International Journal of Research Publication and Reviews

Digital Transformation in the Moroccan Public Administration: A Case Study of Administrative Mail Digitization

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A B S T R A C T

In recent years, Morocco has experienced a significant surge in Internet accessibility. This remarkable growth can be attributed to the widespread presence of computers and smartphones, along with the continuous advancement of computer networks. This evolution has greatly facilitated the flow of information among Moroccans. Consequently, communication mechanisms and the exchange of information within Morocco have undergone significant enhancements, ushering in a new era of digital communication marked primarily by an exponential increase in the volume of data in circulation.

Considering these aforementioned developments, coupled with the onset of the digital transformation wave within public administrations, the government was prompted to embark on a series of strategic initiatives beginning in 2005. These initiatives included the implementation of the "e-Morocco 2010" strategy, followed by the "Digital Morocco 2013" plan, "Digital Morocco 2020," and "Digital in Morocco by Horizon 2025." The overarching goal of these strategies was to position Morocco as a prominent digital player on the African continent.

This article aims to shed light on the digital transformation taking place within public administrations by first elucidating its concept, the driving forces behind it, and the challenges it faces. Additionally, we delve into the concept of "E-Government" and culminate with a description of two recently launched digital platforms integral to Morocco's public administration's digital transformation journey.

Keywords: Digital Transformation, Artificial Intelligence, Administrative Mail, Digital Governance, Public Administration

Introduction

The rapid emergence of digital platforms and networks, coupled with the advent of cloud computing, mobile technologies, artificial intelligence, and the Internet of Things, is orchestrating a profound transformation across economies and societies. This transformation carries profound implications for the daily operations of government entities. Failure to align public sector capabilities, workflows, business processes, methodologies, and frameworks with this transformative wave can expose the government to significant risks. These risks encompass subpar service delivery, inefficient utilization of public funds, concerns related to privacy and security, and a decline in public trust in government institutions.

Since its establishment in 2017, the Agency for Digital Development (ADD), in collaboration with the Moroccan Ministry of Economy and Finance, has undertaken a series of initiatives to support Moroccan public administrations in embracing digital solutions. Their efforts have culminated in the development of a suite of digital services tailored for public administrations. These services aim to enhance and sustain administrative performance while reducing the reliance on paper-based transactions and exchanges, which are both time-consuming and costly for government agencies.

Today, the adoption of digital solutions has become a paramount strategy to ensure the seamless continuity of administrative tasks. To facilitate this, a working group comprising representatives from the Agency for Digital Development and the Ministry of Economy and Finance has been established. This group is dedicated to assisting public administrations in the adoption of various digital solutions. They achieve this through virtual workshops that showcase the digital services created by the ADD.

This article zeroes in on administrative mail, for which the ADD has developed and introduced two distinct platforms:

The digital registry platform, designed for use by public administration personnel, enables the remote submission of letters to the relevant departments, complete with digital acknowledgments of receipt.

The E-Parapheur platform, tailored for internal and inter-administration use, streamlines and simplifies the document processing procedures within government entities.

It's worth noting that the development and deployment of digital mail platforms are integral components of the government's agenda focused on administrative reform, enhancing the quality of public services, and fostering closer engagement with citizens. These endeavors aim to harness technology to bolster public service efficiency while simultaneously curbing the costs associated with administrative service provision.

The structure of this article comprises seven sections. The second section will introduce the concept of digital transformation, followed by the third and fourth sections which will delve into the driving forces and obstacles encountered in this transformation. The fifth section will offer insights into the "E-Gov" workshop in Morocco, with the sixth section delving into the specifics of administrative mail digitization. Finally, the last section will serve as a conclusion to this article.

Understanding the concept of digital transformation

It's important to recognize that the term "digital transformation" is frequently used interchangeably with "digitization" and "digitalization," although there are significant distinctions among these three concepts.

- Digitization (Bloomberg, 2018) is the process of converting information into a digital format, which computers can read. This process results in representing objects, such as paper documents, images, sounds, etc., as a series of binary numbers (0s and 1s).

- Digitalization places humans at the forefront. It represents the process through which people utilize digital technologies to revamp existing procedures and operations (Li, et al., 2016).

- Digital transformation is generally the adoption of disruptive technologies to boost productivity, create value, and enhance societal well-being. In the context of this article, we adhere to the definition (OCDE, 2018) provided by the Organization for Economic Co-operation and Development (OECD). They consider digital transformation as "a shift from merely digitizing processes and moving away from paper-based services towards a 'digital by design' reengineering of services and processes." This requires governments to adopt a user-centric approach, empowering citizens and businesses to collaborate with the public sector to identify and meet their needs.

From these definitions, we can deduce that digital transformation primarily concentrates on the economic and social consequences of the two aforementioned processes (digitalization of processes and reengineering of services). Moreover, this digital transformation fosters novel ways of interacting with users, delivering products and services, and creating value (Janssens, 2019). Thus, digital transformation is less about technology itself and more about how technology is utilized to reshape work practices (Dunleavy, et al., 2006).

Numerous national governments, international organizations, and industry associations have conducted strategic foresight studies to inform their long-term policies. By proposing the implementation of public policies related to digital transformation, our aim is to achieve both social and economic objectives.

Regarding the social aspect, we are contemplating:

- Encouraging the development of a more innovative and collaborative culture in both industry and society.

- Enhancing the education system to equip individuals with new skills and provide future-oriented guidance, enabling them to excel in digital work and society.

- Establishing and maintaining digital communication infrastructures, ensuring governance, accessibility, service quality, and availability.

- Strengthening the protection, transparency, and trustworthiness of digital data.

- Enhancing the accessibility and quality of digital services offered to the population.

Concerning the economic aspect, we envision:

- Implementing new and innovative economic models.

- Boosting income generation, productivity, and value-added in the economy.

- Improving the regulatory framework and technical standards.

Indeed, researchers have identified several factors that can either facilitate or impede the process of digital transformation in public administrations. The following section will illuminate the catalysts for digital transformation, while section 4 will delineate the obstacles encountered in public administrations during this transformation.

The Key Drivers of Digital Transformation in Public Administration

In the literature, three pivotal drivers, or operational pillars, can be discerned in the context of digital transformation within public organizations, and each one is indispensable for achieving success. These drivers encompass the technological context, the organizational context, and the environmental context.

The technological context encompasses both technological infrastructure and human resources within the Information Technology sphere. Technological infrastructure refers to the underlying technologies that facilitate the implementation of processes over the Internet. In parallel, IT human resources pertain to IT professionals equipped with the requisite knowledge and skills to deploy Internet-related applications (Zhu, et al., 2005). It's worth noting that technological infrastructure plays a pivotal role in digital transformation adoption and can even act as a hindrance, potentially impeding the government's ability to offer robust e-government services and transactions.

The organizational context is primarily focused on support management and financial management. On one hand, support management wields significant influence in creating an environment conducive to embracing change and fostering innovations that further an organization's core missions and visions. On the other hand, financial management holds a pivotal role in the digital transformation journey. Indeed, implementing digital governance necessitates investments in hardware, software, system integration, and employee training. Adequate financial resources dedicated to digital transformation empower an organization to procure the necessary resources and cultivate the requisite functionalities.

Within the environmental context, two factors exert influence on digital transformation in the public sector: the regulatory environment and user readiness. Firstly, the regulatory environment stands as a critical factor shaping the diffusion of innovation. Companies operating within a regulatory framework characterized by stringent government policies tend to exhibit lower rates of IT adoption (Zhu, et al., 2005). Secondly, user readiness plays a crucial role in the success of digital transformation, serving as a reflection of the potential of the target audience and projecting estimated performance. User readiness can be defined as the amalgamation of consumer and user willingness (indicating the extent to which they engage with digital services) and Internet penetration (indicating the proportion of the population utilizing the Internet) (Zhu, et al., 2003). This composite metric essentially signifies the receptiveness of consumers to employ online services and wields substantial influence over the adoption of digital transformation by public organizations.

Challenges in Achieving Digital Transformation

The execution of a multifaceted organizational transformation process driven by cutting-edge technologies can encounter several impediments that have the potential to surface and impede progress (Van Veenstra, et al., 2011). As per existing literature (Al-Emadi, et al., 2018) (Van Veenstra, et al., 2011) (Ashaye, et al., 2019) (Wirtz, et al., 2017) these impediments can be categorized into two distinct groups: structural challenges and cultural challenges.

On one front, structural challenges encompass organizational and managerial elements intrinsic to the organization's character. Within this realm, we find hurdles such as:

- Limited managerial support: Without strong leadership backing the initiative, organizations risk encountering resistance, inefficiencies, and a lack of strategic direction. Engaging and mobilizing management is essential to navigating this challenge effectively.

- Insufficient political backing: When political support is lacking, government initiatives and policies may not align with the goals of digitalization, leading to slow progress and limited resources. To overcome this obstacle, it is crucial to advocate for the value of digital transformation at the political level, emphasizing its potential to drive economic growth, improve services, and enhance overall governance.

- A dearth of personnel and a scarcity of essential technical expertise: Without a skilled workforce, organizations may struggle to implement and manage the necessary technologies effectively. Addressing this challenge often requires investing in training and development programs to upskill existing employees or recruiting new talent with the needed technical proficiencies

- Inadequate coordination between various departments within the organization: When departments operate in silos and fail to collaborate seamlessly, it can lead to duplication of efforts, inefficiencies, and misalignment with overall strategic goals. Effective communication and cross-functional teamwork are vital to overcome this challenge and ensure a smoother transition to digitalization.

Conversely, within the realm of cultural barriers lie the intricate webs of employee behaviors that can often act as formidable obstacles to change. In this category, we confront a myriad of intricate challenges, including:

- Employee resistance to change, which can manifest as reluctance, skepticism, or fear in the face of technological shifts. Overcoming this resistance necessitates clear communication, engagement strategies, and the cultivation of a culture that embraces adaptability.

- The entrenched administrative bureaucratic system, which can significantly impede progress. Complex and rigid bureaucratic structures may stifle innovation, hinder decision-making agility, and slow down the implementation of transformative initiatives. Streamlining processes and fostering a more agile administrative environment becomes essential.

- A prevailing fear of innovation, which can hinder the acceptance of new technologies and methodologies. This fear often stems from concerns about job security or a lack of understanding about the benefits of innovation. It underscores the importance of fostering a culture of innovation that encourages experimentation and learning, while also addressing employees' concerns and providing opportunities for upskilling.

E-Government' in Morocco

In recent years, digital transformation in government and the public sector has emerged. To this end, existing processes and services have been subject to new thinking in order to create better user experiences for the citizens and businesses who are at the heart of these efforts. As a consequence of this reflection, the concept of "E-government" (E-GOV) was introduced. E-GOV in effect refers to the use of information and communication technologies (ICT) combined with organizational change by government organizations to improve government structures and operations (Twizeyimana, et al., 2019) and transform relationships with stakeholders[1]. Another concept was also introduced which concerns digital government. The latter is defined as a government that takes advantage of digital data to optimize, transform and create government services (Gil-Garcia, et al., 2018).

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[1] A stakeholder can be an individual, a group, or an organization that stands to be impacted by the results of a project. These stakeholders have a vested interest in the project's success and can be either affiliated with the sponsoring organization or external to it.

In this context, Morocco has recently continued to be among the five economic leaders and precursors of Africa, particularly after launching a centralized approach to its digital agenda in 2012. Ultimately, its objective is to position itself as a strong African digital hub. This involves major investments in implementing the infrastructure, policies and regulatory framework, skills and mindsets needed for this important change. Morocco is aware that this vision still requires a long journey and has recently designed an ambitious digital transformation strategy called "Morocco digital 2025" to bridge the gap between the aspiration and the current position. In order to realize this plan, he created a strategic public institution under the aegis of the Ministry of Industry, Trade and the Green and Digital Economy in 2019 – the Digital Development Agency (ADD) – whose mission is to implement Morocco's national plan with the following main areas of intervention for the new roadmap:

- Improve the quality of public services – through the digital transformation of the Moroccan administration into a "Smart Government".

- Improve the productivity and competitiveness of the national economy – by strengthening the digital ecosystem and innovation.

- Reduce social inequalities due to digital disparities between the connected population in large cities and the rural population in isolated areas, with the defined objective of advancing social inclusion and human development through new technologies.

The scenario involving the digitization of administrative mail

The E-parapheur solution

The E-Parapheur platform (Figure 1) serves the purpose of streamlining administrative procedures and formalities. Among its functionalities, it facilitates the digitalization of mail processing within government bodies and offers integration of new features. It enables the complete digital transformation of document workflows that require evidentiary value.

In contrast to traditional platforms that necessitate internal hosting, E-Parapheur eliminates the need for installation, maintenance, or internal server hosting within government entities. It is instead hosted and managed on the government's servers, specifically ADD (Agence pour le Développement Digital), making it accessible to all public administrations through a single centralized address[2].

The services of this solution, as provided by ADD, are offered in a Software as a Service (SAAS[3]) model. This approach ensures that administrations can securely benefit from various applications, including:

- Mail Management Module: This module enables the digitalization of incoming, outgoing, and internal mail workflows. It encompasses the qualification of different mail types, efficient allocation, optimized monitoring of processing, real-time notifications, and comprehensive reporting.

- Workflow Module: Administrations can fully digitize and manage internal processes through this module. It ensures the automation of activity flows, offers flexibility in creating configurable business rules, optimizes task processing times, and provides transparency throughout the process.

- Electronic Signature Module: This module simplifies the secure digital signing of documents, offering ease of use, legally valid electronic signatures, free usage during various process stages, and accessibility for one or multiple signatories.

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[2] https://eparapheur.gov.ma/
[3] Software as a Service (SaaS) is a business operational model for applications where the applications are hosted on remote servers, as opposed to being installed on the user's local machine.

Fig. 1 An input interface within the mail management module.

The implementation of E-Parapheur across all public administrations aligns with the government's objectives, which include:

- Reducing paper circulation by digitizing administrative processes through electronic document management and processing.

- Enhancing administrative file processing efficiency to handle a higher volume of cases.

- Implementing an alert and notification system to keep users informed of each action within an administrative file.

- Establishing an electronic signature system for responsible parties to sign documents digitally directly on the platform.

- Simplifying and securing exchanges between organizations, such as inter-administrations, through E-Parapheur.

- Providing a comprehensive reporting and historical tool that details actions by date and time, along with statistics for progress tracking and overall insights.

As part of the widespread adoption of the platform for processing letters and administrative documents, numerous new administrations, along with their regional directorates, are beginning to utilize it. The current version is already serving over 900 ministries and public entities, having processed more than 1,300,000 letters since its launch.

The Digital Order Bureau

The Digital Order Bureau (DOB) serves as a digital platform designed for the submission of electronic mail. This national digital platform caters to users associated with public organizations. Instead of requiring physical visits to these organizations, the DOB offers a secure and remote method for users, whether they are government entities, businesses, citizens, or associations, to electronically submit their correspondence. The platform currently maintains a list of participating public bodies, including ministries, ministerial departments, public institutions, companies, local authorities, and more. It's important to note that this list may evolve over time.

The primary objective of the DOB is to establish a national online mail submission service that simplifies the process for citizens, associations, and businesses. Essentially, the DOB facilitates electronic communication between citizens and government entities. This platform introduces a novel electronic channel for users to submit their correspondence to the relevant administration while providing administrations with a streamlined solution for receiving digital letters.

The DOB operates as a multichannel communication tool, offering the following advantages:

- Users (citizens, businesses, and administrations) can submit letters to the relevant administration and receive email acknowledgments of receipt.

- Administrations that are part of the "electronic mail counter" platform can directly receive letters in digital format without requiring additional configuration.

- For administrations not yet members of the "electronic mail counter" platform, they can still benefit from this service by simply creating a "Virtual Registry Office" account.

Currently, the platform is in use by more than 862 administrations, with the number continuously growing. To utilize the BOD, users can easily locate the Digital Order Office of the relevant organization on the DOB platform[4], input their letter and contact details, submit it electronically, and subsequently receive an acknowledgment of receipt (Figure 2).
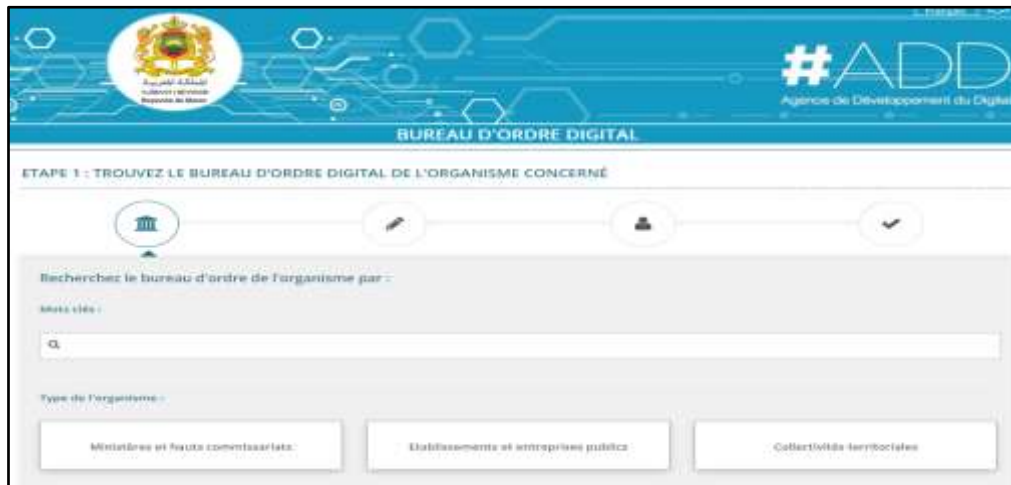

Fig.2 Interface of DOB

Conclusion

In this paper, we have delved into the realm of digital transformation within the context of public administrations in Morocco, using the exemplar case of administrative mail digitalization to shed light on this transformation. Our journey commenced with a clear elucidation of the concept of digital transformation to dispel any ambiguity surrounding it. Following that, we articulated the key drivers propelling this transformative process, encompassing technology, organizational changes, and the environmental factors at play. Subsequently, we identified the formidable hurdles that often impede the progress of digital transformation.

Finally, we delved into the specific instance of administrative mail digitalization, a prime example of how embracing digital transformation can yield tangible benefits, including time savings. This case study underscores the transformative potential of digitalization within the public sector, offering a glimpse into the broader landscape of possibilities that lie ahead in Morocco's ongoing journey towards digital excellence in public administration.

Here introduce the paper, and put a nomenclature if necessary, in a box with the same font size as the rest of the paper. The paragraphs continue from here and are only separated by headings, subheadings, images and formulae. The section headings are arranged by numbers, bold and 9.5 pt. Here follows further instructions for authors.

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