after digital transformation can improve the provision of services to citizens.

KM47: I believe that digital transformation has contributed to the improvement of Knowledge Management practices.

Simple linear regression verified the positive relationship between these variables, validating hypotheses H1 and H2 of this research: H1: “The digital transformation process has an impact on knowledge management in the view of public servants working remotely” and H2: “Knowledge management, in turn, is a critical factor in the success of digital transformation, in the opinion of public servants working remotely”, suggesting that DT directly influences KM, similarly to the study by [25]. In addition, cluster analysis was used to verify associations between DT and KM. The research is classified as functionalist, with a positivist and deterministic perspective, and was conducted in the context of the FIBA, which implements telework as part of the MPP.

4. Analysis of Results

This topic presents the results of the analysis and processing of data, presenting the results obtained from the questionnaires applied to public servants ATEs in telework at FIBA, in relation to the profile of the servants, the analysis and results of data from the groups of variables, as well as the proof of the hypotheses of this research.

4.1. Profile of Public Servants Working Remotely

The survey of 142 employees working remotely at FIBA identified a predominantly female profile (57.75%) and relatively young (35 to 49 years old, 73.94%), with between 10 and 15 years of experience in the public sector (36.62%). The survey results reported that among the responding employees, these predominate in administrative functions (63.83%), administrative positions (52.82%), with the majority located in administrative directorates (44.37%). The educational profile indicates high levels of education, with the majority in postgraduate studies (52.82%) and master’s degrees (29.58%), as highlighted by [42], which emphasizes the importance of digital skills for teleworking. As for the work regime, the part-time model is the most common (71.12%), mainly with 40% (33.66%) and 60% (30.69%) of time in teleworking. Teleworking at FIBA reflects the adaptation of the public sector to new digital technologies, driven by the pandemic and the efficiency promoted by the use of ICTs, aligning with the challenges of Industry 4.0 described by [24] and the demand for public efficiency [38] [40] [41].

4.2. Principal Component Analysis (PCA)

The results of the PCA assumptions indicated the possibility of factoring the database

[KMO = 0.854, Bartlett's (1081) = 4112.217, $p < 0.001$]. From this, the PCA was performed, resulting in an initial structure composed of 11 main components according to the Kaiser criterion (Eigenvalue > 1), which were replaced by a model composed of four main components, using the parallel analysis technique, as can be seen in **Table 2**.

Table 2. Defining the number of principal components extracted.

Components	Real VP	Simulated VP	Explained Variance (%)
C1	13,788	2328	29,336
C2	4520	2173	9617
C3	2752	2060	5856
C4	2059	1964	4382
C5	1710	1879	3639
C6	1572	1801	3334
C7	1499	1728	3189
C8	1301	1659	2768
C9	1220	1596	2595
C10	1135	1536	2414
C11	1041	1479	2215

Therefore, it was possible to observe that the model presented with four main components presented 49.19% of explained variance. However, inconsistencies were observed in the saturation of the items in the components, with only four items not presenting cross-loadings. Given this, it is considered that the four-component structure presented an overestimation in the number of components to be extracted from the data matrix.

From this, it was decided to investigate a factorial structure with three main components, which explained 44.81% of variance. However, similar results were observed, indicating cross-loadings of the items between the components. Thus, a reduced structure of two main components was proposed, in order to investigate whether the same structure found in the study by [25] is reproduced in the sample data of this research.

The results of the model with two principal components presented substantially better indicators when compared to the structure with four and three principal components, explaining 38.95% of variance, as indicated in **Table 3**. However, it was possible to observe that items KM38 and DT24 presented cross-loadings, and were removed from the model. In addition, items DT1, KM47 and KM45 did not present componential loadings with the magnitude necessary for saturation in any extracted component, and therefore were also removed from the model.

In view of this, it was observed that the structure of the measure in the context of the FIBA presented 24 items in the first component and 18 items in the second

component. In addition, both components presented excellent internal consistency indicators, as indicated in **Table 4**.

Table 3. Solution with two main components.

Items	C1	C2
KM25	0.806	
DT27	0.793	
KM42	0.759	
DT28	0.737	
KM36	0.732	
KM43	0.730	
DT35	0.721	
KM41	0.702	
KM37	0.698	
DT29	0.694	
DT30	0.685	
KM32	0.664	
KM34	0.646	
KM44	0.599	
KM26	0.598	
DT33	0.578	
DT23	0.574	
KM3	0.529	
KM38	0.527	0.365
DT31	0.504	
KM4	0.484	
KM20	0.474	
DT5	0.463	
KM40	0.352	
KM39	0.310	
DT1		
KM47		
DT17		0.852
DT8	-0.296	0.828
DT14		0.798
DT15		0.763
DT9		0.716
DT10		0.698

Continued

DT16		0.677
DT13		0.676
DT11		0.655
DT22		0.630
DT21		0.535
KM46		0.452
DT6		0.448
DT24	0.366	0.442
DT12		0.441
DT19		0.432
DT18		0.423
DT2		0.407
DT7		0.393
KM45		

Table 4. Items grouped by components and internal consistency of the measure.

Components	Items	α	n
C1 (KM)	KM25, DT27, KM42, DT28, KM36, KM43, DT35, KM41, KM37, DT29, DT30, KM32, KM34, KM44, KM26, DT33, DT23, KM3, DT31, KM4, KM20, DT5, KM40, KM39	0.933	24
C2 (DT)	DT17, DT8, DT14, DT15, DT9, DT10, DT16, DT13, DT11, DT22, DT21, KM46, DT6, DT12, DT19, DT18, DT2, DT7	0.897	18

Therefore, the study analyzed 47 DT and KM variables that, after the application of PCA, were reduced to 42, grouped into 2 main components C1 (KM) with 24 items and C2 (DT) presenting 18 items. In view of this, it is clear that the items that were grouped in C1, the vast majority of KM variables, present a Cronbach's alpha coefficient of 0.933, representing a high degree of association between the items in this group. Likewise, it is clear that the items that were grouped in C2, the vast majority of DT, present a Cronbach's alpha coefficient of 0.897, representing a high degree of association between the items in this group. The description of the DT and KM variables is found in **Table 1**. Therefore, having identified the 2 main components (C1 and C2), it is possible to relate the influence between these variables through the statistical technique of linear regression, and thus analyze the results that one variable performs on the other with the objective of validating the hypotheses of this research.

4.3. Predictive Models and Linear Regression of Relationships between Groups of Variables

When considering the predictive models, analyzed through linear regression analysis, the results of the model that investigates the impact of component 1 on component 2 presented statistical significance, explaining 21.8% of the variance of component 2 [$F(1; 140) = 40.382$, $p < 0.001$, $DB = 1.800$, $R^2 = 0.218$]. From this, it was possible to observe that component 1 had a positive and direct impact on component 2 ($B = 0.354$, $\beta = 0.473$, $t = 6.355$, $p < 0.001$), indicating that an increase of one unit in the standard scale of component 1 influences an increase of 0.354 units in the standard scale of component 2, while an increase of one unit in the standardized scale of component 1 influenced an increase of 0.473 standardized units in the scale of component 2.

Furthermore, the model that evaluated the impact of component 2 on component 1 showed statistical significance [$F(1; 140) = 40.382$, $p < 0.001$, $DB = 1.934$, $R^2 = 0.218$], with 21.8% of explained variance. Therefore, it was possible to observe a direct and positive impact of component 2 on component 1 ($B = 0.633$, $\beta = 0.473$, $t = 6.355$, $p < 0.001$), indicating that an increase of one unit in the standard scale of component 2 impacts an increase of 0.633 units in the standard scale of component 1. As for the standardized coefficients, an increase of one unit in the standardized scale of component 2 impacts an increase of 0.473 standardized units in component 1.

Finally, a multiple linear regression model was tested, considering the impact of the DT items on KM. The results showed significant results of the predictive model [$F(6; 135) = 13.400$, $p < 0.001$, $DB = 1.558$, $R^2 = 0.345$], explaining 34.5% of the variance in KM. The results indicate that the variable DT8 had the greatest significant impact on KM, with an increase of 1 unit of DT8 impacting a decrease of 0.285 units of KM, while for the variables with a positive impact, DT10 had the greatest magnitude, with an increase of one unit of DT10 impacting an increase of 0.255 units of KM.

In order to respond to the objectives outlined in this research related to the relationships between the DT and KM variables, the results from the Principal Component Analysis (PCA) and simple linear regression demonstrated that there is a relationship between the variables, indicating the acceptance and validation of hypotheses 1 and 2 of this study, which are H1: "The digital transformation process has an impact on knowledge management in the view of public servants working remotely" and H2: "Knowledge management, in turn, is a critical factor in the success of digital transformation, in the opinion of public servants working remotely". Therefore, based on the results of this research, it was noted that the impact of DT on KM presents significant and positive results; just as the study demonstrates that the influence of KM on DT has a significant and positive impact. In view of this, the positive influence of the DT variables on KM in the view of FIBA teleworking employees is highlighted, thus confirming H1 and H2.

When discussing this result with the theory advocated in this study, as well as

the variables that most influenced the confirmation of the hypotheses dealing with DT and KM, the results demonstrated a strong influence between them, with some DT variables standing out in the impact on KM, namely: DT17, DT8, DT16, DT21, DT10 and DT19. **Table 5** describes the highlighted DT variables on KM.

Table 5. Description of highlighted variables of DT over KM.

Featured Variables	Description
DT17	I feel that with digital transformation I can be faster and more efficient in carrying out my tasks.
DT8	Through technological innovation, manual operations have been modified and become digital.
DT16	Digital transformation has contributed to a reduction in the number of tasks.
DT21	Digital transformation is the future of public administration.
DT10	Digital transformation contributed to the improvement of internal processes.
DT19	The processes in my service are fully digitalized.

The study highlights the perception of technical-administrative employees working remotely (ATEs) at FIBA regarding Digital Transformation (DT), who demonstrated greater agility and efficiency in their activities, in line with the argument of [15] that technology favors organizational innovation. DT has impacted internal processes, as pointed out by [27], improving public management and benefiting society [30]. For [45], success in public administration requires awareness and appreciation of employees, in addition to the ability to adapt to innovations [46].

[25] and [47] highlight that the use of technology and Knowledge Management (KM) increases effectiveness and innovation in public administration, while facilitating the digitalization of processes, as observed in DT8, where employees report the transformation of manual operations into digital ones. Authors such as [26] emphasize that digitalization is essential for organizational success, while [44] emphasize that DT promotes cultural changes and demands new digital skills.

The research also shows that DT reduces repetitive tasks, prioritizing productivity and better results [14], becoming vital for public administration, by increasing organizational efficiency and the provision of digital services [48]. In addition, [32] and [15] reinforce the role of people in the creation and sharing of knowledge, essential for the success of DT. Thus, the study proposes a guide of good practices for the Human Resources Management Department (HRMD) of FIBA, aiming at the development of digital skills and the strengthening of KM in teleworking.

The research concludes that DT and KM are fundamental to improving internal processes and the efficiency of ATEs in teleworking, contributing to meeting the objectives of Resolution n° 53/2022 and NI n° 65/2020, which encourage innovation

and digital culture in public administration, implying support for the digital skills required by the resolution, as well as the sharing of knowledge of FIBA teleworking servers.

5. Final Considerations

This study validated its hypotheses through statistical analyses (PCA and linear regression) based on a questionnaire applied to ATEs teleworking at FIBA. This made it possible to understand the profile of these employees, predominantly in administrative roles and with high educational backgrounds, confirming the positive influence of Digital Transformation (DT) on Knowledge Management (KM). The analysis reduced the 47 initial variables to 42, with 24 items for KM (C1) and 18 for DT (C2), with the variables DT17, DT8, DT16, DT21, DT10 and DT19 standing out in their influence on KM. The study showed that DT strengthens KM, contributing to efficiency and innovation in the public sector. Although it faced limitations such as the civil servant strike, which made it difficult to collect responses, the research achieved its objectives.

As a result, a best practice guide for FIBA teleworkers was developed, with the aim of improving digital skills through organizational learning. Recommendations for future research include expanding the sample to include employees who do not telework, comparisons between different public organizations, and a more detailed analysis of efficiency and costs. These advances could strengthen public policies on DT and KM in public administration, specifically, public policies focused on digital government, as well as on the implementation of telework, acting in different government spheres, such as municipal, state, and federal.

Conflicts of Interest

The authors declare no conflicts of interest.

References

- [1] Fernandez-Vidal, J., Antonio Perotti, F., Gonzalez, R. and Gasco, J. (2022) Managing Digital Transformation: The View from the Top. *Journal of Business Research*, **152**, 29-41. <https://doi.org/10.1016/j.jbusres.2022.07.020>
- [2] Moser-Plautz, B. and Schmidhuber, L. (2023) Digital Government Transformation as an Organizational Response to the COVID-19 Pandemic. *Government Information Quarterly*, **40**, Article ID: 101815. <https://doi.org/10.1016/j.giq.2023.101815>
- [3] Bresser-Pereira, L.C. (1998) Uma reforma gerencial da administração pública no Brasil. *Revista do Serviço Público*, **73**, 180-219.
- [4] Matias-Pereira, J. (2008) Administração pública comparada: Uma avaliação das reformas administrativas do Brasil, EUA e União Européia. *Revista de Administração Pública*, **42**, 61-82. <https://doi.org/10.1590/s0034-76122008000100004>
- [5] Organização para a Cooperação e Desenvolvimento Econômico (OCDE) (2018) Revisão do Governo Digital do Brasil: Rumo à transformação digital do setor público. https://read.oecd-ilibrary.org/governance/digital-government-review-of-brazil_9789264307636-en#Page17

- [6] Brasil (2023) Brasil é reconhecido como segundo líder em governo digital no mundo. <https://www.gov.br/governodigital/pt-br/noticias/brasil-e-reconhecido-como-segundo-lider-em-governo-digital-no-mundo>
- [7] Dalkir, K. (2011) Knowledge Management in Theory and Practice. Elsevier.
- [8] Wamitu, S.N. (2015) Tacit Knowledge Sharing in Public Sector Departments in Kenya. *Open Journal of Business and Management*, **3**, 109-118. <https://doi.org/10.4236/ojbm.2015.31011>
- [9] Batista, F. (2012) Modelo de Gestão do Conhecimento para a Administração Pública Brasileira. IPEA.
- [10] Brasil (2020) Instrução Normativa n° 65, de 30 de julho de 2020. Estabelece orientações, critérios e procedimentos gerais a serem observados pelos órgãos e entidades integrantes do Sistema de Pessoal Civil da Administração Federal-SIPEC relativos à implementação de Programa de Gestão.
- [11] Brasil (2022) Decreto n° 11.072, de 17 de maio de 2022a. Dispõe sobre o Programa de Gestão e Desempenho-PGD da administração pública federal direta, autárquica e fundacional. https://www.planalto.gov.br/ccivil_03/ Ato2019-2022/2022/Decreto/D11072.htm?origin=instituicao
- [12] Savignon, A.B., Zecchinelli, R., Costumato, L. and Scalabrini, F. (2023) Automation in Public Sector Jobs and Services: A Framework to Analyze Public Digital Transformation's Impact in a Data-Constrained Environment. *Transforming Government: People, Process and Policy*. Emerald Publishing Limited, 1750-6166.
- [13] Kassa, E.T. and Ning, J. (2023) A Systematic Review on the Roles of Knowledge Management in Public Sectors: Synthesis and Way Forwards. *Heliyon*, **9**, e22293. <https://doi.org/10.1016/j.heliyon.2023.e22293>
- [14] Kraus, S., Ferraris, A. and Bertello, A. (2023) The Future of Work: How Innovation and Digitalization Re-Shape the Workplace. *Journal of Innovation & Knowledge*, **8**, Article ID: 100438. <https://doi.org/10.1016/j.jik.2023.100438>
- [15] Silva, E.M., da Gaspar, M.A., Aihara, C.H., de Magalhães, F.L.F. and Costa, I. (2021) Influência da tecnologia da informação na gestão do conhecimento e a capacidade de inovação na busca da eficácia organizacional. *Revista Humanidades & Inovação*, **8**, 350-363.
- [16] Tort-Martorell, J. and Fernández-Medina, R. (2020) The Barcelona Smart City and Its Global Digital Transformation from a Human Resources Perspective. *Government Information Quarterly*, **37**, Article ID: 101485.
- [17] Shafiq, M. (2020) Understanding the Determinants of Teleworking during the COVID-19 Pandemic. *Information Systems Frontiers*, **23**, 1017-1037.
- [18] Public Policy Forum (2020) COVID-19: Urgent Action, Rapid Impact. Virtualizing Public Engagement for the Future.
- [19] Rosso, A.V.R. (2022) Competências digitais na era da transformação digital: A percepção dos procuradores da Fazenda Nacional para o exercício de sua atividade. Dissertação (Mestrado Profissional em Administração Pública), Escola Brasileira de Administração Pública e de Empresas.
- [20] Luís Ramos Lopes, A. and Lerch Lunardi, G. (2022) Adoção do teletrabalho em instituições de ensino durante a pandemia da COVID-19: Um estudo realizado com os servidores técnicos administrativos da Universidade Federal do Rio Grande—FURG. *Revista de Gestão e Secretariado*, **13**, 26-54. <https://doi.org/10.7769/gesec.v13i2.1282>
- [21] do Carmo Moreira, V.E. and Zuin, D.C. (2022) O que mudou no trabalho durante a

- pandemia? Experiências com o teletrabalho em uma instituição de ensino superior. *Research, Society and Development*, **11**, 1-13. <https://doi.org/10.33448/rsd-v11i15.37161>
- [22] Baccili, S. and da Cruz, N.J.T. (2021) Virtualização do trabalho durante a Pandemia do COVID-19: Avaliação da experiência dos servidores de uma Instituição Federal de Ensino Superior. *Navus-Revista de Gestão e Tecnologia*, **11**, 1-15. <https://doi.org/10.22279/navus.2021.v11.p01-15.1475>
- [23] Gasco-Hernandez, M., Nasi, G., Cucciniello, M. and Hiedemann, A.M. (2022) The Role of Organizational Capacity to Foster Digital Transformation in Local Governments: The Case of Three European Smart Cities. *Urban Governance*, **2**, 236-246. <https://doi.org/10.1016/j.ugj.2022.09.005>
- [24] De Alvarenga, A.R.C.F. (2019) Transformação digital na administração pública: Estudo de caso. Dissertação (Mestrado em Informática e Gestão), Instituto Universitário de Lisboa.
- [25] Opland, L.E., Pappas, I.O., Engesmo, J. and Jaccheri, L. (2022) Employee-Driven Digital Innovation: A Systematic Review and a Research Agenda. *Journal of Business Research*, **143**, 255-271. <https://doi.org/10.1016/j.jbusres.2022.01.038>
- [26] Schwab, K. (2016) A Quarta Revolução Industrial. Edipro. https://books.google.com.br/books?hl=pt-BR&lr=&id=XZSWDwAAQBAJ&oi=fnd&pg=PT161&dq=a+quarta+revolu%C3%A7%C3%A3o+industrial+schwab+2016&ots=Ya6a_xLGf9&sig=1im-RtI14wnHOoiJTS0Bqjh0crrc#v=onepage&q=a%20quarta%20revolu%C3%A7%C3%A3o%20industrial%20schwab%202016&f=false
- [27] Figueredo, R.A. (2023) Transformação digital como fator de competitividade no equipamento turístico de Aracaju: Um estudo sob a ótica da teoria da estruturação. Dissertação (Programa de Pósgraduação em Administração-PROPADM), Universidade Federal de Sergipe.
- [28] Jonathan, G.M., Yalew, S.D., Gebremeskel, B.K., Rusu, L. and Perjons, E. (2023) IT Alignment: A Path Towards Digital Transformation Success. *Procedia Computer Science*, **219**, 471-478. <https://doi.org/10.1016/j.procs.2023.01.314>
- [29] Brasil (2023) Sistema Eletrônico de Informações—SEI. <https://www.gov.br/economia/pt-br/acesso-a-informacao/sei>
- [30] Pereira, A.A. (2020) A transformação digital nas PME portuguesas: Análise das empresas da região Centro. Dissertação (Mestrado em Gestão de Empresas), Instituto Superior de Entre Douro e Vouga.
- [31] Nonaka, I., von Krogh, G. and Voelpel, S. (2006) Organizational Knowledge Creation Theory: Evolutionary Paths and Future Advances. *Organization Studies*, **27**, 1179-1208. <https://doi.org/10.1177/01708406060666312>
- [32] Brito, E. and Cardoso, L. (2011) Pessoas, Qualidade e Gestão do Conhecimento. *Psicologia*, No. 55, 25-38. https://doi.org/10.14195/1647-8606_55_2
- [33] Rodríguez Rojas, Y.L. (2019) Mejores prácticas para gestionar el conocimiento según la ISO 30401. *SIGNOS-Investigación en Sistemas de Gestión*, **11**, 9-20. <https://doi.org/10.15332/24631140.5090>
- [34] Do Nascimento, H., Gaspar, M.A., Martins, F.S. and de Magalhães, F.L.F. (2022) Prontidão das universidades federais para implantação de sistemas de gestão do conhecimento com base na norma ISO 30.401: 2018. *Perspectivas em Gestão & Conhecimento*, **12**, 122-137. <https://doi.org/10.22478/ufpb.2236-417x.2022v12nespecial.62049>
- [35] Escola Nacional de Administração Pública (ENAP) (2022) Gestão do conhecimento:

Teorias e práticas. ENAP.

- [36] Batista, F.F., Quandt, C.O., Pacheco, F.F. and Terra, J.C.C. (2005) Gestão do conhecimento na administração pública. Texto para Discussão nº 1095. IPEA.
- [37] Viana, L. (2020) Modelagem de equações estruturais aplicada ao teletrabalho na CGU. Dissertação (Programa de Pós-graduação em Gestão Pública), Universidade Federal do Espírito Santo.
- [38] Tønnessen, Ø., Dhir, A. and Flåten, B. (2021) Digital Knowledge Sharing and Creative Performance: Work from Home during the COVID-19 Pandemic. *Technological Forecasting and Social Change*, **170**, Article ID: 120866. <https://doi.org/10.1016/j.techfore.2021.120866>
- [39] Brasil (2024) Histórico do PGD. <https://www.gov.br/servidor/pt-br/assuntos/programa-de-gestao/nova-in-2023/historico-do-pgd-na-apf>
- [40] José Cavalcanti Silva Júnior, M. and José de Sousa, W. (2023) A Pesquisa em Teletrabalho na Administração Pública no Brasil: Uma Revisão no Catálogo de Teses e Dissertações (CTD/Capes). *Revista Gestão & Conexões*, **12**, 71-94. <https://doi.org/10.47456/regec.2317-5087.2023.12.2.39964.71-94>
- [41] De Souza Afonso, D., Sampaio Barbosa, F.L. and Pinto de Almeida Bizarria, F. (2023) Competências individuais para os desafios do teletrabalho no Ministério Público do Trabalho. *Revista do Serviço Público*, **74**, 703-724. <https://doi.org/10.21874/rsp.v74i3.8658>
- [42] Caparrós Ruiz, A. (2022) Factors Determining Teleworking before and during COVID-19: Some Evidence from Spain and Andalusia. *Applied Economic Analysis*, **30**, 196-212. <https://doi.org/10.1108/aea-08-2021-0199>
- [43] Fórum Mundial Econômico (2023) Future of Jobs. https://www3.weforum.org/docs/WEF_Future_of_Jobs_2023_News_Release_Pt_BR.pdf
- [44] AlNuaimi, B.K., Kumar Singh, S., Ren, S., Budhwar, P. and 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>
- [45] Soares, A.F.C and Pendiuk, F. (2022) Raízes da burocracia: A trajetória da administração pública no Brasil rumo ao ordenamento jurídico de sua eficiência. *Revista Eletrônica Anima*, **27**, 1-27.
- [46] Ormond, D. and Löffler, E. (2014) A nova gerência pública. *Revista do Serviço Público*, **50**, 66-96. <https://doi.org/10.21874/rsp.v50i2.347>
- [47] Damiani, W.B. (2003) Gestão do conhecimento: Uma comparação entre empresas brasileiras e norte-americanas. Núcleo de Pesquisas e Publicações. Fundação Getúlio Vargas.
- [48] Tribunal de Contas da União (TCU) (2016) Avaliação dos serviços prestados aos cidadãos de forma eletrônica. Identificação de oportunidades de melhoria. Recomendações.