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The transition from Paper-Based to Digital Product Approval Requests: Bank of Algeria

Prepared by :

LOUNES Maroua
HARROUZ Sirine

Supervised by :

Dr. HIMRANE Mohamed

Abstract:

This study investigates the digitization of interbank request processing at the Bank of Algeria, a critical component in modernizing the country's financial infrastructure. Despite Algeria's broader digital strategy—most notably through initiatives like "Algérie Numérique 2025"—internal workflows within the Bank of Algeria remain largely manual, especially in licensing and regulatory approvals. Using a qualitative methodology based on interviews, document analysis, and workflow observation, the research examines the institutional, technical, and legal dimensions that influence digital transformation within the central bank. Key findings reveal that outdated infrastructure, inter-departmental silos, and regulatory rigidity hinder the implementation of end-to-end digital systems. However, there is also evidence of strong policy intent, staff awareness, and comparative models that could guide reform. The study concludes by proposing actionable recommendations to align Algeria's central banking practices with international standards through secure, efficient, and transparent digital systems.

Keywords: Digital transformation, central banking, Bank of Algeria, public sector innovation, licensing requests

Résumé:

Cette étude explore la digitalisation du traitement des demandes interbancaires à la Banque d'Algérie, un levier essentiel de modernisation de l'infrastructure financière du pays. Bien que l'Algérie ait engagé une stratégie numérique ambitieuse – notamment à travers le programme « Algérie Numérique 2025 » – les procédures internes de la Banque d'Algérie, en particulier en matière d'agréments et d'autorisations, restent majoritairement manuelles. À travers une méthodologie qualitative reposant sur des entretiens, l'analyse documentaire et l'observation des processus, la recherche met en lumière les dimensions institutionnelles, techniques et juridiques qui influencent cette transformation numérique. Les résultats indiquent que l'absence d'infrastructure moderne, la fragmentation organisationnelle et la rigidité réglementaire freinent l'adoption de solutions digitales intégrées. Toutefois, une volonté politique affirmée et une sensibilisation croissante du personnel ouvrent des perspectives favorables à la réforme. L'étude propose des recommandations concrètes pour renforcer l'efficacité, la transparence et la sécurité des processus grâce à la digitalisation.

Mots clés : Transformation numérique, banque centrale, Banque d'Algérie, innovation publique, demandes d'agrément.

الملخص:

تهدف هذه الدراسة إلى تحليل عملية التحول الرقمي في معالجة الطلبات البنكية على مستوى بنك الجزائر، باعتبارها خطوة محورية نحو تحديث النظام المالي الوطني. رغم تبني الجزائر لرؤية رقمية طموحة مثل مبادرة "الجزائر الرقمية 2025"، إلا أن الإجراءات الإدارية الداخلية لبنك الجزائر، خاصة فيما يتعلق بالتراخيص والرقابة، لا تزال تعتمد إلى حد كبير على الأساليب اليدوية. من خلال منهج نوعي يعتمد على المقابلات وتحليل الوثائق وملاحظة سير العمل، تسلط الدراسة الضوء على العوامل المؤسسية والتقنية والقانونية المؤثرة في هذا التحول. كشفت النتائج عن وجود تحديات كبيرة مثل البنية التحتية المتقادمة، وانعدام التنسيق بين الإدارات، والجمود التنظيمي. في المقابل، رُصدت مؤشرات مشجعة كوجود نية سياسية واضحة، ووعي متزايد بين الموظفين، وإمكانيات الاستفادة من تجارب دولية. وتختتم الدراسة بتوصيات عملية لتعزيز كفاءة وشفافية وأمن العمليات من خلال اعتماد نظام رقمي متكامل.

الكلمات المفتاحية: التحول الرقمي، البنك المركزي، بنك الجزائر، الابتكار في القطاع العام، طلبات التراخيص

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LIST OF ABRIVIATIONS :

Abbreviation	Full Term
BoA	Bank of Algeria
DRBA	Directorate of the Regulation of Banking Activities
DGCRB	General Directorate of Credit and Banking Regulation
DGMC	General Directorate for Currency and Credit
DGIG	General Directorate of Financial Institutions Supervision
SGCMB	Secrétariat Général du Conseil Monétaire et Bancaire
DMS	Document Management System
IT	Information Technology
TAM	Technology Acceptance Model
STS	Socio-Technical Systems Theory
PSI	Public Sector Innovation Theory
RPA	Robotic Process Automation
API	Application Programming Interface
KYC	Know Your Customer
RegTech	Regulatory Technology
SupTech	Supervisory Technology

DGRSP	Direction Générale des Risques, Statistiques et Prévention
PDF	Portable Document Format
ID	Identity Document
IPN	Instant Payment Network (Egypt)
OECD	Organisation for Economic Co-operation and Development
ECB	European Central Bank
IMF	International Monetary Fund
BIS	Bank for International Settlements
UNDESA	United Nations Department of Economic and Social Affairs

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GENERAL INTRODUCTION

1. Context and Importance of the Study :

In recent years, Algeria has embraced a national vision for digital transformation through programs such as “Algérie Numérique 2025”, aimed at enhancing efficiency, transparency,and innovation across public institutions. Among these institutions, the Bank of Algeria plays a central role, not only in supervising the financial system but also in aligning the country’s banking infrastructure with international standards (ministere des finances, 2023)

While many reforms have focused on the modernization of customer-facing services in public and private banks (e.g., mobile banking, digital payment platforms), the internal administrative processes of the Bank of Algeria, particularly those related to interbank communication and request processing, have received limited scholarly attention. These processes involve licensing, compliance requests, and regulatory submissions by banks and financial institutions, many of which are still handled manually or semi-digitally (Bouacheria & Salhi, 2023).

This internal dimension of digital transformation is critical, especially as Algeria passed Law No. 23-09 on Monetary and Banking Activities in 2023, which emphasizes modernization and regulatory innovation within the central banking framework (Journal Officiel de la République Algérienne, 2023)Furthermore, Regulation No. 24-04, published in October 2024, sets conditions for licensing and supervisory processes and calls for structured digital workflows (Bank of Algeria , 2024)

Therefore, understanding the current level of digitization within the Bank of Algeria’s request-handling system is essential to evaluating the institutional readiness for full-scale transformation. It also responds to a broader research gap regarding how central banks in developing economies internalize digital reform beyond surface-level service delivery (El Achari & & Hattab, 2023)

Despite these national efforts and regulatory advances, the internal processing of institutional requests at the Bank of Algeria—such as licensing, compliance submissions, and interbank authorizations—may still rely on manual, paper-based procedures. This disconnect between external digitization and internal workflows raises key questions regarding operational efficiency, institutional responsiveness, and the true extent of digital integration. It is within this

context that this study investigates whether the Bank of Algeria has adopted an end-to-end digital system for handling requests from banks and financial institutions (Benahmed, Souman, & Ouali, 2024)

2. Research Problem and Central Question

Although Algeria's digital strategy has led to the emergence of digital tools and platforms across public institutions, there is growing concern that these developments may not extend equally to all operational layers. In particular, while external communication and regulatory dissemination by the Bank of Algeria have become increasingly digital, the core internal workflows—such as the reception and processing of banking and financial institution requests—may not have kept pace with national digital objectives (Bouacheria & Salhi, 2023)

These requests include sensitive regulatory submissions, licensing applications, and official correspondence, all of which are critical to maintaining systemic financial oversight. If still managed through manual processes, such systems are susceptible to delays, errors, and inefficiencies. This gap between external digitization and internal administration constitutes a potential bottleneck in Algeria’s broader digital transformation.

Hence, this study seeks to answer the following central research question:

To what extent does digitization exist in the internal administrative procedures of the Bank of Algeria, particularly in the reception and processing of requests from banks and financial institutions?

From this main question, several sub-questions arise:

- What tools or systems are currently in place to process incoming requests from banks?
- What human, organizational, or legal barriers hinder digital adoption within internal workflows?
- Are there disparities in the digitization of different request types (e.g., licensing vs. reporting)?
- How do staff members perceive the transition to digital platforms?
- What are the expected institutional gains in efficiency, traceability, and security?

These questions aim to clarify the readiness, limitations, and prospects of internal digitization

within the Bank of Algeria.

3. Research Objectives:

This research seeks to investigate whether and to what extent digitization has been implemented in the internal request-handling processes of the Bank of Algeria. It aims to understand both the technological infrastructure in place and the institutional challenges or enablers that shape this transition.

Primary Objective:

To evaluate the degree of digitization in the reception and processing of banking and financial institution requests within the Bank of Algeria.

Secondary Objectives:

- To identify the digital tools and systems (if any) currently used to manage such requests.
- To analyze how digitization affects operational efficiency, accuracy, and transparency.
- To explore institutional, human, and legal barriers that hinder full digital transition.
- To compare the Bank of Algeria's approach with regional and international benchmarks in public sector digital governance.
- To provide actionable recommendations to enhance internal digitalization practices within the central bank.

These objectives will guide the research design, data collection, and analytical interpretation throughout the study.

4. Methodology and Field Site :

This qualitative study is based on semi-structured interviews with Bank of Algeria employees and regulatory officers involved in processing incoming institutional requests. Document analysis and observation of request workflows will also be employed to triangulate data. The research will focus specifically on the "Direction de la Réglementation et des Agréments" and related operational departments. Thematic analysis and coding will guide data interpretation.

5. Structure of the Thesis:

The thesis is divided into five interlinked chapters that ultimately lead to understanding how the processing of requests among banks could be digitized by the Bank of Algeria:

- General Introduction: Situates the research within the wider context of national digital transformation in Algeria, highlighting the relevance of digitizing public sector institutions and the prime role of the Bank of Algeria. It also presents the objectives of research, the central question and sub-questions, methodology, and scope of the study.
- Chapter I – Literature Review and Conceptual Framework: Discussed various theoretical perspectives and conceptual models on digital transformation, public and financial institutions, and related issues. Among also heaped were property reviews about the pre-research into the economic, administrative, and technological dimensions of digitization from which a conceptual framework that anchors the research was derived.
- Chapter II – Methodology and Organizational Context: Describes this study's qualitative methods, including interviews and how data were collected and analyzed, in more detail. It is also an account of the organizational structure of the Bank of Algeria and further elaborates on the current manual workflows within request management.
- Chapter III – Results and Discussion: This was where analysis of investigative field interviews and documents took place. Synthesizing such insights that came out of cross-comparisons with international practices adopted by other central banks, this Chapter also identifies key bottlenecks for the internal process digital transformation and opportunities
- General Conclusion: Summarizes the findings of the research and their implication. It also gives practical suggestions on how to better internal digitization at the Bank of Algeria and proposes different fronts for future academic investigation

CHAPTER I :

Theoritical Framework

Section 1: Review of Literature:

Introduction :

The objective of this literature review is to explore the current state of digital transformation in the banking sector, with a specific focus on the Algerian context and the role of central banking institutions. This section lays the foundation for understanding how digital technologies are reshaping banking processes globally and nationally, and it aims to identify relevant theoretical frameworks and empirical evidence that inform the transformation process. By synthesizing existing research, this review supports the identification of knowledge gaps, challenges, and potential policy directions related to digitizing banking services in Algeria.

Digital transformation has become a global trend across financial institutions, driven by the need to improve operational efficiency, customer experience, and regulatory compliance (henrik, 2023)Central banks and commercial institutions alike are leveraging digital platforms to streamline workflows and foster transparency in banking operations (CENTRAL BANKING, 2021)In developing economies, such as Algeria, the push for digital innovation is often tied to broader objectives of financial inclusion and public sector modernization (Atalayar, 2024)

This review is structured to provide a comprehensive overview of the digital shift in banking through five key lenses:

1. The global and national context of digital transformation in banking.
2. Theoretical foundations that explain the adoption of digital technologies.
3. Impacts of digital tools on banking operations.
4. Challenges hindering effective implementation; and he research gap in the case of Algeria, particularly in central institutions such as the Bank of Algeria.

This section also reflects on Algeria's ongoing initiatives, including its legal and institutional efforts—such as Law 23-09 and the regulatory measures implemented by the Bank of Algeria—that aim to create a conducive environment for digitization (Benahmed, Souman, & Ouali,

2024)Although literature addressing digital transformation in developed economies is abundant, academic studies focused on the specific processes of digitizing internal banking operations in Algeria remain limited.

1.1- Digital Transformation in the banking sector

Digital transformation in the banking sector refers to the integration of digital technologies into all areas of banking operations, fundamentally altering how banks operate and deliver value to customers. Globally, the digitalization of financial institutions has been propelled by the need to reduce operational costs, enhance efficiency, improve customer service, and ensure compliance with evolving regulatory standards (henrik, 2023)

In practical terms, digital transformation encompasses a wide range of technologies such as online banking platforms, mobile applications, artificial intelligence, blockchain, and cloud computing (Clark, Marin, Ardic Alper, & Galicia Rabadan, 2025)These innovations enable banks to automate routine processes, offer real-time services, and improve decision-making through data analytics. For instance, central banks are increasingly adopting digital tools to improve payment systems, enhance monetary policy effectiveness, and ensure financial stability (henrik, 2023)

Algeria is gradually aligning with this global trend, as reflected in its strategic vision for financial inclusion and public sector modernization. The country has shown commitment to adopting digital technologies within its financial sector, particularly under the guidance of the Bank of Algeria. Legal frameworks such as Law 23-09 and related regulatory updates provide a foundation for promoting digital finance and e-governance (Benahmed, Souman, & Ouali, 2024) However, the transformation remains in its early stages, with key initiatives still under development or limited in scope.

National reports and expert analyses suggest that Algeria's digital transformation efforts aim to overcome a traditionally paper-based system and replace it with streamlined electronic procedures. For example, the country has initiated projects aimed at improving digital payment systems, promoting the use of electronic banking services, and integrating digital solutions within central institutions (Redondo, 2024)

Despite these steps forward, Algeria still faces challenges in catching up with more advanced countries in terms of digital infrastructure, technological adoption, and institutional readiness. Nonetheless, the trajectory indicates a growing political and economic will to leverage digitalization as a means of achieving greater efficiency and inclusivity in the banking sector.

1.2- Theoritical Foundations for Digital Transformations

Understanding the theoretical foundations of digital transformation is crucial for analyzing its impact on the banking sector, particularly in the context of central banks and their role in financial systems. Several established theories provide frameworks to interpret the dynamics of digital adoption and transformation within organizations, including socio-technical systems theory, the technology acceptance model (TAM), and public sector innovation theory. These theories can help explain the challenges and opportunities faced by banks in integrating digital technologies.

2.1- Socio-technical Systems Theory

The Socio-technical Systems Theory posits that the successful implementation of technology within organizations requires not only the right technical solutions but also consideration of the social systems involved. In the banking sector, this theory suggests that digital transformation should focus on aligning both the technological infrastructure (such as online banking platforms, AI, and cloud computing) and the human factors (such as staff training, user adoption, and customer interaction) to ensure effective transformation (Johari, Anwar, & Awang, 2022)In this context, banks must consider the interplay between their technological systems and the employees or customers who interact with these systems. The human aspect of transformation, including digital literacy and organizational culture, is critical for the success of digital initiatives.

2.2- Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) provides a framework for understanding how users come to accept and adopt new technologies. According to TAM, the perceived ease of use and perceived usefulness of a technology are key determinants in its acceptance by users (Davis, 1989) In the context of the banking sector, this model can be applied to study the factors that

influence both employees and customers in adopting digital banking services. For instance, a study of customer perceptions in Algeria might examine how the perceived ease of using mobile banking apps and the usefulness of digital payment systems contribute to the widespread adoption of these technologies (Benahmed, Souman, & Ouali, 2024)

2.3- Public Sector Innovation Theory

Public Sector Innovation Theory focuses on the unique challenges of implementing innovation within government organizations, including central banks. Unlike private-sector organizations, public sector entities often face greater bureaucratic inertia, regulatory constraints, and budgetary limitations. However, digital transformation in the public sector can lead to improved service delivery, better transparency, and greater efficiency in administrative (OECD, 2020). In the case of Algeria, the Bank of Algeria has been pushing for digitalization within the public banking sector to enhance efficiency and expand financial inclusion (Benahmed, Souman, & Ouali, 2024). This theory provides valuable insights into the challenges faced by the Bank of Algeria as it navigates the complexities of transforming its operations in the face of these institutional and regulatory hurdles.

2.4- Integrations Of the theories

While the Technology Acceptance Model (TAM) provides insight into the individual-level factors influencing user adoption of digital banking systems—namely perceived usefulness and perceived ease of use (Davis, 1989) the Socio-Technical Systems Theory expands this lens to include the interaction between digital tools and the social environment in which they are implemented. This includes human competencies, work culture, and the organizational structure supporting the technology (henrik, 2023). Meanwhile, Public Sector Innovation Theory introduces a vital macro-level perspective by emphasizing the role of political, institutional, and regulatory frameworks in enabling or constraining digital transformation efforts in the public sector (OECD, 2018).

In the context of interbank request processing at the Bank of Algeria, these three theoretical perspectives together offer a comprehensive understanding of how digitization is both shaped by and shapes operational practices. From the TAM viewpoint, the successful adoption of digital

request platforms depends on how bank employees perceive their utility and ease of integration into daily tasks (Benahmed, Souman, & Ouali, 2024). However, Socio-Technical Systems Theory suggests that these individual perceptions cannot be isolated from the broader environment in which they occur—such as the adequacy of training, existing workflows, and staff openness to change.

Public Sector Innovation Theory adds yet another dimension, highlighting that digitization initiatives in a central bank are not just internal decisions aimed at efficiency, but also responses to wider institutional pressures. These may include top-down governmental reforms, international benchmarks, and evolving expectations for transparency and accountability in public administration (Bekkers, Edelenbos, & Steijn, 2011). For instance, coercive pressures from Algeria's national digital strategy or central directives by the Ministry of Finance may accelerate the push toward digitizing interbank procedures, while mimetic influences from successful digital practices in other central banks may shape the choice of platforms and technologies. Additionally, normative pressures such as the rising professionalization of public administration and the global emphasis on fintech adoption may further encourage innovation within the Bank of Algeria (DiMaggio & Powell, 2000)

Therefore, the decision to digitize interbank request processing cannot be fully understood through a single lens. TAM explains the internal dynamics of employee and stakeholder acceptance. Socio-Technical Systems Theory stresses the need to align technological systems with human and organizational structures. Public Sector Innovation Theory reveals the external forces—regulatory, cultural, and symbolic—that drive or resist change. A combined framework ensures a deeper, more contextually grounded understanding of digital transformation within the central banking environment, bridging micro, meso, and macro levels of analysis. This integration is essential for crafting practical, institution-sensitive recommendations to optimize digital workflows in interbank operations.

1.3- Comparative Studies: Digitalization in Other Countries

This section provides a comparative analysis of digital transformation in the banking sector, focusing on various countries and their approaches to implementing digital technologies in financial systems. By examining countries with advanced digital infrastructures, the comparison

highlights different challenges and successes in adopting digital tools within central banks. These case studies are essential for understanding the global landscape of banking digitalization.

In **Saudi Arabia**, the Saudi Arabian Monetary Authority (SAMA) has been at the forefront of digital transformation in the banking sector. The country's Vision 2030 plan emphasizes the importance of technology and innovation in diversifying the economy, with a strong focus on the digitalization of financial services. SAMA has introduced several initiatives aimed at promoting digital payments and facilitating financial inclusion. One notable development is the Saudi Payments Company, which aims to enhance the payment ecosystem by providing secure and efficient digital payment solutions.

The implementation of SADAD, an electronic bill payment system, has played a significant role in transforming the payment landscape in Saudi Arabia, enabling consumers to make payments easily via mobile phones or online banking (OECD, 2018). SAMA's commitment to fostering fintech innovation is reflected in the growing number of digital banks and payment service providers operating in the kingdom, alongside regulatory frameworks designed to encourage safe and reliable transactions.

Additionally, Saudi Arabia has made considerable strides in open banking. By introducing the Open Banking Framework in 2020, SAMA has paved the way for third-party providers to access customer banking data and offer personalized financial services. This approach mirrors similar trends in other countries, where open banking is seen as a key driver of financial innovation (Saudi Central Bank (SAMA), 2021)

Brazil has become one of the leaders in digital banking transformation, particularly in the development of mobile payments and fintech innovations. The Central Bank of Brazil has implemented policies that promote the digitalization of the banking sector. Brazil's PIX system, launched in 2020, is an instant payment platform that allows consumers and businesses to send and receive money via their smartphones without the need for physical bank cards. It has significantly boosted financial inclusion and streamlined payment processes (OECD, 2020)

The success of Brazil's digital transformation can be attributed to the Central Bank of Brazil's focus on developing open banking, which allows third-party financial providers to connect with

bank accounts and offer value-added services. The adoption of digital banking in Brazil is also supported by the country's thriving fintech ecosystem, which is rapidly growing and gaining international attention (Gonçalves & Araujo, 2022).

Egypt has also undertaken extensive digital reforms through the Central Bank of Egypt. In 2022, it launched the *Instant Payment Network* (IPN), allowing instant transfers via mobile applications and digital banking platforms. The Central Bank of Egypt has promoted financial inclusion by simplifying know-your-customer (KYC) requirements and encouraging digital onboarding. Moreover, the establishment of the *National Council for Digital Transformation* reflects a coordinated effort between banking, telecommunications, and government entities to streamline digital services. According to data from 2023, digital wallets in Egypt surpassed 30 million users, with significant growth in mobile banking services (Central Bank of Egypt, 2023)

Estonia is a global leader in digital transformation, not only in the public sector but also in its banking systems. The Bank of Estonia (Eesti Pank) has been instrumental in promoting digital innovation within the financial sector. Estonia's success lies in its early adoption of digital identities and electronic signatures, which have paved the way for secure online banking services (OECD, 2020)

One of Estonia's notable achievements is the creation of a Digital ID system, which allows individuals to access a wide range of government and financial services online. This has made it easier for Estonian citizens to engage in online banking, pay taxes, and access financial products (World Bank, 2020) Additionally, Estonia's open banking framework allows consumers to access a broad range of financial services through various providers, fostering competition and improving customer experiences (OECD, 2020) The country's experience demonstrates how strong digital infrastructure and supportive regulations can drive the successful integration of digital technologies in the banking sector.

mer experiences (OECD, 2020) The country's experience demonstrates how strong digital infrastructure and supportive regulations can drive the successful integration of digital technologies in the banking sector.

These regional examples highlight varying degrees of progress and provide Algeria with comparative models. While Saudi Arabia and Egypt demonstrate advanced infrastructure and strong regulatory coordination, Morocco and Tunisia show how gradual reforms can be adapted to local contexts. These experiences offer practical lessons for Algeria in designing inclusive, secure, and adaptive digital transformation strategies within its central banking system.

1.4- Impact of Digital transformation on Banking Operations

The digital transformation of banking operations has far-reaching effects, fundamentally altering the way banks operate, interact with customers, and deliver services. This shift towards digitalization brings both opportunities and challenges that reshape traditional banking functions, including transaction processing, customer service, and internal management. In the context of central banks, the digital transformation process enhances operational efficiency, improves transparency, and accelerates decision-making processes.

- **Digital transformation and banking processes**

The impact of digital transformation on banking operations can be viewed through several key areas, including the streamlining of processes, enhanced security, and the provision of better customer service. One of the most notable effects is the shift from paper-based to digital processes. For example, digital payment systems, mobile banking apps, and online loan processing have eliminated the need for manual paperwork and in-person visits to bank branches, leading to reduced operational costs and faster service delivery (Juhro, 2022)

The implementation of digital banking systems allows for real-time processing of transactions, which greatly enhances the efficiency and speed of banking operations. This is especially important in central banks, where the processing of interbank transactions and financial monitoring needs to be swift and accurate to maintain financial stability (henrik, 2023).

Moreover, digital technologies such as blockchain and artificial intelligence (AI) are increasingly being utilized to increase the transparency and security of banking transactions. For instance, blockchain provides an immutable record of transactions, reducing the potential for fraud and ensuring the integrity of financial data (World Bank, 2023). AI, on the other hand, is

used for data analysis and predictive modeling, helping banks and central banks forecast trends, detect fraud, and optimize their financial operations (Arner, Barberis,, & Buckley, 2016)

- **Customer experience and access to services**

One of the most visible effects of digital transformation on the banking sector is the improvement in customer experience. Digital banking services provide customers with the ability to perform financial transactions at any time, from anywhere, without the constraints of traditional banking hours or locations. This has democratized access to financial services, making banking more inclusive for individuals in remote areas or those without easy access to physical branches (Dilanyan, 2024)

For example, mobile banking applications in Algeria are allowing customers to transfer funds, pay bills, and check account balances via their smartphones. This shift toward mobile banking has expanded financial inclusion, particularly among younger, tech-savvy populations (Benahmed, Souman, & Ouali, 2024). Furthermore, the Bank of Algeria's push towards digital payment systems and online banking platforms illustrates how the country's central bank is working to modernize its financial infrastructure to accommodate the digital needs of its citizens.

- **Algerian Context: The Bank of Algeria’s Efforts**

In Algeria, digital transformation in the banking sector has gained significant momentum in recent years. As part of its broader vision for financial inclusion and economic modernization, the Bank of Algeria has prioritized digitalization as a key component of its strategy. This includes initiatives to digitize payment systems, improve cybersecurity, and modernize the regulatory framework governing banking operations (Benahmed, Souman, & Ouali, 2024)For example, the adoption of mobile payments and the development of digital banking platforms are crucial steps toward improving the efficiency and accessibility of banking services in Algeria.

Despite these advances, challenges remain, particularly with regards to the digital literacy of the population and the readiness of banks to implement and maintain digital technologies. The Bank of Algeria's role is vital in facilitating this transformation through regulatory reforms, such as

Law 23-09, which aims to create a more conducive environment for digital banking services (Redondo, 2024)

Conclusion

In conclusion, the literature review has provided an in-depth exploration of digital transformation in the banking sector, both globally and within the specific context of Algeria. We have examined the theoretical foundations of digitalization, including key models such as the Socio-technical Systems Theory, the Technology Acceptance Model (TAM), and the Public Sector Innovation Theory, which offer valuable insights into how digital transformation is accepted and implemented within banks.

The review also highlighted the various factors driving the digital transformation in the banking sector, such as improving operational efficiency, reducing costs, and enhancing service quality. It is clear that these factors are not only applicable globally but are also relevant to Algeria, where the government has made significant strides in advancing digitalization, particularly through legislation like Law 23-09.

The impact of digitalization on banking operations, including the shift from paper-based to digital systems, was discussed through international case studies, followed by a specific focus on Algeria's progress. Despite the promising developments, the review also identified several challenges, including technical issues related to infrastructure and cybersecurity, human challenges such as resistance to change and a lack of digital skills, and legal barriers concerning the alignment of local regulations with digital advancements. These challenges, however, also present opportunities for further development and innovation within the sector.

Finally, the review highlighted the importance of understanding the local context, especially in developing countries like Algeria, where digital transformation is still in the early stages. The need for continuous adaptation of strategies and regulatory frameworks was emphasized to ensure that digital transformation in the banking sector leads to broader financial inclusion and sustainable economic growth.

The gap in the literature regarding the application of digital transformation specifically in the Algerian banking sector suggests that further research is required to address these challenges and evaluate the long-term impacts of digitalization on Algeria's banking landscape.

Section 2: Conceptual Framework

A precise conceptual framework will be elaborated in order to guide the analysis and ensure the coherence of the research.

2.1- Existence of Digitalization

2.1.1- Definition and Key Concepts

Digitalization, often conflated with digitization, extends beyond the mere conversion of analog information into digital formats. It embodies a comprehensive transformation in which digital technologies are integrated into the core functions, strategies, and services of institutions—reshaping how value is delivered and how operations are executed. According to Gartner (2022), digitalization is a strategic evolution that embeds digital capabilities into the organization's operations to enable innovation and generate new forms of value. IGI Global (2024) expands on this by defining digitalization as the comprehensive process of converting everything that can be digitized, thereby enhancing connectivity and operational capacity. (IGI Global, s.d.) In the financial sector, particularly in central banking, digitalization signifies the deployment of advanced digital tools—such as workflow automation systems, centralized platforms, and data exchange networks—to improve decision-making, compliance, and responsiveness (Riasanow & Chynchyk, 2020) This transformation goes beyond efficiency, seeking to foster innovation, transparency, and interoperability within and across financial institutions.

Key concepts tied to the existence of digitalization include:

- **Process Automation**: The use of software tools to execute repetitive tasks without human intervention.
- **Data Integration**: Ensuring seamless access and flow of data across systems and departments.
- **Interoperability**: The ability of systems and institutions to exchange and use information.coherently.

- **Digital Governance**: Frameworks that guide the ethical and legal use of digital technologies.
- **Cybersecurity and Compliance**: Protecting digital operations and aligning them with legal standards.

In sum, the existence of digitalization is not a binary state but a continuum—ranging from minimal digital presence to fully integrated, intelligent systems that redefine institutional performance and public service delivery.

2.1.2- Strategic Objectives of Digitalization in Central Banking

The strategic objectives of digitization within central banking institutions extend beyond mere technological modernization. They represent a comprehensive approach aimed at enhancing financial system stability, increasing operational efficiency, improving regulatory oversight, and fostering financial inclusion. According to the **Bank for International Settlements (2020)**, digitization enables central banks to streamline supervisory functions, increase transparency, and improve the traceability of financial flows, which is critical for maintaining systemic integrity. (Bank for International Settlements, 2020)

One of the primary goals of digitization in central banking is to **optimize decision-making and risk management** through real-time data collection and advanced analytics. As noted by **Zambrano et al. (2023)**, the adoption of digital technologies—such as AI and machine learning—supports proactive monetary policy implementation and allows for better forecasting of macroeconomic indicators.

Digitization also seeks to **reduce inefficiencies in interbank operations**, including the processing of commercial banks' requests, settlement procedures, and communication channels. This is particularly significant in countries undergoing financial reform, such as Algeria, where digital transformation is seen as a lever for improving transparency and combating bureaucratic delays (Bank of Algeria , 2024)

Furthermore, **financial inclusion** has emerged as a key strategic objective. By expanding digital payment systems, facilitating online services, and promoting digital identity initiatives, central

banks can extend access to financial services for underserved populations, thus supporting national economic growth and resilience (World Bank, 2020)

Another crucial objective is the **modernization of regulatory supervision**. Digital transformation enables the shift toward RegTech (regulatory technology), allowing central banks to monitor compliance in real time, automate reporting mechanisms, and detect anomalies more efficiently (Arner, Barberis,, & Buckley, 2016)

In summary, the strategic objectives of digitization in central banking revolve around ensuring financial stability, increasing operational agility, enabling efficient interbank collaboration, and preparing the regulatory infrastructure for the complexities of the digital era.

2.1.3- Dimensions and Indicators of Digitalization

Understanding the dimensions and measurable indicators of digitalization is essential for assessing the depth and effectiveness of digital transformation in central banking. These dimensions provide a structured framework to evaluate how digital tools, infrastructure, and capabilities are integrated into institutional operations.

One of the foundational dimensions is **digital infrastructure**, which encompasses the availability of high-speed internet, secure data centers, cloud computing, and interoperable systems that enable seamless communication across banking platforms (OECD, 2020). In the context of central banks, this dimension also includes the integration of centralized digital registries and electronic communication channels with commercial banks.

Another critical dimension is **digital service delivery**, which refers to the extent to which banking services—such as request submissions, compliance reporting, and information sharing—are offered through digital channels. As noted by (Mergel, Edelmann, & Haug, 2019) the transition from paper-based to automated processes is a key marker of digital maturity in public institutions.

Data management and analytics represent a third vital dimension. Central banks increasingly rely on big data and predictive analytics for policy formulation, macroeconomic monitoring, and fraud detection. The availability, quality, and real-time accessibility of digital data are central indicators of progress in this area (Bharadwaj, El Sawy, Pavlou, & Venkatraman, 2013)

A fourth dimension involves **organizational readiness and digital culture**, reflecting the institution's internal capacity to adopt and utilize digital solutions. This includes staff competencies, digital leadership, and change management strategies. According to **Weill & Woerner (2018)**, institutions with strong digital cultures are more agile in adapting to regulatory shifts and technological disruptions.

Common indicators used to assess these dimensions include:

- Proportion of services processed digitally vs. manually
- Average time taken for interbank request processing post-digitization
- Number of automated workflows implemented
- Degree of system interoperability
- Employee digital skill levels and training frequency

In sum, the dimensions and indicators of digitalization provide both qualitative and quantitative insights into how central banks progress toward digital maturity, with a direct impact on the efficiency, transparency, and responsiveness of their operations.

2.1.4- Enabling Infrastructure and Technologies:

The successful implementation of digitalization within central banking systems relies heavily on the presence of robust enabling infrastructure and advanced technologies. These foundational elements are crucial for supporting digital workflows, ensuring data integrity, and maintaining secure communication between institutions.

One of the primary components is **IT infrastructure**, which includes secure servers, high-speed networks, cloud computing capabilities, and scalable storage solutions. According to the World Bank (2021), resilient IT systems form the backbone of digital public services, allowing for uninterrupted service delivery and data-driven decision-making. (World Bank, 2020)

Cloud computing is particularly transformative for central banks, as it enables real-time data access, remote collaboration, and scalable resource allocation. The flexibility of cloud environments facilitates the integration of advanced tools such as AI-based analytics and blockchain applications (Ali & Luqman, 2023).

Another key enabler is the **use of application programming interfaces (APIs)**, which allow different banking systems to communicate and exchange data securely. APIs support interoperability across institutions, thus streamlining processes such as interbank request submission, status tracking, and regulatory reporting (OECD, 2020)

Cybersecurity infrastructure is equally vital. Central banks manage sensitive financial and institutional data, making them high-value targets for cyberattacks. Strong cybersecurity protocols—including encryption, multi-factor authentication, and real-time monitoring—are necessary to protect digital systems and preserve trust (Bank for International Settlements, 2020)

In addition, **digital identification systems** and electronic signatures facilitate secure and verifiable authentication of banking requests. These technologies enhance operational efficiency by reducing the time and cost associated with manual verification and paperwork (UN, 2022)

Finally, the adoption of **automation technologies** such as robotic process automation (RPA) plays a growing role in digitizing routine tasks. RPA helps improve processing speed, reduce human error, and free up staff for higher-value activities (Mergel, Edelmann, & Haug, 2019))

Collectively, these technologies and infrastructure components form the digital ecosystem that empowers central banks to modernize operations, improve responsiveness, and ensure compliance in an increasingly digital financial environment.

2.1.5- Regulatory and Institutional Readiness for Digitalization

The digitization of central banking operations is not solely a technological process; it also requires comprehensive **regulatory frameworks** and strong **institutional readiness** to support and sustain transformation. Without adequate legal and organizational structures, digital initiatives risk inefficiency, non-compliance, or even systemic disruption.

1. Regulatory Readiness

Regulatory readiness refers to the presence of laws, policies, and governance mechanisms that facilitate secure and effective digital adoption. In the context of central banks, this includes:

- Data protection and privacy laws

- Legal recognition of digital documents and electronic signatures
- Cybersecurity standards
- Policies for digital identity and authentication

According to (OECD, 2020), effective digital regulation ensures interoperability, fosters innovation, and reduces the risks of fragmentation across the financial system. A digitally ready legal environment allows central banks to process interbank requests, manage digital records, and interact with commercial banks via secure, legally binding digital means.

Furthermore, **adaptive regulatory approaches**—such as regulatory sandboxes—enable central banks to test emerging technologies like blockchain or AI within a controlled legal environment before full-scale implementation (World Bank, 2020).

2. Institutional Readiness

Institutional readiness refers to an organization's internal capacity—human, technical, and procedural—to adopt and scale digital solutions. Key components include:

- Strategic alignment of digital goals with institutional mandates
- Availability of skilled personnel in IT, cybersecurity, and digital process management Change management and training programs
- Institutional culture open to innovation and learning

As emphasized by **Mergel et al. ,**central banks must invest not only in technologies but also in workforce development to ensure employees can adapt to digital workflows and maintain compliance with updated regulations. (Mergel, Edelmann, & Haug, 2019)

In the Algerian context, for instance, recent strategies such as the national plan for digital transformation have highlighted the need for legal modernization and inter-institutional coordination to support banking sector reforms (ministere des finances, 2023)

Finally, institutional readiness also implies **inter-agency cooperation**, where central banks, commercial banks, ministries, and supervisory authorities collaborate to harmonize digital systems, standards, and reporting mechanisms.

2.2- Request Processing in Central Banking Systems

2.2.1- Definition and Key Concepts:

Interbank request processing refers to the set of structured administrative and operational procedures that govern how commercial banks interact with a central bank to submit, track, and resolve various types of requests. These may include requests for regulatory approvals, financial settlements, liquidity support, account updates, or data verifications.

In a traditional, manual environment, these interactions typically occur through paper-based or email communication, with considerable delays due to human validation, administrative hierarchies, and non-standardized formats. In contrast, digitized systems employ centralized platforms, automated workflows, and electronic documentation to streamline the exchange of information and enhance processing efficiency (Bank for International Settlements, 2020).

Key concepts related to interbank request processing include:

- **Workflow automation**: Refers to the use of digital tools to perform repetitive administrative tasks such as request logging, document validation, and response generation without manual intervention (Mergel, Edelmann, & Haug, 2019).
- **Standardization of request formats**: Standard templates and procedures help reduce ambiguity and ensure consistency in how commercial banks interact with the central bank (OECD, 2020).
- **Traceability and auditability**: Digitized systems allow for detailed logs and tracking of every request, making it easier to monitor processing time and ensure regulatory compliance (**World Bank, 2022**)
- **Interoperability**: The capacity of different banking systems (commercial and central) to exchange and interpret information efficiently, often enabled by APIs or secure messaging protocols (**IMF, 2022**).

As central banks evolve toward digital transformation, interbank request processing becomes a key target for modernization, given its importance for daily operations, institutional coordination, and the overall efficiency of monetary policy implementation.

2.2.2- Legal and Procedural Framework :

The legal and procedural framework governing interbank request processing in central banking systems encompasses the set of laws, regulations, internal directives, and institutional protocols that define how requests from commercial banks are submitted, evaluated, and responded to by the central bank.

In the Algerian context, **Law No. 23-09 of August 10, 2023**, related to banking and financial institutions, represents the cornerstone of regulatory guidance. It stipulates the legal obligations and conditions under which banks must operate and seek approvals for various activities, including the establishment of branches, introduction of new financial products, or changes to operational procedures. This law ensures that all banking activities align with national monetary policy and financial stability objectives (*Journal Officiel de la République Algérienne, 2023*)

Complementary to this legal framework is the **Recueil des Produits et Services Bancaires** issued by the Bank of Algeria, which acts as a reference document outlining the criteria, structure, and submission guidelines for banking product requests. It standardizes procedures and promotes transparency in evaluating such requests (Bank of Algeria , 2024).

Procedurally, the interbank request process typically follows several stages:

1. **Submission**: Commercial banks submit formal requests through designated channels, either manually or via secure portals (if digitalized).

2. **Document Verification**: Supporting documents are reviewed to ensure completeness and compliance with regulatory requirements.

3. **Evaluation**: Requests are assessed based on predefined criteria related to financial soundness, market need, and legal conformity.

4. **Approval/Rejection**: Decisions are issued by the relevant department within the central bank, often requiring cross-departmental validation.

5. **Notification and Archiving**: Final decisions are communicated back to the requesting bank and archived for traceability.

In the absence of digitization, these procedures are prone to inefficiencies, such as delays, miscommunication, and lack of real-time monitoring. Therefore, legal frameworks increasingly encourage the use of electronic signatures, digital recordkeeping, and automated decision-making systems to align with international best practices and technological trends (UNCTAD, 2022)

2.2.3- Operational Workflow and Current Practices

The operational workflow for interbank request processing in central banking systems refers to the structured sequence of steps through which requests from commercial banks are managed—from initiation to resolution. These processes are designed to ensure transparency, regulatory compliance, and efficiency in evaluating and authorizing requests related to banking operations.

In practice, the **Bank of Algeria** receives various types of requests from commercial banks, such as the opening of new branches, the authorization of new banking products, or changes to existing services. While the nature of each request may vary, the processing generally follows a standardized internal workflow:

1. **Request Intake**: A request is formally submitted by the bank, often through physical documentation or secure internal communication channels.

2. **Initial Logging and Classification**: The request is recorded in the internal tracking system and categorized according to its nature and urgency.

3. **Preliminary Review**: Regulatory officers perform an initial compliance check based on current laws and procedural guidelines (notably *Law No. 23-09* and internal directives).

4. **Technical and Legal Evaluation**: Specialized departments assess the request's content from technical, legal, and financial perspectives.

5. **Interdepartmental Coordination**: For complex requests, multiple units may be involved, requiring structured coordination and feedback exchange.

6. **Decision and Validation**: A final decision is made and validated by the relevant authority within the central bank (e.g., General Directorate or a high-level committee).

7. **Notification and Archiving**: The outcome is communicated to the requesting institution, and the request is archived in both physical and digital formats.

Currently, these practices at the Bank of Algeria remain **predominantly manual**, with documentation often processed via paper or scanned PDFs, and follow-ups managed by phone or email. This analog approach contributes to longer processing times, increased administrative burden, and limited traceability.

By contrast, **digitally advanced central banks**—such as those in the EU, Canada, or Singapore—have adopted **workflow automation tools**, digital dashboards, and online request portals to monitor requests in real time, reduce processing delays, and enhance auditability (OECD, 2020). Such reforms enable better integration of data analytics, case prioritization, and automated document checks, which contribute to a more efficient and responsive banking ecosystem.

2.2.4- Criteria for Evaluation Request Processing Efficiency

Evaluating the efficiency of interbank request processing within central banking systems requires a structured set of **quantitative and qualitative criteria**. These criteria aim to measure how effectively and timely the central bank responds to requests from commercial banks, while ensuring compliance, accuracy, and operational transparency.

Below are the most commonly adopted criteria:

1. Processing Time

This refers to the average duration from the **submission** of a request to the **final decision**. Excessive delays may indicate bottlenecks or redundant procedures in the workflow. Best practices aim for measurable benchmarks per type of request (e.g., 5 working days for product approval).

2. Error Rate

This metric assesses the frequency of errors or omissions in request handling—such as incorrect document classification, data entry mistakes, or loss of information. High error rates signal poor internal controls or lack of digital tools.

3. Request Backlog

A backlog is the accumulation of pending requests. A rising backlog may reflect insufficient human resources, inefficient manual systems, or lack of process prioritization. Digital platforms help mitigate this by enabling real-time tracking and queue management (World Bank, 2023).

4. Rate of Rejected or Incomplete Requests

A high rejection rate may point to poor communication of requirements or lack of standardized submission procedures. Establishing digital pre-check tools can significantly reduce invalid submissions.

5. Level of Automation

Efficiency can be evaluated based on the **degree of automation** within the workflow. Central banks with integrated document management systems (DMS), automated routing, and digital signatures typically perform faster and more reliably (EUro Cenrtal-bank, 2023)(European Central Bank, 2022).

6. Transparency and Traceability

The ability of both internal staff and requesting banks to track the request status in real time is a critical factor in perceived efficiency. Systems with full traceability enhance accountability and decision monitoring (Al-Hujran, Al-Debei, Chatfield, & Migdadi, 2015)

7. Stakeholder Satisfaction

Feedback from commercial banks regarding responsiveness, clarity of communication, and service quality is also a valid indicator of overall effectiveness. Periodic surveys can be used for this purpose.

By applying these criteria, institutions like the Bank of Algeria can identify performance gaps, set targets, and prioritize digitization efforts to modernize interbank communication and streamline regulatory compliance.

2.2.5- Impacts of Digitalization on Request

The digitization of interbank request processing has introduced significant transformations that enhance the operational efficiency, transparency, and security of central banking functions. By transitioning from predominantly manual and paper-based workflows to integrated digital platforms, central banks can optimize the entire lifecycle of banking product requests.

Enhanced Efficiency and Speed

Digital tools automate routine tasks such as data entry, document routing, and status notifications, drastically reducing processing times. Automation minimizes human errors and accelerates approval cycles, enabling commercial banks to receive faster feedback and approvals (Gomber, Koch, & Siering, 2017). Moreover, real-time data access facilitates quicker decision-making by regulatory authorities.

Improved Accuracy and Compliance

Digitization introduces validation mechanisms that ensure submitted requests conform to legal and regulatory standards before processing begins. Automated compliance checks aligned with frameworks like Law No. 23-09 reduce the risk of non-conformity, which safeguards financial system stability (Bank of Algeria , 2024).

Greater Transparency and Traceability

Digital systems provide comprehensive audit trails and allow both regulators and commercial banks to track request statuses at any time. This transparency builds trust among stakeholders and reduces disputes related to delays or lost documentation (Al-Hujran, Al-Debei, Chatfield, & Migdadi, 2015)

Resource Optimization and Cost Reduction

By minimizing manual interventions, central banks can reallocate human resources towards analytical and supervisory roles rather than routine processing tasks. Digital workflows also reduce costs associated with paper handling, storage, and physical archiving (EUro Cenrtal-bank, 2023)

Challenges and Risks

While digitization offers numerous benefits, it also introduces challenges such as cybersecurity threats, system integration complexities, and resistance to change among staff. Ensuring robust IT infrastructure and comprehensive training programs are critical for successful digital transformation (World Bank, 2023).

Overall, the impact of digitization on interbank request processing is transformative, fostering a more agile, transparent, and secure banking regulatory environment. This study examines how the existence and quality of digital integration influence these outcomes within the context of the Bank of Algeria.

2.3- Nature of the Relationship Between Variables

The relationship between the independent variable, *existence of digitization*, and the dependent variable, *interbank request processing*, is fundamentally rooted in the transformative impact digital technologies have on traditional banking workflows. Digitization serves not only as a technological enabler but also as a catalyst for organizational change that influences how interbank requests are handled in central banking systems.

At its core, digitization affects the efficiency, transparency, accuracy, and traceability of request processing. The integration of digital platforms and automation tools streamlines the workflow by reducing manual interventions, minimizing errors, and accelerating the approval cycles. This results in improved turnaround times and enhances compliance with regulatory frameworks, which is critical in highly regulated environments such as central banking (Gomber, Koch, & Siering, 2017)

Moreover, the degree to which digitization is embedded within the bank's operational and regulatory structures directly impacts the quality and consistency of interbank request processing. Digital transformation fosters seamless communication and data exchange between commercial banks and the central bank, enabling real-time monitoring and audit trails that reinforce accountability (Bharadwaj, Sawy, Pavlou, & Venkatraman, 2013)

However, this relationship is not unidimensional or deterministic. The effectiveness of digitization depends on various moderating factors including technological infrastructure readiness, organizational culture, human resource capabilities, and the legal-regulatory environment (Mergel, Edelmann, & Haug, 2019) For instance, insufficient regulatory frameworks or resistance to change may constrain the potential benefits of digitization, leading to incomplete or fragmented digital adoption that undermines process efficiency.

In the context of central banking, the interplay between digitization and interbank request processing encapsulates a complex socio-technical system where technological advances must align with institutional mandates and governance requirements. This alignment determines whether digitization acts merely as a process optimizer or as a strategic enabler of broader institutional objectives such as risk mitigation, financial innovation, and enhanced service delivery.

Therefore, investigating the nature of this relationship provides critical insights into how digital transformation initiatives can be designed and implemented to maximize their positive impact on interbank operations, while navigating the inherent challenges of change management and regulatory compliance.

CHAPTER II : METHODOLOGICAL FRAMEWORK

Section 1 : Methodological Framework

This chapter presents the qualitative research methodology employed to analyze the digitization of interbank product approval processes at the Bank of Algeria. The study combines semi-structured interviews with approval officers and management, systematic analysis of internal documents, and direct observation of existing workflows.

The research design specifically addresses the bank's regulatory environment, focusing on identifying inefficiencies in current paper-based processes and evaluating organizational readiness for digital transformation. All data collection followed strict academic ethical protocols.

By triangulating interview insights with documentary evidence and observational data, the study develops a comprehensive understanding of both operational challenges and strategic considerations in the bank's digitization efforts. The methodology accounts for Algeria's unique banking regulations and the central bank's supervisory role, ensuring findings are both institutionally relevant and methodologically sound.

This rigorous approach supports subsequent analysis while providing a replicable framework for similar studies in regulated financial institutions. The chapter concludes with a discussion of methodological limitations inherent in studying complex bureaucratic environments.

1.1- Research methodology

This study employs a qualitative exploratory research design to investigate the digitization of interbank product request approvals at the Bank of Algeria (BoA). The exploratory nature of this inquiry is particularly appropriate for three key reasons. First, the transition from paper-based to digital systems in central banking oversight remains understudied in the Algerian context, requiring an open-ended approach that can uncover emerging themes. Second, the complex interplay between regulatory requirements, organizational culture, and technological adaptation demands a methodology capable of capturing nuanced stakeholder perspectives. Third, as BoA's digitization initiative remains in its planning stages, an exploratory design allows for examination of both current challenges and anticipated solutions.

The qualitative orientation of this study enables deep investigation of several critical dimensions. These include the lived experiences of staff navigating manual approval processes, the perceived readiness for technological change across different departments, and the institutional barriers that may hinder successful implementation. By adopting this methodological stance, the research prioritizes rich, contextual understanding over statistical generalization, seeking to uncover the subjective meanings that organizational members attach to the digitization process.

To ensure methodological rigor, the study incorporates several validation strategies. The principle of triangulation is employed through the use of multiple data sources - interviews, document analysis, and observational data - to corroborate findings across different evidentiary streams. Member checking procedures allow participants to review and verify the accuracy of researcher interpretations, while thick description provides the contextual detail necessary for assessing the transferability of findings to similar institutional settings.

The study acknowledges several important methodological limitations that shape the interpretation of its findings. The exclusive focus on BoA's internal perspective necessarily excludes the viewpoints of commercial banks that submit approval requests, potentially overlooking important dimensions of the interbank relationship. The small participant sample, while providing depth of insight, limits the generalizability of conclusions across the entire organization. Furthermore, as a pre-implementation study, the research captures expectations and concerns rather than measured outcomes of technological change.

1.2- Data Collection Techniques

Primary data was collected through semi-structured interviews with four key BoA staff members involved in the request approval process. These in-depth interviews, conducted over [timeframe], explored three core themes: current workflow challenges, digital transition preparedness, and institutional barriers. Each interview lasted approximately 60 minutes and was audio-recorded with participant consent.

To complement the interview data, the study incorporated document analysis of relevant BoA materials and non-participant observation of approval workflows. This multi-method approach allowed for triangulation of findings across different data sources. The combination of these techniques provided a comprehensive view of both the technical and human dimensions of the digitization process.

Target Population and Sampling Strategy

The study employed purposive sampling to identify four participants representing critical roles in the request approval chain. These included approval officers, IT staff, and managerial personnel, selected based on their direct involvement with the processes under examination. The sampling strategy prioritized depth of expertise over breadth, with each participant offering unique insights into different aspects of the transition.

Participants were identified through BoA's internal channels and selected to represent diverse perspectives across operational levels. The small but strategically chosen sample enabled focused exploration of key issues while working within institutional access constraints. All participants had substantial tenure at BoA, ensuring their responses were grounded in extensive organizational experience.

1.3- Data Analysis Tools

Thematic analysis was used to examine the qualitative data, following established qualitative research protocols. Interview transcripts and field notes were systematically reviewed to identify patterns and develop meaningful categories. The analysis process remained flexible to accommodate emergent themes while maintaining focus on the core research questions.

For data management and analysis, the study utilized qualitative data analysis software to facilitate coding and theme development. This tool supported the organization and retrieval of coded segments while maintaining the integrity of the original data. The analytical process included multiple rounds of review to ensure consistency and comprehensiveness in the interpretation.

1.4- Validity and Reliability

Several strategies were implemented to ensure the study's rigor. Triangulation across different data sources (interviews, documents, and observations) helped verify emerging patterns, while member checking with participants confirmed the accuracy of interpretations. The researcher maintained detailed records of analytical decisions through an audit trail, including reflexive journals and coding memos, to support the transparency and reproducibility of the findings.

To further enhance reliability, the study employed **peer debriefing** techniques, where preliminary findings were discussed with academic colleagues to challenge assumptions and

identify potential biases. This process helped mitigate researcher subjectivity, particularly given the small sample size. Additionally, the use of **prolonged engagement** with BoA's operational context (during the internship period) improved the researcher's familiarity with institutional norms, reducing misinterpretations of qualitative data.

While qualitative research inherently prioritizes depth over generalizability, these measures—combined with **thick description** of the approval workflows and participant roles—strengthened the credibility and dependability of conclusions. The study also adhered to **Lincoln and Guba's (1985) criteria** for trustworthiness, ensuring findings were credible (participant-validated), transferable (context-rich), and confirmable (auditable).

1.5- Methodological Limitations

The study acknowledges several limitations inherent in its design. The small sample size (four participants), while providing depth of insight, necessarily limits the generalizability of findings across BoA's diverse departments. However, the purposive sampling strategy ensured participants represented critical roles in the approval chain, offsetting some breadth-related constraints.

The research focuses exclusively on BoA's internal perspective, excluding the views of commercial banks that submit requests. This omission may overlook systemic friction points in interbank interactions, such as discrepancies in digital readiness between institutions. Future studies could adopt a multi-stakeholder approach to address this gap.

A fundamental limitation stems from the study's pre-transition perspective. By examining a purely paper-based system, the research can only speculate about digital implementation challenges without empirical observations of actual transition outcomes. Participants' limited first-hand experience with digital tools may further constrain the accuracy of readiness assessments, as their responses are necessarily hypothetical rather than experience-based.

The reliance on self-reported data in interviews introduces potential recall bias or idealized portrayals of workflows. While document analysis helped counterbalance this, operational realities may differ from formal protocols. The absence of quantitative metrics (e.g., approval turnaround times) also limits the ability to establish performance baselines for future digital comparisons.

Finally, despite efforts to maintain neutrality, the researcher's presence during data collection may have influenced participant responses (e.g., social desirability bias). These limitations, while notable, establish clear parameters for interpreting the results and suggest valuable directions for future research, particularly mixed-methods studies that could combine these qualitative findings with quantitative implementation data once BoA's digitization begins.

Chapter Summary

This methodology chapter has provided a detailed examination of the research design and methods employed to study BoA's digital transition. The qualitative exploratory approach has proven particularly valuable for investigating the complex organizational and technological dimensions of central bank digitization in its early stages. Through careful attention to methodological rigor, including triangulation, member checking, and peer debriefing, the study has developed a robust foundation for understanding both current challenges and future opportunities in BoA's transformation process.

The limitations of the study, while notable, do not diminish the significance of its findings. Rather, they establish clear parameters for interpreting the results and suggest valuable directions for future research. The insights generated through this methodological approach will inform both academic understanding and practical implementation of digital transformation in regulatory banking contexts. The following chapter will present the study's key findings, grounded in the rigorous methodological framework outlined here

Section 2: Organizational Context: Bank of Algeria

2.1- Institutional Overview – The Bank of Algeria: History, Structure, and Legal Functions

The Bank of Algeria (Banque d'Algérie) was established under Law No. 62-144 enacted by the Constituent Assembly on December 13, 1962, to create and define the statutes of the central bank. Amendments were made during the 1970s and early 1980s; however, reforming the financial system, both in its governance and characteristics, became essential.

Law No. 86-12 of August 19, 1986 concerning the banking system marked the beginning of a comprehensive reform of Algeria's banking system. This law reinstated the central bank's powers in setting and implementing monetary and credit policy, while also redefining its

relationship with the Public Treasury. However, these developments were later found to be poorly adapted to the changing socio-economic context, which was characterized by deeper reforms.

Law No. 90-10 of April 14, 1990 on Money and Credit is considered the first legal text that fully defined and structured both the Bank of Algeria and the national banking system.

Ordinance No. 03-11 of August 26, 2003 concerning Money and Credit was issued to repeal Law No. 90-10 of April 14, 1990. Later, Ordinance No. 10-04 of August 26, 2010 amended and supplemented Ordinance No. 03-11 of the same date. These texts granted the central bank, now officially known as the Bank of Algeria, significant institutional and functional independence. The Bank is governed, directed, and overseen respectively by the Governor and the Board of Directors, chaired by the Governor and composed of three Deputy Governors and three senior officials appointed based on their expertise in economic and financial affairs. The Governor is appointed by presidential decree, and the Deputy Governors are appointed under the same conditions. Other Board members are appointed by executive decree. Auditors are appointed by presidential decree upon recommendation by the Minister of Finance. The Board of Directors holds the traditional powers attributed to such a body.

As part of a broader process of social, economic, and financial reforms undertaken by public authorities, the latest update came with the enactment of Law No. 23-09 on June 21, 2023, repealing Ordinance No. 03-11 of August 26, 2003. This law aims to adapt the legal and regulatory framework to meet deep economic and financial changes, technological challenges, and to enable openness to new economic actors. It particularly emphasizes enhancing the governance of the Bank of Algeria, the Monetary and Banking Council, the Banking Commission, and the banking and financial institutions.

The Bank of Algeria employs approximately 3,400 staff members who work daily to achieve the institution’s objectives. To carry out its responsibilities, the Bank is centrally organized into general directorates in charge of studies, supervision, and banking activities. It also includes two other general directorates responsible for banknote issuance and banking training.

The Bank has a nationwide network of 49 branches and agencies ensuring a presence in every province (wilaya) of Algeria. Coordination among these branches is managed by three regional directorates located in Algiers, Oran, and Annaba.

A broad modernization program has been implemented, including upgrading equipment, work

methods, and training programs to ensure the banking system meets the demands of the evolving national and international context.

Governance Structure and Supervisory Bodies

According to the provisions of the Monetary and Banking Law, the Bank of Algeria is managed by a Board of Directors. Board members are appointed by presidential decree based on their competence in economic and monetary matters.

The Monetary and Banking Council

Law No. 23-09 of June 21, 2023, establishes a deliberative body called the Monetary and Banking Council, which holds monetary authority. It defines monetary objectives, sets licensing conditions for establishing banks and financial institutions, enacts regulations on standards and ratios applicable to them, and publishes these regulations in the Official Journal.

The Council is composed of the Governor of the Bank of Algeria as its President, the Bank's Board members, and two additional members appointed by presidential decree based on their expertise in economic and monetary affairs.

The Banking Commission

Ordinance No. 03-11 of August 26, 2003 on Money and Credit established a body known as the Banking Commission. It is responsible for monitoring the compliance of banks and financial institutions with legislative and regulatory provisions and for sanctioning identified violations.

The Commission is chaired by the Governor of the Bank of Algeria and consists of three members selected for their expertise in banking, financial, and accounting matters, two magistrates seconded from the Supreme Court and the Council of State, one representative from the Court of Auditors, and one representative from the Ministry of Finance.

Members of the Commission are appointed by the President of the Republic for a five-year term. The Commission is provided with a General Secretariat upon its proposal, with its powers and organization determined by the Bank’s Board of Directors.

2.2- Core Responsibilities of the Bank of Algeria

1. **Banking Supervision**: The Bank sets general conditions under which Algerian and foreign banks and financial institutions are authorized to operate in Algeria. It also determines the conditions under which these licenses can be amended or revoked. The

Bank defines all prudential standards to be respected by banks at all times.

2. **Monetary Stability**: The Bank is responsible for ensuring price stability as a core monetary policy objective. It regulates money circulation, guides and monitors credit distribution, regulates liquidity, oversees external financial commitments, supervises the foreign exchange market, and ensures the robustness of the banking system.

3. **Payment Systems**: The Bank monitors and ensures the smooth operation, efficiency, and security of payment systems. The applicable rules are set by the Monetary and Banking Council.

4. **Foreign Exchange Regulation**: The Bank regulates the foreign exchange market in line with the policy adopted by the Monetary and Banking Council and in accordance with Algeria's international commitments.

5. **Currency Issuance**: The Bank holds the exclusive right to issue credit money (banknotes and coins). It defines official currency markings and oversees the production and destruction of currency.

6. **Regulatory Authority**: The Bank issues a regulatory and legal framework governing banking activity and financial operations. These regulations are published in the Official Journal of the Algerian Republic.

2.3- Organizational chart :

(Source: Bank of Algeria's website)

2.4- Departmental Overview: The General Directorate of Credit and Banking Regulation (DGCRB)

Within the organizational structure of the Bank of Algeria, the General Directorate of Credit and Banking Regulation (DGCRB) plays a central role in overseeing and maintaining the integrity of the national banking system. Its mission includes drafting regulatory frameworks, supervising financial institutions, and ensuring compliance with national policies and international standards to foster financial stability.

The DGCRB is composed of four main departments:

- Refinancing Department: Responsible for managing liquidity support and refinancing operations for banking institutions.
- Monetary and Financial Markets Department: Monitors and regulates operations within Algeria's monetary and financial markets.
- Banking Regulation and Licensing Department (BRLD): This is the department where the internship is being conducted. It is responsible for drafting banking regulations, processing licensing requests, and ensuring that institutions meet regulatory compliance requirements.
- Central Department of Risk, Balance Sheets, and Non-Performing Loans: Focuses on analyzing financial risks, assessing bank balance sheets, and monitoring loan performance.and.credit.quality.

The Banking Regulation and Licensing Department (BRLD) is further subdivided into two interdependent sub-directorates:

- Sub-Directorate of Banking Regulation: Develops regulatory texts and ensures alignment with international standards.

Sub-Directorate of Licensing: Handles the assessment and issuance of licenses for banks and other financial entities operating in the Algerian market.

2.5- Processing of Banking Requests at the Bank of Algeria (DGCRB/DRBA) :

The Bank of Algeria has established a structured and hierarchical process for receiving, reviewing, and deciding on banking and financial institution requests. This process is primarily governed by **Regulation No. 25-01**, which outlines the responsibilities of internal bodies, including the General Directorates and the **General Secretariat of the Banking Commission (SGCMB)**.

1. Reception and initial review

All formal requests submitted by commercial banks or financial institutions—such as license applications, product authorizations, or regulatory clarifications—are first received by the **Governor of the Bank of Algeria**. The Governor performs a preliminary examination to ensure the request is complete and within the Bank's scope of jurisdiction. This step aligns with **Article 5** of Regulation 25-01, which mandates that the Governor channels the requests to the competent **General Directorate (Direction Générale)** for evaluation.

2. Assignment to the Competent Directorate

Depending on the nature of the request, it is transferred to a relevant directorate, such as the **General Directorate for Currency and Credit (DGMC)**, **General Directorate of Financial Institutions Supervision (DGIG)**, or in the case of regulatory matters and product approvals, the **General Directorate for Exchange Regulations and Banking Regulation (DGCRB)**. Within the DGCRB, the **Directorate for the Regulation of Banking Activities (DRBA)** is specifically responsible for requests related to banking products and regulatory compliance.

3. Technical and legal assessment

Upon receipt by the DRBA, a technical and legal review is initiated. This includes:

- **Verification of the request's content and documentation**, ensuring alignment with applicable Algerian banking laws, prudential standards, and regulatory requirements.

- **Assessment of compliance** with the monetary and credit policy directives set forth by the Bank of Algeria and the legal framework defined by **Ordinance No. 03-11 of August 26, 2003**, relating to money and credit.

Preparation of a detailed analytical report including a preliminary opinion (favorable or unfavorable), supported by technical justifications and references to relevant articles of law and internal regulations.

4. Transmission to the Banking Commission

Following internal review, the complete file—along with comments, recommendations, and legal opinions—is forwarded to the **General Secretariat of the Banking Commission (SGCMB)**, in accordance with **Article 6 of Regulation 25-01**. The SGCMB serves as a regulatory authority that ensures consistency and legality in banking supervision.

5. **Final decision by the Governor**

After review by the SGCMB, the case is returned to the Governor, who issues the **final decision** on whether to approve or reject the request. The decision is then formally communicated to the applicant institution.

Simplified Workflow Summary

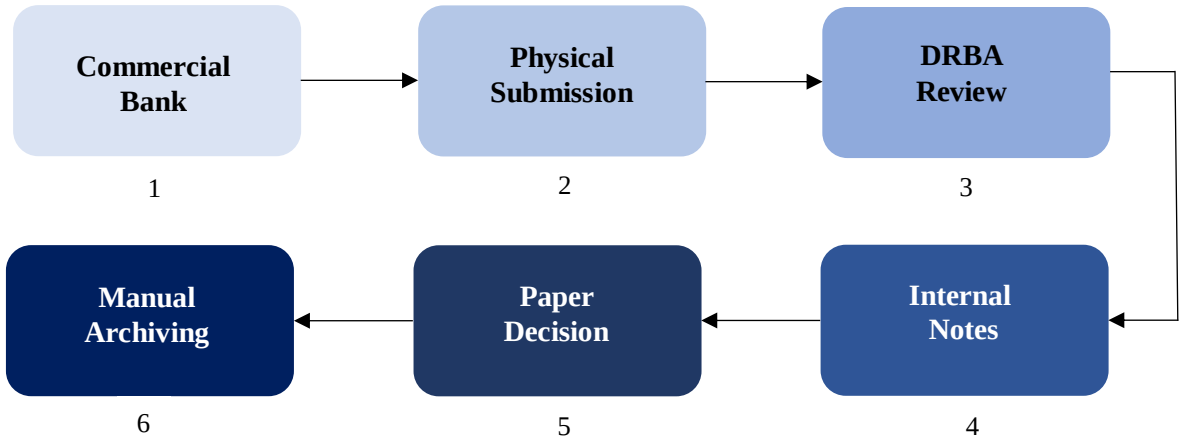

Figure 1: current paper-based workflow

2.6- Manual Workflow Description and Process Mapping:

The processing of interbank requests at the Bank of Algeria is currently executed through a semi-manual, document-based system involving multiple directorates and administrative checkpoints. The process is largely centralized at the level of the **Directorate for the Regulation of Banking Activities (DRBA)**, operating under the **General Directorate for Exchange Regulations and Banking Regulation (DGCRB)**.

Upon receiving a request—typically transmitted via the **General Secretariat of the Banking Commission (SGCMB)**—the DRBA receives a consolidated file which includes:

- The formal application submitted by the bank or financial institution,
- Background documents outlining the institution's legal status and operational profile,
- A request from the SGCMB specifying the **General Directorates (DGs)** concerned by the application, and the elements requiring their assessment, observations, or approval.

Upon arrival, the DRBA manually registers the file using an **Excel spreadsheet**, which serves as the unit's basic database. The recorded fields include:

- Name of the bank or financial institution,
- Identity of the director or signatory

- Nature and objective of the request (e.g., licensing, product authorization, amendment),
- Date of transmission from the SGCMB,
- Date of receipt at the Governor's office,
- Expected contributions from other DGs.

The DRBA then proceeds with an initial **compliance and regulatory review**, verifying whether the submission aligns with Algeria's monetary and financial laws. However, the DRBA is not the sole decision-maker; they can only finalize their observations after receiving written remarks and evaluations from all other **concerned General Directorates** (DGMC, DGIG, DGRSP, etc.), depending on the subject of the request.

This dependency contributes significantly to procedural **delays**. The DRBA is not authorized to forward the file to the next stage without aggregating all inputs, which can take

considerable time given the sequential and document-based communication between directorates.

Once all required comments are collected, the DRBA finalizes the file and updates the Excel registry with the **exit date** from their department. At this point, the file is considered administratively complete and is physically **archived**. Archiving occurs **only after** an official notification of approval or rejection is received from the Governor via the SGCMB.

The absence of a fully integrated digital system results in:

- A lack of automated tracking or workflow visualization,
- Redundant data entry,
- Risk of human error in manual updates and follow-ups.
- Overall, the current manual workflow, although functional, is **time-consuming**, **fragmented**, and **lacks transparency**, making the case for an urgent shift toward digitization and centralized data management.

2.7- Identified Operational Bottlenecks and Issues:

Based on field observations conducted during the internship at the **Directorate for the Regulation of Banking Activities (DRBA)**, several recurring operational bottlenecks were identified in the manual processing of banking requests. These issues affect the efficiency, transparency, and responsiveness of the Bank of Algeria's internal procedures. They can be categorized into four main areas:

1. Procedural Delays Due to Inter-Directorate Dependencies

One of the most critical bottlenecks stems from the reliance on **multiple General Directorates (DGs)** to provide mandatory opinions before any decision can be taken on a submitted request. This linear communication model results in extended delays, especially when the required DGs are slow to respond or require additional information.

2. Lack of a Centralized Digital System

The use of **Excel sheets** as the primary data management tool creates significant limitations in terms of data integrity, access control, and real-time monitoring. The absence of a centralized and secure digital platform means:

- No real-time tracking of request progress,
- Inconsistent data entry across departments,
- Lack of notification or workflow alerts,
- Increased risk of file misplacement or duplication.

3. Archiving Constraints and Traceability Issues

Files are archived manually only after a final decision is communicated by the Governor. During this time, there is no unified digital reference for retrieving a file's status, which complicates inter-departmental coordination. Moreover, paper-based archives increase the risk of information loss over time and reduce institutional memory.

4. Human Resource Overload and Repetitive Tasks

Due to the manual nature of data entry and follow-up tasks, employees are often overburdened with repetitive administrative duties. This affects productivity and introduces opportunities for human error. Staff must regularly verify deadlines, file completions, and updates across separate documents without digital assistance.

In light of these findings, it becomes evident that digitizing the request management process is not only a matter of efficiency, but also of operational security, governance quality, and institutional modernization.

CHAPTER III :

RESULTS & DISCUSSION

Section 1 : Empirical Findings and Thematic Analysis

1.1- Current Practices in Interbank Request Processing

1. The current interbank product and service authorization process in Algeria is entirely manual, heavily reliant on physical documentation, and constrained by a fragmented communication structure. Requests are submitted by commercial banks to the **Directorate of the Regulation of Banking Activities (DRBA)** within the **General Directorate of Credit and Banking Regulation (DGCRB)** at the Bank of Algeria. These requests may concern the licensing of new products, modifications to existing services, or compliance documentation.
2. Once received, requests are distributed through internal units in a sequential manner, moving physically between technical, legal, and administrative units depending on the product's complexity. According to the interviewee, "the process involves paper files being hand-delivered, reviewed manually, and supplemented with internal notes and memos, sometimes by email."
3. The absence of digital tools at any stage of this workflow is striking. There is no unified system for submission, tracking, or archiving of requests. Coordination between internal departments is handled through physical folders or informal channels such as telephone or internal memos. There is also no automatic status feedback loop for banks that submit requests, leading to significant visibility gaps.

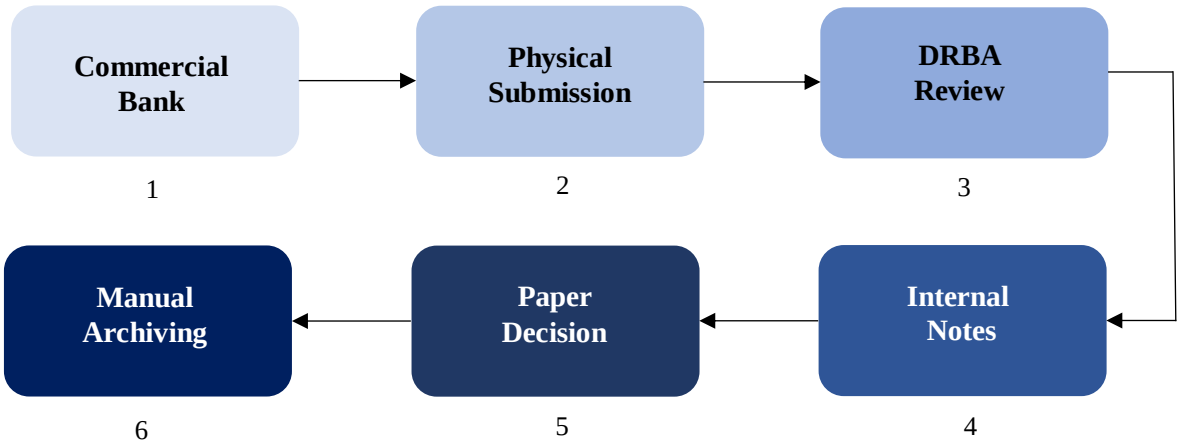

Figure 2: Current Pper-Based Workflow

Activity	Tools Used	Level of Digitalization
Drafting of Requests	Microsoft Word, printed files	Low
Interdepartmental Transfer	Physical folders, hand delivery	Very Low
Tracking Progress	Informal updates, Excel (manual)	Low
Archiving	Paper folders, shelves	Very Low

table 1: tools used in current interbank request workflow

From a socio-technical perspective, the DRBA's operations remain embedded in a legacy culture that values printed validation, signature stamping, and hierarchical approval chains. This underscores the **tight coupling between organizational norms and technological absence**. In such a setting, even if a digital system were introduced, its success would depend heavily on disrupting entrenched routines and transforming employee behavior.

1.2- Operational Constraints and Workflow Gaps

While the previous section outlined the existing manual workflow, this section delves into the core inefficiencies embedded within the current interbank request processing system. Based on the interview findings and institutional analysis, several operational bottlenecks emerge that significantly affect the **speed, transparency, and coordination** of the process.

1.2.1- Time Delays and Redundancies

The manual transmission of documents—often across multiple departments—results in accumulated delays. Files can remain pending due to staff availability, backlogs, or iterative clarifications. These delays are compounded when requests require missing or supplementary documentation.

Source of Delay	Description
Physical file transfer	Movement between offices may take days
Lack of status notification	Banks are unaware of file progress
Manual checking of completeness	Missing attachments require repeated back-and-forth
Staff unavailability	Delays due to key personnel being on leave or overloaded

Table 2: source of delay in manual processing

1.2.2- Fragmentation in Interdepartmental Coordination

There is no centralized platform to ensure synchronized collaboration. Communication is informal, varying by department. As the interviewee noted, “coordination is harder to track and monitor… each unit has its own pace.”

This disjointed workflow not only slows decision-making but also risks inconsistent treatment of similar cases. For example, some requests are handled formally with documentation and legal input, while others are advanced more informally based on prior knowledge or relationships.

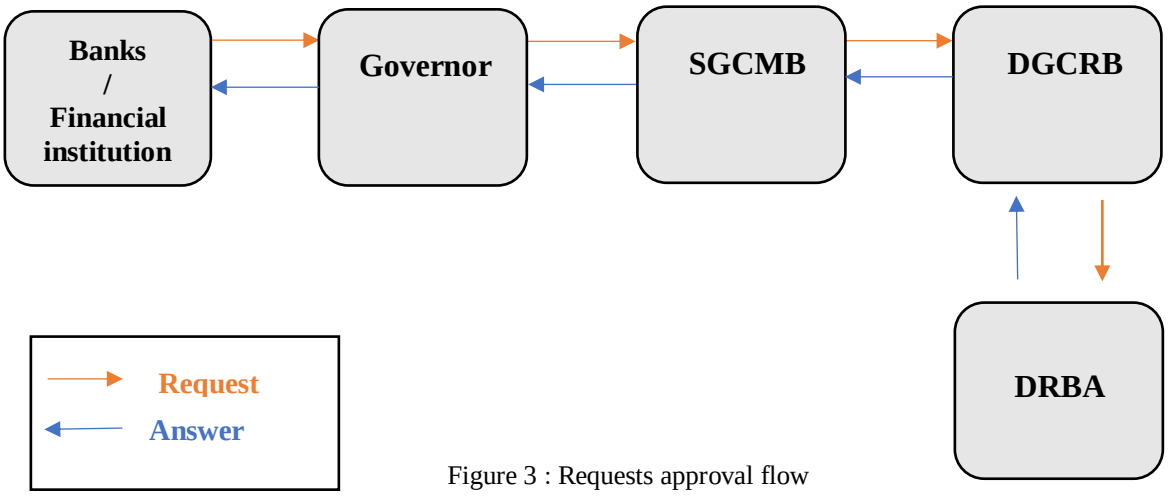

Figure 3 : Requests approval flow

1.2.3- Lack of Transparency and Monitoring

Banks that submit requests receive no digital acknowledgment or real-time updates. The absence of a digital tracking mechanism prevents applicants from knowing whether their files are under review, delayed, or returned for revision.

This invisibility erodes trust in the system and increases the administrative burden on DRBA staff, who must respond manually to phone or email inquiries about file status.

1.2.4- Manual Verification and Error-Prone Processing

Without automated validation tools, every detail—completeness, signatures, annexes—must be manually checked. This repetitive task increases the risk of human error and may result in critical oversights or inconsistent decisions between similar requests.

From the Technology Acceptance Model (TAM) perspective, even if a digital platform were introduced, it must clearly demonstrate perceived usefulness (e.g., faster turnaround, fewer errors) and ease of use for regulators and applicants alike. Without addressing these operational pain points, adoption will be low—even if technically feasible.

1.3- Perceptions of Digitization and Institutional Readiness

The perception of digitization among institutional actors within the Bank of Algeria—and specifically within DRBA—reveals a dynamic mix of cautious optimism, organizational hesitation, and structural unpreparedness. The qualitative data shows that while many recognize the benefits of digitization in principle, actual readiness at both human and technical levels remains limited.

The interviewee, a senior officer at DRBA, acknowledged the potential strategic value of digital transformation:

“Digitization would bring greater speed, transparency, and accuracy… it could also help us structure the request process better.”

Positive Expectations and Perceived Benefits

Most expectations regarding digitization center around tangible gains such as:

- Reduced processing times for interbank requests

- Improved traceability and archiving
- Enhanced coordination between departments
- Structured communication with external stakeholders (i.e., commercial banks)

In particular, younger staff members and those with exposure to digital tools express more enthusiasm. They anticipate a smoother process with digital submission, workflow tracking, and internal validation systems. The expectation of a centralized platform was repeatedly mentioned as a solution to operational inefficiencies.

Institutional Resistance and Cultural Constraints

Despite this general awareness of benefits, institutional culture at DRBA remains deeply rooted in traditional administrative routines. Many processes are handled exclusively on paper, including request intake, departmental validation, and final archiving. Senior staff, in particular, appear resistant to changes that might disrupt established hierarchies or reduce their discretionary control over decision-making.

The interviewee noted: “There could be resistance from staff used to manual processes, particularly older employees.”

From the lens of Socio-Technical Systems Theory, this reflects a misalignment between the technological potential for transformation and the social environment in which it must occur. Without strategic change management and capacity-building programs, even the best-designed digital systems may be met with passive or active resistance.

Legal Ambiguity and Process Complexity

Another major barrier to readiness lies in the legal infrastructure. Currently, no clear regulatory framework governs the acceptance of digital submissions or electronic signatures for interbank product approvals. This ambiguity causes hesitation among regulatory staff, who operate within strict mandates and require legal certainty for each step of the process.

Moreover, the multi-stage review process—where requests pass from commercial banks to the Governor, then to the Secretariat (SGCMB), and are finally distributed to relevant directorates such as DRBA—adds to the complexity.

Moreover, the transmission of requests from the Governor of the Bank of Algeria, through the SGCMB (Secretariat of the Monetary and Banking Council), and finally to relevant directorates, adds further complexity. Requests are routed to different general directorates depending on their subject, with DRBA being the central hub for product approval cases. According to Article 5 of Regulation 25-01 (2025):

"The competent services of the Bank of Algeria may request any additional information deemed necessary for their evaluation."

This article legitimizes iterative interactions but becomes administratively burdensome in the absence of digital systems that can automate feedback, corrections, and resubmissions.

Aspect	**Positive Perceptions**	**Challenges / Barriers**
Efficiency	Faster processing	Manual file circulation
Transparency	Better traceability of request status	No digital tracking platform
Coordination	Improved intra-department communication	Fragmented structure within DRBA
Legal Validity	Potential for secure submissions	No regulatory framework for digital validity
Staff Readiness	Young staff are receptive	Senior staff fear loss of control

table 2: percieved benefits vs barriers to digitazation

1.4- Legal and Organizational Barriers to Digital Implementation

Despite the recognized benefits of digitizing interbank request processing, the practical implementation of such a transformation within the Bank of Algeria—specifically the DRBA—faces considerable legal and organizational constraints. These barriers are deeply embedded in both the regulatory framework and the internal culture of public institutions, presenting a complex challenge for institutional change.

1.4.1- Absence of Legal Frameworks for digital requests

One of the most critical obstacles is the lack of explicit legal provisions recognizing digital documentation, electronic signatures, or digitally archived files in regulatory procedures. Authorization requests submitted by banks must currently adhere to paper-based formats, physically signed, and officially stamped. As highlighted by the interviewee, “There is no platform or tool… digitization has not yet been introduced into the authorization process.”

This legal vacuum creates uncertainty for regulators, who are tasked with ensuring compliance with existing laws. Without clear national directives or sectoral decrees supporting the validity of digital submissions, most institutions remain reluctant to initiate any form of digital transition—fearing procedural invalidity or future audit disputes.

This situation echoes the principles of the Public Sector Innovation Theory, which emphasizes that government institutions tend to operate under strict legalistic mandates that hinder flexibility and experimentation.

1.4.2- Fragmented Institutional Structure and Role Ambiguity

The DRBA itself is internally divided into two specialized units:

- Deputy Director of Banking Regulatio
- Deputy Director of Licensing

Each sub-directorate handles different aspects of authorization files depending on the product type and scope of regulation. This fragmented structure complicates the adoption of unified digital tools, since each subunit may require different workflows, document formats, and validation steps.

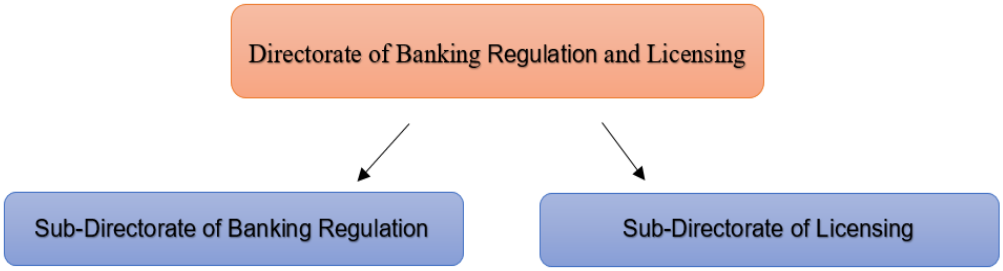

Figure 4: directorate of banking regulations structure

1.4.3- Cultural Inertia and Change Resistance

The Bank of Algeria operates under a traditionally hierarchical model. Many employees, particularly at senior levels, have built their careers within a system that relies heavily on printed documents, physical signatures, and step-by-step validation. This has fostered a "paper culture", in which control is equated with physical possession of a file.

Transitioning to digital processes may be perceived as a loss of authority or control. As such, change resistance is not simply about technology—it reflects deeper organizational norms that must be addressed through change management strategies, retraining, and incremental reforms.

Category	**Barrier Description**
Legal Framework	No formal recognition of digital files or electronic signatures
Institutional Design	Fragmented responsibilities between sub-units of DRBA
Communication	Absence of a unified feedback mechanism between DRBA and SGCMB
Cultural Norms	Deep reliance on physical documentation and seniority-driven validation processes

Risk Perception	Fear of procedural non-compliance or loss of control

table 3: legal and organizational barrieries

1.5- Administrative Rigidities and Documentation Handling

While broader workflow inefficiencies and coordination gaps been previously discussed, this section focuses specifically on the rigid bureaucratic mechanisms and documentation challenges that characterize the interbank request process within DRBA. These administrative rigidities represent a structural layer of resistance to digitization, one that goes beyond technology or infrastructure, and lies at the core of the institution's operational culture.

1.5.1- Procedural Formalism and Multi-Layered Validation

Each authorization request passes through a long chain of internal checks before it reaches the decision phase. The file is first received by DRBA, then routed to the appropriate sub-directorate depending on its nature (Direction de la Règlement Bancaire or Direction des Agréments). Each sub-unit applies its own interpretation of documentation completeness and may re-circulate the file for clarification or internal input.

This process is entirely hierarchical and sequential, where every step must be completed before moving to the next—often requiring signatures, manual annotations, or printed internal notes. This level of formality results in longer turnaround times and increased administrative burden.

"The request circulates physically with signatures and remarks... you can't move forward unless the previous step is signed off." — Interviewee

1.5.2- Lack of Standardization in File Submission

While the Bank of Algeria provides general guidelines for the structure of authorization requests, there is no digital submission template or standardized file checklist. Each bank submits documents in slightly different formats, with attachments organized differently, which forces DRBA staff to spend significant time rearranging and verifying content.

Moreover, the absence of a central document intake platform means that files are not automatically logged, categorized, or timestamped, increasing the risk of lost, delayed, or misclassified submissions.

1.5.3- Redundancy and Paper Load

One recurring observation during the internship was the sheer volume of paperwork associated with each file. Authorization requests often come in thick physical folders containing annexes, financial reports, legal justifications, and technical descriptions. These are printed multiple times—one copy for analysis, another for signature, and sometimes a third for archiving.

Because of the manual nature of file routing, the same documents may be printed or copied repeatedly as they move between departments or as questions arise. This redundancy not only consumes resources but makes tracking versions and updates difficult.

1.5.4- Archiving Without a Digital Index

After processing, files are manually archived without a searchable database or document management system. Retrieval depends on memory, folder labels, and physical storage practices. This severely limits the institution's capacity for historical analysis, performance monitoring, or compliance auditing.

Importantly, during the field observation, it was noted that the Bank of Algeria does not maintain separate IT support teams within each directorate. Instead, IT services are centralized under the Direction Générale de l'Administration et des Moyens, specifically within the Directorate of Security and Prevention. This structural limitation hinders DRBA's ability to initiate or manage its own digital filing or workflow systems.

Challenge	**Institutional Impact**
Lack of standardized templates	Increases review time and inconsistency
Manual multi-stage validation	Slows down decision-making
Excessive paper redundancy	Wastes resources and introduces version confusion
Absence of digital archiving	Limits retrieval, tracking, and institutional memory

Centralized IT with no local autonomy	Reduces DRBA's capacity to modernize documentation flow

table 4: documntation challenges and institutional effects

Section 2: Interpretation, Theoretical Reflection and Strategic Outlook

This section interprets the empirical findings through the lens of the theoretical models outlined in Chapter I, specifically the Socio-Technical Systems Theory, the Technology Acceptance Model (TAM), and the Public Sector Innovation Theory. These models offer valuable frameworks for understanding the relationship between digitization (independent variable) and interbank request processing (dependent variable), particularly within the complex environment of central banking.

Socio-Technical Systems Theory

The observed operational structure of the DRBA reflects a classic case of misalignment between technical infrastructure and social systems. The theory holds that effective digital transformation requires simultaneous adaptation of both technological tools and the human environment in which they operate (Barone & Zobaa, 2022; Luna & Guimarães, 2023).

The internship revealed that while the technological component is almost entirely absent (no digital platforms, tracking systems, or internal automation), the social environment is equally resistant—anchored in legacy paper-based procedures, manual validation rituals, and hierarchical file movement.

The rigid file routing, sequential approval steps, and handwritten notations demonstrate a deeply embedded administrative culture. According to the theory, without addressing these social norms and organizational routines, introducing digital systems alone will not yield true transformation.

Technology Acceptance Model (TAM)

The interview data illustrates a clear divide in perceived usefulness and ease of use between different staff segments. Younger or tech-savvy employees expressed greater enthusiasm for digitization, highlighting anticipated benefits like faster turnaround, structured submissions, and improved traceability. In contrast, senior staff voiced concerns over loss of control, unfamiliarity with digital tools, and the potential for job disruption.

This aligns with TAM's proposition that user adoption is contingent upon individual perceptions of the technology's utility and usability (Davis, 1989). In the case of DRBA, the absence of exposure to digital tools—combined with fears rooted in institutional culture—creates a barrier to acceptance, even if tools were introduced tomorrow.

The failed attempt to accept a request via encrypted email from a commercial bank exemplifies this. While the sending bank demonstrated a clear intent to modernize and secure communication, DRBA lacked the technical means—and perhaps institutional openness—to properly respond, requiring a manual key retrieval process before proceeding.

Public Sector Innovation Theory

The challenges observed within DRBA are emblematic of what the Public Sector Innovation Theory describes as bureaucratic inertia and regulatory rigidity. This theory highlights the tendency of public institutions to resist change due to legal formalism, risk aversion, and rigid hierarchies (OECD, 2019).

Although many DRBA officers acknowledge the value of digitalization, their actions are constrained by a lack of legal recognition for electronic files, coupled with the absence of internal autonomy in IT development. Notably, DRBA—and other directorates—do not have dedicated IT departments; instead, all digital infrastructure is centralized under the Direction Générale de l'Administration et des Moyens, specifically within the Directorate of Security and Prevention. This centralized structure weakens the ability of individual units to initiate or manage digital solutions tailored to their workflows.

2.1- Empirical–Theoretical Nexus

This section aims to directly connect the empirical findings from the field study with the theoretical models explored in Chapter I. By mapping each observed theme to corresponding theoretical constructs, we reveal how real-world practices within the Bank of Algeria both reflect and challenge established models of digital transformation in the public sector.

2.2- Theme 1: Manual Workflows and Sequential Processing

Related to: Socio-Technical Systems Theory

The DRBA's current file processing model reflects a tightly controlled paper-based chain. Authorization files are passed physically from one desk to another, with each layer of review requiring signatures, notes, or memos before proceeding. This sequential logic leaves no room for parallel review, reallocation of responsibilities, or workflow flexibility.

From a socio-technical perspective, the "technology" subsystem is virtually non-existent—no document management software, no automated routing, no centralized access. More importantly, the "social" subsystem is deeply rooted in hierarchy and procedural validation, meaning that even if a digital system were introduced, its adoption would likely be resisted unless accompanied by organizational transformation.

Example: A file remains "on hold" if one director is absent, since no digital dele-gation or access alternative exists.

Workflow Characteristic	**Operational Effect**	**Theoretical Implication**
Manual routing of files	Slow file circulation	Weak socio-technical integration
Sequential validation	No parallel processing, delays	Organizational rigidity
Absence of shared platform	Lack of transparency and traceability	Siloed systems reduce collective efficiency
Signature-based authority	Delay if signatory is absent	Centralization of decision-making

table 5: impacts of sequentiel manual workflow

2.3- Theme 2: Perceived Benefits and Staff Division

Related to: Technology Acceptance Model (TAM)

The internal perception of digitization is divided. Younger staff, often educated with some exposure to IT systems, see digitization as a tool for efficiency and simplification. They're open to centralized platforms, e-signatures, and file tracking systems. Meanwhile, older employees, who have spent decades in a paper-dominant system, express fears about job security, loss of control, or being unable to adapt.

TAM explains this divergence through two key constructs:

- Perceived Usefulness: If the digital system speeds up work and clarifies responsibilities.
- Perceived Ease of Use: If it is intuitive and requires minimal training.

"Younger employees want to move faster. Older ones feel safer with the folder in hand." — Field Note.

2.4- Theme 3: Regulatory Ambiguity and Legal Inertia

Related to: Public Sector Innovation Theory

Digitization is paralyzed not by lack of awareness, but by fear of legal invalidity. Article 5 of Regulation 25-01 allows directorates to request additional documents, but it does not mention digital submissions, formats, or secure platforms. Without legal recognition of electronic submissions, staff are forced to reject or delay non-paper files—even encrypted ones.

This reinforces what Public Sector Innovation Theory identifies as regulatory conservatism: the public sector cannot move without permission, while the private sector moves unless for-bidden.

Example: The encrypted email case from a commercial bank showed how the pri-vate sector was pushing forward, but the public institution lacked the procedural flexibility to respond effectively.

2.5- Theme 4: Centralized IT Structure and Limited Autonomy

Related to: All Three Theories

During fieldwork, it was noted that no directorate has its own IT cell. All technology-related needs are referred to the central Direction Générale de l'Administration et des Moyens, un-der the Directorate of Security and Prevention.

This setup:

- **Delays minor IT requests** (e.g., access issues, digital tool deployment)
- Prevents **localized experimentation or pilot projects.**
- Removes DRBA's autonomy in adapting technology to its specific needs.

From a **Socio-Technical perspective**, this blocks local feedback loops.

From a **TAM perspective**, it limits user exposure, training, and acceptance.

From a **Public Sector Innovation view**, it removes structural incentives to innovate.

"Without control over tools, how can you reimagine your work?" — Interview Reflection

Dimension	**Observed Constraint**	**Impact on Digitization**
Technical Autonomy	No local IT support in DRBA	Slows digital adaptation
Change Responsiveness	Must request changes through central IT	Limits innovation speed
System Tailoring	Tools not adapted to DRBA-specific needs	Reduces perceived usefulness (TAM)
Infrastructure Feedback	No local testing or iteration possible	Breaks socio-technical balance

table 6: implication of centrelized IT control

2.6- Strategic Outlook and Digitization Scenarios

Building on the empirical observations and theoretical interpretation, this section proposes a forward-looking analysis of possible digitization pathways for interbank request processing in

Algeria. It reflects the perspectives of institutional actors, the readiness of the regulatory environment, and international practices in central banking digitization.

2.6.1- Acknowledging the Momentum from Commercial Banks

Field observations indicate that commercial banks are becoming increasingly proactive in seeking digital interaction with the central bank. The encrypted email example, where a bank submitted a secured request and required the Bank of Algeria to retrieve a code to access it, demonstrates that private-sector stakeholders are technologically ready and motivated.

This reveals an asymmetry: banks are evolving faster than their regulator. If left un-addressed, this gap may erode confidence in the central institution's responsiveness and capac-ity to supervise a modernized financial ecosystem.

2.6.2- Bridging the Internal Readiness Gap

For digitization to succeed within DRBA, the Bank of Algeria must invest not only in plat-forms, but also in organizational transformation. This includes:

- Clear policy endorsement from top leadership.
- Establishing decentralized IT support cells within major directorates.
- Training programs focused on digital literacy, document management, and workflow digitization.

2.6.3- Digitization Roadmap for Interbank Request Processing

One possible approach is a **phased implementation**:

1. **Phase I** – Create a secure digital portal for request intake and file status updates.

2. **Phase II** – Digitize internal workflows using document management systems.

3. **Phase III** – Integrate electronic signature validation and legal recognition frameworks.

Phase I – Digital Intake Portal and Communication Interface

Goal: Replace paper submission with a secure, centralized digital intake system for commercial banks.

Key Components:

- A secure web-based platform for banks to submit authorization requests (PDFs, scanned annexes, digital forms).
- User authentication with **encryption and secure access codes.**
- Automatic confirmation of receipt with case number and submission timestamp.
- Status tracking feature (view-only for banks).

Why it matters:

This phase responds directly to:

- The readiness of commercial banks (e.g., encrypted email case)
- The burden of manually logging and verifying file reception.
- Lack of traceability and transparency in request status.

Institutional Challenge:

- Requires legal backing for accepting digital files.
- Requires DRBA to establish a secure digital reception protocol.
- Staff must shift from physical file validation to digital screening.

Theoretical Link:

- TAM: Perceived usefulness is high for banks; ease of use must be ensured for DRBA staff.
- Socio-Technical Theory: Early socio-cultural adaptation to a digital channel.
- Public Sector Innovation: Regulatory shift to acknowledge new forms of communication.

Phase II – Internal Workflow Digitization within DRBA

Goal: Digitize internal processing, review, validation, and file transfer within DRBA.

Key Components:

- Implementation of a Document Management System (DMS).
- Role-based digital access to files (legal, technical, compliance officers).
- Commenting, internal version tracking, and automated reminders.
- Ability to send/receive files between DRBA sub-units without paper.

Why it matters:

- Tackles Theme 1 (manual routing and sequential validation).
- Addresses documentation rigidity and version confusion.

- Enables partial parallelization of tasks and reduces physical archiving needs.

Institutional Challenge:

- Requires training programs for all DRBA staff.
- May require gradual hybrid systems (paper + digital) during transition.
- Resistance from staff used to printed validation and sign-off culture.

Theoretical Link:

- Socio-Technical Systems Theory: Balance between technical infrastructure and work culture.
- TAM: Ease of use becomes critical for mid-level and senior staff.
- Public Sector Innovation: Organizational inertia must be managed through phased change.

Phase III – Legal Digitalization and Full Compliance Integration

Goal: Ensure that digital processes are legally recognized and integrated into the regulatory framework.

Key Components:

- Adoption of e-signature legislation compatible with banking regulatory operations.
- Integration of the intake and internal systems with SGCMB (Monetary Council Secretariat).
- Digital decision notification system (electronic archiving + official digital responses).
- Legal mandates requiring banks to use digital submission formats by default.

Why it matters:

- Eliminates dependency on paper for official decisions and notifications.
- Provides legal clarity and audit compliance.
- Enables historical performance monitoring, reporting, and data analytics.

Institutional Challenge:

- Requires collaboration with the Ministry of Finance, legal experts, and legislative bodies.
- Demands investment in cybersecurity, digital identity, and secure archiving.
- Cultural change in how “official” documents are perceived (digital vs. paper).

Theoretical Link:

- Public Sector Innovation Theory: Full transition from procedural rigidity to digital-by-

default regulation.

- Socio-Technical Theory: Final synchronization of institutional culture and technical systems.
- TAM: User trust becomes dependent on security, reliability, and legitimacy.

Visualization Suggestion:

Phase	Objective	Key Tools	Core Challenges
Phase I	Digital intake from banks	Portal + Encryption + Status Tracker	Legal ambiguity + staff training
Phase II	Internal digital file processing	DMS + Role-based Access	Workflow redesign + cultural inertia
Phase III	Legal integration and full digitization	E-signatures + Regulatory compliance	Legislative coordination + security

table 7: phased roadmao towaed full digitization

2.7- Summary of Key Insights

This final section of Chapter III consolidates the empirical findings and theoretical analysis presented so far. It aims to synthesize the key themes, reinforce the causal link between digitization and request processing efficiency, and prepare the foundation for the suggestions in the next chapter**.**

2.7.1- The Process Is Fundamentally Manual and Rigid

The current interbank request processing model within the Bank of Algeria—particularly at the DRBA—is characterized by:

- Full dependence on paper-based workflows.
- Lack of standardization in documentation.
- Sequential, hierarchical validation steps.
- Minimal technical infrastructure and IT autonomy.

These features create systemic bottlenecks that limit responsiveness, transparency, and efficiency, especially as the volume and complexity of requests increase.

2.7.2- Digitization Is Recognized as Necessary but Not Yet Enabled

While most institutional actors interviewed acknowledged the potential benefits of digitization—such as faster processing, greater traceability, and improved coordination—these aspira-tions remain largely aspirational. The absence of:

- Legal frameworks to accept digital files,
- Decentralized IT capacity within DRBA,
- And staff-wide digital literacy training,

has left the institution unprepared for meaningful digital reform, despite growing readiness among external actors (e.g., commercial banks).

2.7.3- Institutional Culture Is a Major Barrier

Beyond technical constraints, the transformation is hindered by cultural factors:

- Preference for printed validation and physical control over files.
- Resistance to change among senior personnel.
- Hierarchical processes that discourage experimentation or innovation.

These cultural dynamics reinforce **organizational inertia**, a core concern in public sector innovation theory.

2.7.4- Strategic Outlook Requires a Phased and Integrated Approach

The proposed roadmap, divided into three strategic phases—Digital Intake, Internal Work-flow Digitization, and Legal Integration—offers a realistic pathway forward. Each phase aligns with:

- Identified operational weaknesses,
- Theoretical insights (TAM, STS, PSI),
- And Algeria's regulatory environment.

Successful transformation will depend on the Bank of Algeria's ability to balance technology deployment with structural, legal, and human adaptation.

This summary closes the analytical core of the thesis. The following chapter will present actionable recommendations based on these findings, tailored to the institutional context and guided by international best practices.

Each phase would reduce dependence on manual processes and build institutional confidence in the new system.

Scenario	Description	Likely Outcome
Passive Adaptation	Wait for full legal reform before launching any system	Continued inefficiencies
Pilot-Based Reform	Implement small-scale pilots within DRBA to test digital solutions	Gradual acceptance and learning
Top-Down Mandate	Leadership imposes digitization with infrastructure and legal updates	Rapid transformation (high risk)
Collaborative Model	Co-develop platform with commercial banks, leveraging their readiness	Trust-building and innovation

table 8: strategic svenarios for digitization

The Collaborative Model appears especially promising, as it aligns with observed private-sector readiness and allows the Bank of Algeria to leverage external innovation while main-taining oversight.

2.7.5- Aligning with Global Standards

Globally, many central banks have adopted RegTech and SupTech solutions to modernize their supervisory frameworks. These technologies enhance regulatory compliance, automate reporting, and facilitate real-time oversight. Algeria's regulatory authorities could look to mod-els adopted by the European Central Bank or the Central Bank of Morocco, which have al-ready deployed partial digitization for license approvals and regulatory filings.

By adopting such models, the Bank of Algeria could not only modernize internal operations but also enhance its regional credibility and encourage innovation across the banking sector.

2.8- Suggestions:

2.8.1- Establish a Secure Digital Intake Platform for Authorization Requests

The Bank of Algeria should develop a centralized, secure digital platform where commercial

banks can submit product and service authorization files. This system should support encrypted document upload, identity verification, and automatic confirmation of receipt.

Justification:

This would address the inefficiencies of physical file transfers and align with the demonstrated readiness of commercial banks for digital submission. It also lays the foundation for end-to-end workflow digitization.

2.8.2- Implement an Internal Document Management System (DMS) within DRBA

To modernize internal operations, DRBA should adopt a DMS that supports role-based file access, version control, digital comments, and automatic status updates. This system should integrate the DRBA sub-directorates (Direction des Agréments and Direction de la Règlement Bancaire) under a unified digital workflow.

Justification:

This would significantly reduce processing delays, improve inter-unit coordination, and minimize the paper burden on staff. It would also mitigate the effects of staff absences on workflow continuity.

2.8.3- Decentralize IT Support Functions to Empower Directorates

The Bank of Algeria should restructure its IT governance model by establishing IT support units within each major general directorate, including DGCRB and DRBA. These units would coordinate with the central IT department but maintain local autonomy for implementing and managing directorate-specific systems.

Justification:

This would enable faster adaptation, localized training, and real-time technical support. It would also encourage directorates to take initiative in shaping their own digitization roadmaps.

2.8.4- Update Regulatory Frameworks to Recognize Digital Documentation and E-Signatures

A regulatory reform initiative should be launched to legally recognize digital document submissions, electronic signatures, and digital notifications. This reform should explicitly update or expand on existing frameworks such as Regulation 25-01 to include digital formats.

Justification:

Legal uncertainty is one of the primary reasons for institutional hesitation in adopting digital processes. This reform would offer legal assurance to staff, streamline compliance, and formalize digital interaction with banks.

2.8.5- Launch Targeted Digital Training Programs for Staff at All Levels

A comprehensive training program should be developed to build digital capabilities within DRBA, tailored to different staff profiles. Topics should include document digitization, platform usage, change management, and digital communication ethics.

Justification:

This would help bridge the generational digital gap observed within DRBA and reduce resistance to change. A more confident and capable workforce is essential to any transformation effort.

2.8.6- Pilot a Hybrid Workflow Before Full Digitization

Before launching full digital implementation, the Bank of Algeria should conduct a structured pilot within DRBA, using a hybrid model where files are processed both digitally and manually. Feedback from this pilot can then inform broader rollout.

Justification:

This phased approach allows testing, adjustment, and stakeholder engagement before enforcing top-down reform. It reduces the risk of disruption and builds institutional trust in the new process.

2.8.7- Collaborate with Commercial Banks in Designing the System

Rather than building the digital platform in isolation, the Bank of Algeria should consult and co-design the system with commercial banks, who are the primary users. A consultative committee can help define system features, security standards, and usage protocols.

Justification:

Such collaboration ensures higher adoption rates, aligns system design with real-world banking practices, and builds shared ownership of the digitization initiative.

2.8.8- Develop a Monitoring and Evaluation Framework for the Transition

As digitization efforts progress, a formal monitoring system should be established to track key indicators such as processing time, error rates, user satisfaction, and legal compliance. Periodic reports can be shared with leadership and stakeholders.

Justification:

This promotes accountability, supports continuous improvement, and allows evidence-based decision-making throughout the digital transformation journey.

2.9- Perspectives:

2.9-1. Extending the research to other directorates

As our study was held at the DGCRB, which is only one directorate that receives requests, it'd be enriching to the literature to get other directorates' insights.

2.9-2. Quantify the impact of digitalization

For PhD students who will be having larger times to study the digitalization of the products approval request, the quantitative approach will be present the value of this innovation.

2.9-3. Study commercial banks' insight

Our internship only allowed to get the central bank's insight, yet, this operation requires the interaction of both banks. Therefore, the exploration of the commercial bank's insights' is highly important to study the feasibility of this digitalization.

General Conclusion

The digitalization of interbank request processing in Algerian financial institutions reveals a deep-rooted tension between the drive for operational efficiency and the systemic constraints of the national context. While digital tools promise gains in speed, error reduction, decision consistency, and regulatory compliance, these benefits remain largely unrealized in practice.

A closer examination through theoretical and analytical frameworks shows that digitalization can directly impact the efficiency of banking operations, although its success depends heavily on factors such as infrastructure readiness, regulatory flexibility, and institutional receptiveness. The interplay of institutional and digital infrastructure theories offers valuable insight into the transformations—either occurring or stalling—within central and commercial banking systems.

Field observations confirm that, despite an awareness of the advantages of digitalization, the reality remains one of manual procedures, fragmented communications, and numerous technical, organizational, and legal barriers. The situation is particularly complex in the realm of Islamic finance, where additional procedural and compliance steps have yet to be digitally integrated. These conditions create a fragmented operational environment, lacking centralized platforms and marked by resistance to change and limited technological maturity.

Digital transformation in this sector should not be viewed as a mere technological enhancement. It demands structural reform driven by a clear, gradual, and systemic vision. Before introducing new tools, processes must be streamlined, infrastructure modernized, and the legal framework adapted—especially with regard to the recognition of digital documents and the management of cybersecurity risks.

In response to these constraints, a symbiotic strategy is needed—one that integrates human expertise and technology, aligns regulation with innovation, and bridges strategic ambitions with institutional realities. The objective is not simply to follow global trends, but to shape a transformation model tailored to the Algerian environment, promoting both performance and inclusivity. This requires targeted pilot initiatives, investment in digital skills, and a phased integration of technologies where they can deliver the most immediate impact.

Ultimately, the success of this transformation depends on its ability to evolve as an intelligent and adaptive process. By harmonizing technological advances with governance frameworks and cultural realities, Algerian financial institutions can build a digital future that is modern, sovereign, and resilient.

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Annexes:

(INTERVIEW GUIDE)

Ministère de l'Enseignement Supérieur
et de la Recherche Scientifique

Ecole Nationale Supérieure de Management
Koléa

وزارة التعليم العالي و البحث العلمي

المدرسة الوطنية العليا للمناجمنت
القليعة

Interview guide

Good morning M. X, we are Maroua LOUNES and Sirine HARROUZ, e-government (EG) master's degree students from the National Higher School of Management (ENSM koléa).
First of all, we would like to thank you for agreeing to participate in this interview and for the time you are dedicating to us.

This interview is part of a study we are conducting on.:
Digitizing Interbank Oversight: Transition from Paper-Based to Digital Product Request

Interview conditions:

Before we begin, we would like to clarify a few points:

- We would like to assure the confidentiality of our discussion.
- We remind you that this interview is conducted purely for academic and pedagogical purposes, in a completely anonymous manner, and nothing will link your responses to your identity or your organization.
- We will ask you a few questions, and there are no right or wrong answers. We are interested in whatever comes to your mind, so the spontaneity of your responses is valuable to us.
- We would like to know if we may record our conversation to facilitate data collection.
- Does this work for you? Do you have any questions before we begin?

Grill of questions related to the semi-structured interviews	
Parts	**Questions**
1. The Current Authorization Process	1- Can you briefly describe how a banking product/service authorization request is currently handled? 2- Which departments are involved in processing the request? 3- What do you think are the main constraints of the current paper-based process?
2. The Digitization of the Process	4- Is there currently a project or tool underway to digitize these requests? 5- What changes have been introduced with digitization? 6- What objectives are sought through this digitization?

Closing: Lastly, the interview is closed with expressions of gratitude.

3. Perceptions and Feedback	7- What do you think are the concrete benefits observed (or expected) since digitization? 8- What difficulties or resistance have you encountered in this process? 9- How are compliance certificates for Islamic financial products handled in this new system?
4. Strategic Vision and Perspectives	10- Do you think this digitization can enhance the effectiveness of interbank supervision in Algeria? Why? 11- What improvements or developments would you suggest for the future?