



From Bureaucracy to E-Governance: Assessing the Impact of Digitalisation on Public Administration Performance in Algeria

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ABSTRACT

This study investigates the transformative role of digitalisation within Algerian public organisations, focusing on its impact on organisational performance, transparency, and citizen engagement. Anchored in the Resource-Based View and the Theory of Administrative Transparency, the research adopts a qualitative approach based on five case studies from different public sectors in Algeria, including finance, higher education, employment, local administration, and social protection. Data were collected through semi-structured interviews with key administrative officials and analysed using inductive thematic and occurrence analyses. The findings reveal that digitalisation significantly improves the efficiency of administrative processes by automating tasks and reducing delays. It also optimises the management of financial and human resources, enhances accessibility to public services through online platforms, and strengthens citizen trust by increasing transparency and accountability. Furthermore, the study identifies continuous employee training as a moderating variable that amplifies the positive effects of digitalisation on organisational performance. From a theoretical perspective, the study validates the Resource-Based View by showing that digital capabilities constitute a valuable and rare organisational resource for Algerian administrations. Simultaneously, it confirms the relevance of the Theory of Administrative Transparency, as digitalisation fosters open governance and accountability. From a practical standpoint, the study underscores the need for sustained investment in digital infrastructures, continuous staff training, and institutional mechanisms that ensure the reliability of published information. The research concludes that digitalisation in Algeria is not merely a technological innovation but a strategic transformation that redefines the relationship between the state, public employees, and citizens. By promoting efficiency, transparency, and engagement, digitalisation lays the foundation for a more modern, responsive, and accountable public administration capable of meeting the challenges of governance in the digital age.

Keywords: Green innovation, bank sustainability, ESG disclosure, regulatory pressure, European Union, financial institutions.

How to cite the article

1. Introduction

Digitalisation has emerged as a central driver of transformation in public administrations worldwide, providing opportunities to modernise bureaucratic processes, improve transparency, and enhance citizen trust. In developing countries, the shift towards digital governance is particularly critical, as it promises to address inefficiencies, combat corruption, and bridge the gap between administrations and citizens (Mergel et al., 2019).

In the context of Algeria, public organisations have increasingly embraced digitalisation as part of a broader agenda of administrative reform and modernisation. Government initiatives such as the National Strategy for Digital Transformation 2020–2025 and e-government platforms have sought to integrate information and communication technologies (ICTs) into public service delivery (Ministère de la Numérisation et des Statistiques, 2020). These reforms are intended not only to streamline internal processes but also to meet rising citizen demands for transparency, accessibility, and responsiveness.

However, while progress has been made, significant challenges remain. Issues such as limited infrastructure, digital divides between urban and rural regions, and institutional resistance have slowed the pace of transformation (Benaoum, 2021). Moreover, the academic literature addressing the impact of digitalisation on Algerian public organisations is still relatively scarce. Although several scholars (Benyoucef & Toumi, 2020; Yahiaoui & Zerguine, 2022) have examined e-government adoption and digital tools in Algeria, little research has systematically explored their effects on organisational efficiency, resource management, and transparency.

This study seeks to address this gap by focusing on the role of digitalisation in Algerian public organisations. Specifically, it aims to investigate how digital tools contribute to:

1. Improving efficiency and organisational performance.
2. Enhancing the accessibility of services and citizen engagement.
3. Strengthening transparency and accountability in governance.

By doing so, the research contributes both theoretically by situating digitalisation within the frameworks of the Resource-Based View and administrative transparency theory and practically, by offering actionable insights for policymakers, managers, and practitioners engaged in Algeria's digital transformation.

2. Theoretical Foundations

2.1 Conceptual Framework

The conceptual framework assumes that digitalisation in public organisations directly influences several dimensions of organisational performance: process efficiency, resource management, accessibility of public services, and transparency. Drawing from models of organisational innovation (Bekkers & Homburg, 2007) and digital transformation (Mergel et al., 2019), this research proposes an integrative model to examine how these dimensions are interrelated.

In Algeria, these dimensions take on a particular significance given the government's efforts to modernise public administration. The National Digital Transformation Strategy (2020–2025) highlights the importance of improving efficiency, transparency, and citizen engagement through digital tools (Ministère de la Numérisation et des Statistiques, 2020).

2.2 Theoretical Anchoring

The study is anchored in the Resource-Based View (Barney, 1991) and the Theory of Administrative Transparency (Grimmelikhuijsen & Meijer, 2014).

- The Resource-Based View (RBV): This theory suggests that organisational performance depends on the ability to develop and deploy valuable, rare, and inimitable resources. In Algeria, digitalisation initiatives in sectors such as higher education, finance, and employment are increasingly viewed as strategic resources that improve service delivery and generate value for citizens (Benyoucef & Toumi, 2020).
- The Theory of Administrative Transparency: According to Grimmelikhuijsen and Meijer (2014), transparency in government consists of providing stakeholders with relevant, timely, and accurate information to build trust and

accountability. In the Algerian context, digitalisation reinforces transparency by enabling the publication of budgets, public procurement data, and performance indicators online, thereby strengthening governance (Yahiaoui & Zerguine, 2022).

Together, these theories provide the foundation for analysing how digitalisation impacts Algerian public organisations, both as a strategic resource that boosts performance and as a governance tool that fosters trust and accountability.

3. Methodology of Data Analysis

3.1 Case Study Selection

As part of this study, we adopted an exploratory qualitative approach based on the method of multiple case studies. This approach is particularly appropriate for exploring in depth the impact of digitalisation within Algerian public organisations, while also taking into account the specificities of each institution.

The choice of organisations was not random: it was made according to precise criteria, in line with the recommendations of Yin (2018), who emphasises the importance of sample size and context.

Thus, our convenience sample consists of five public organisations selected for their diversity in terms of missions, size, and sectors of activity. We chose entities representing key sectors such as public finance, employment and vocational training, higher education, local administration, and social protection. These choices cover a wide range of essential public services that are central to Algeria's modernisation agenda (Ministère de la Numérisation et des Statistiques, 2020). The number of cases retained in this study aligns with Eisenhardt's (1989) recommendation that a multiple-case study should include between 4 and 10 organisations to ensure a variety of perspectives while remaining sufficiently focused for in-depth analysis.

The table below provides an overview of the characteristics of the organisations studied, particularly in terms of sector, main activity, workforce, and the officials who participated in the interviews. The duration of the interviews ranged from 1h to 1h30, allowing us to collect rich and nuanced data on digitalisation practices and their impact on organisational performance.

Table 1: Characteristics of the Algerian Public Organisations in the Sample

Organisation	Sector	Main Activity	City	Workforce	Interviewee Position	Duration
Case 1	Public Finance	Management of state finances and tax collection	Algiers	2,800	Administrative Director	1h 15 min
Case 2	Employment & Training	Support for job seekers and vocational training	Oran	1,300	General Director	1h 00 min
Case 3	Higher Education	University training and scientific research	Constantine	350	Administrative Officer	1h 20 min
Case 4	Local Administration	Management of municipal services and local governance	Blida	700	Operations Director	1h 30 min
Case 5	Social Protection	Management of social insurance and pensions	Annaba	3,200	Human Resources Director	1h 10 min

3.2 Data Collection and Analysis Techniques

The data analysis of this study is based on an inductive approach, aimed at exploring and understanding the impact of digitalisation on processes and the performance of public organisations in Algeria.

To collect relevant empirical data, five Algerian public organisations were selected based on their experience in implementing digital tools. We opted for a semi-structured interview method to allow respondents to express themselves freely about their experience with digitalisation, while ensuring that key themes related to our research problem were addressed.

The interviews were structured around three main questions covering the following aspects:

1. The impact of digitalisation on organisational processes and performance.
2. The improvement of accessibility of public services and citizen engagement.
3. The transparency and innovation efforts implemented by organisations through digital tools.

The information collected during the interviews was transcribed verbatim to faithfully represent the raw data on which our analysis was based. Transcription was carried out manually, recording word-for-word what interviewees said, without modification, interpretation, or abbreviation of the text. This method preserved an accurate record of the discourse and facilitated its analysis.

In accordance with Huberman and Miles (1991), this rigorous stage ensured that the raw qualitative data were properly preserved.

The data analysis process included three coding stages:

- **Initial Coding:** Identifying emerging concepts from respondents' statements. Each relevant quotation was coded according to themes such as process acceleration, task automation, or transparency improvement.
- **Axial Coding:** Grouping similar codes to form broader categories, thus identifying relationships between the observed dimensions.
- **Thematic Coding:** Structuring the data into global themes covering the major impacts of digitalisation on organisational performance.

This coding approach also drew on Strauss and Corbin (1990), who highlight the importance of structuring data according to relationships between emerging concepts.

Once the themes were identified, we conducted occurrence analysis, a method widely recommended by Bardin (2013). This step involved calculating the frequency of appearance of themes and sub-themes across all the collected discourses. Each identified theme was assigned a number to facilitate quantification. The relative frequencies of the themes were calculated to determine their weight in the overall analysis.

The results of this occurrence analysis enabled us to assess the significance of the different themes according to their frequency of appearance in the interviews.

By combining thematic coding and occurrence analysis, this methodology ensured that the analysis faithfully reflected the perceptions of the participants, without presupposing a predefined theoretical framework. The ultimate goal was to conceptualise an explanatory model of the effects of digitalisation on Algerian public organisations, based on the correlations identified between sub-themes and main themes.

4. Results

The analysis of the five case studies conducted with Algerian public organisations highlights several significant findings that allow us to better understand the effects of digitalisation on processes, transparency, accessibility, and organisational performance.

4.1 Improvement of Processes and Organisational Performance

One of the most recurrent results concerns the positive impact of digitalisation on the efficiency of internal processes. The automation of administrative tasks has made it possible to reduce processing times and simplify procedures that were once long and complex.

For example, in the public finance sector, the digitalisation of tax declaration and payment systems has shortened deadlines and improved the reliability of data processing. Similarly, in higher education, the introduction of online registration portals has reduced congestion during enrolment periods and made academic procedures more transparent.

These transformations demonstrate that digitalisation contributes not only to increased efficiency but also to better allocation of resources, thereby improving overall organisational performance in Algerian administrations.

4.2 Accessibility of Services and Citizen Engagement

The results also reveal that digitalisation facilitates access to public services for Algerian citizens. Online platforms and mobile applications have enabled a significant reduction in geographical and temporal barriers.

For instance, citizens can now access certain services at any time without the need to travel. In the social protection sector, beneficiaries can track their contributions and rights online, which improves transparency and strengthens trust between the administration and citizens.

Moreover, the adoption of user-friendly interfaces has increased citizen satisfaction and promoted more active engagement with public organisations.

Table 2: Examples of the Impact of Digitalisation on Accessibility and Citizen Engagement in Algeria

Organisation	Digitalisation Practices	Observed Impacts on Citizens
Public Finance	Online tax declaration and e-payment platforms	Citizens complete procedures remotely; shorter processing times; higher satisfaction
Employment & Training	Digital job portals and e-recruitment systems	Simplified access to job offers and training; improved matching between candidates and recruiters
Higher Education	Online university registration and e-learning systems	Reduced congestion at enrolments; easier access to learning resources
Local Administration	Mobile applications for municipal services	Faster service requests; improved communication with local government
Social Protection	Secure online access to rights and contributions	Real-time access to personal data; strengthened trust in institutions

4.3 Transparency and Accountability

Transparency is another major impact of digitalisation observed in the Algerian organisations studied. The online publication of budgets, financial reports, and statistical data has enhanced accountability and increased public trust.

For example, in local administration, the use of e-portals for municipal budgets allows citizens to monitor public expenditure. This transparency contributes to reducing corruption risks and administrative opacity, as information becomes more accessible and verifiable.

4.4 Innovation in Public Management

Digitalisation has also stimulated innovation in the management of Algerian public organisations. Several entities have adopted new practices, such as the use of algorithms to analyse citizen demand or predictive tools to anticipate needs.

For instance, in the employment sector, digital platforms now connect job seekers with recruiters more effectively, while in higher education, e-learning systems have improved access to knowledge and enhanced teaching quality.

These innovations represent a significant change in management practices and highlight digitalisation as a driver of public sector innovation in Algeria.

4.5 Employee Training and Adaptation

The results also emphasise the crucial role of employee training in the success of digital transformation initiatives. Although resistance to change was observed initially, training programmes helped reduce this resistance and improved employees' digital skills.

For example, in the social protection sector, specific training was provided for the use of digital platforms for pension and family benefits management, which allowed employees to become more comfortable with the tools.

Continuous training thus emerges as an essential condition for the sustainability of Algeria's digitalisation initiatives. Without adequate support, employees risk being left behind, thereby reducing the efficiency of the transformation process.

4.6 Synthesis of Results

The analysis of the five Algerian organisations shows that digitalisation has five main impacts:

1. Improvement of processes and organisational performance through automation and simplification.
2. Better accessibility of services and increased citizen engagement.
3. Strengthened transparency and accountability.
4. Encouragement of innovation in public management.
5. The central role of employee training in ensuring the success of digital initiatives.

These findings confirm that digitalisation in Algeria is not limited to a technological reform but constitutes a deep organisational transformation affecting both internal processes and relations with citizens.

5. Inductive Lessons and Theoretical Implications

The qualitative analysis carried out with the five Algerian public organisations allows us to identify a set of inductive lessons that clarify the role of digitalisation in improving organisational performance, transparency, and citizen engagement. These lessons go beyond descriptive observations and make it possible to propose explanatory hypotheses concerning the mechanisms through which digitalisation transforms public administrations in Algeria.

5.1 Digitalisation and Process Automation

One of the central lessons is that digitalisation significantly contributes to the automation of administrative tasks, which leads to a noticeable improvement in efficiency. The results show that tasks that previously required several days to be completed can now be processed in just a few hours. This improvement reduces bottlenecks in administrative processes and enhances the quality of services delivered to citizens.

In Algeria, the Ministry of Finance's e-tax platforms and the Ministry of Higher Education's online portals are examples of how digitalisation directly improves operational efficiency.

•H1: Process automation through digitalisation significantly improves organisational efficiency in Algerian public organisations.

5.2 Resource Management Optimisation

The second lesson highlights the role of digital tools in the optimisation of financial and human resources. The organisations studied reported that digital platforms have enabled them to rationalise expenditures, monitor budgets more effectively, and make better use of human capital.

For example, the implementation of e-recruitment systems in Algeria has improved the allocation of staff and allowed for greater responsiveness in the public sector.

•H2: Digital tools for resource management improve organisational decision-making and effectiveness in Algerian public organisations.

5.3 Accessibility of Services and Citizen Engagement

Another key lesson concerns the improvement of accessibility and the strengthening of citizen engagement through digitalisation. By providing user-friendly online portals and mobile applications, administrations offer citizens simplified access to services, regardless of geographic or temporal constraints. This increased accessibility fosters greater trust and a more positive perception of public organisations. It also promotes more active participation by citizens in public life.

For instance, digital civil registry services have enabled Algerian citizens to obtain official documents remotely, strengthening the link between citizens and the administration.

•H3: Digital public services increase accessibility and strengthen citizen engagement in Algeria.

5.4 Employee Training as a Moderating Variable

The fourth lesson emphasises the crucial role of continuous training for employees in the success of digital transformation projects. Resistance to change, which was initially observed in several organisations, was reduced after the introduction of targeted training programmes. These sessions enabled employees to develop new digital skills and to adapt more easily to the tools introduced. Continuous training thus appears as a moderating factor that amplifies the positive effects of digitalisation on efficiency.

In Algeria, initiatives by the National School of Administration (ENA) and sector-specific training programmes illustrate the importance of investing in staff development.

•H4: Continuous employee training moderates the positive impact of digitalisation on efficiency in Algerian public organisations.

5.5 Transparency and Good Governance

The fifth lesson reveals that digitalisation reinforces transparency and good governance. The online publication of budgets, financial statements, and operational reports increases citizen confidence in public institutions. This practice reduces information asymmetries and limits risks of corruption, since information becomes accessible and verifiable by all stakeholders. Digitalisation thus constitutes a governance mechanism that enhances the credibility of administrations.

The use of platforms such as open budget portals in some Algerian municipalities illustrates the role of digitalisation in strengthening accountability.

•H5: Digitalisation of financial and administrative processes enhances transparency and governance in Algerian public organisations.

Theoretical Implications

The inductive lessons identified in this study support the theoretical frameworks mobilised in our research:

1. The Resource-Based View (RBV) (Barney, 1991): The evidence confirms that digitalisation constitutes a valuable, rare, and difficult-to-imitate organisational resource. Algerian public organisations that invest in digital infrastructures and develop specific competencies gain a sustainable advantage in terms of efficiency, innovation, and quality of service delivery.

2. The Theory of Administrative Transparency (Grimmelikhuijsen & Meijer, 2014): The results corroborate the central idea of this theory by showing that digitalisation promotes openness, accessibility of information, and accountability. In the Algerian context, transparency is reinforced through initiatives such as the digitalisation of public procurement processes and the publication of municipal budgets online.

Therefore, digitalisation in Algerian public organisations should not be seen solely as a technological reform. It must be understood as a strategic organisational transformation, which redefines relationships between administrations, their employees, and citizens, while anchoring public action in principles of efficiency, transparency, and accountability.

6. Conclusion

This study has examined the role of digitalisation in Algerian public organisations through a qualitative approach based on multiple case studies. The objective was to explore the impact of digitalisation on organisational processes, performance, accessibility of services, transparency, and citizen engagement.

The results demonstrate that digitalisation is far more than a simple technological reform: it represents a strategic transformation that redefines the functioning of public administrations and their relationship with citizens. The five case studies conducted in Algeria highlight the following key contributions of digitalisation:

1. Improvement of efficiency and organisational performance: Automation of processes and simplification of procedures reduce delays and improve the quality of services delivered to citizens.
2. Optimisation of resource management: Digital tools enable more efficient allocation and monitoring of financial and human resources, enhancing decision-making and rationalising expenditures.
3. Enhanced accessibility of public services and citizen engagement: Online portals and mobile applications make services more accessible, reduce geographical and temporal barriers, and strengthen interactions between administrations and citizens.
4. Strengthening of transparency and governance: The publication of budgets, financial reports, and public data online enhances accountability and increases public trust in Algerian institutions.
5. Encouragement of innovation in public management: The adoption of predictive tools, digital platforms, and innovative practices fosters a culture of innovation and responsiveness within public administrations.
6. Central role of employee training: Continuous training of staff reduces resistance to change, improves digital skills, and ensures the sustainability of digital transformation initiatives.

From a theoretical standpoint, the findings confirm the relevance of the Resource-Based View (Barney, 1991), by showing that digitalisation is a valuable and rare organisational resource capable of creating long-term advantages for Algerian public organisations. The results also reinforce the Theory of Administrative Transparency (Grimmelikhuijsen & Meijer, 2014), demonstrating that digitalisation facilitates openness, improves access to reliable information, and strengthens governance.

From a practical perspective, the results suggest several implications for decision-makers in Algeria. Public organisations must invest not only in digital infrastructures but also in the continuous training of their employees. They must also adopt strong governance mechanisms to ensure the reliability of data published online and to limit risks such as superficial transparency or symbolic reforms.

Finally, this research opens new avenues for future work. It would be valuable to conduct longitudinal studies to assess the long-term effects of digitalisation on organisational performance and governance in Algeria. Furthermore, quantitative studies could complement these findings by testing the proposed hypotheses on a larger sample of organisations across different regions and sectors.

In conclusion, digitalisation is a powerful lever for transforming Algerian public organisations. By promoting efficiency, transparency, and citizen engagement, digitalisation contributes to the construction of a more modern, responsive, and accountable public administration, capable of addressing the challenges of governance in the 21st century.

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