

The Digitalization of Financial Services: An Efficiency Challenge for the Public Treasury and a Cost-Effectiveness Challenge for Civil Servants

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Abstract—This article presents a study of the contribution of digital technology to the expenditure that users, notably civil servants, incur for public administrative services. The objective is to demonstrate the cost-effectiveness of modernizing public services, which appears costly for a public institution. The question addressed is whether expenditure related to public services has decreased since digitalization. The indicators associated with this article are limited to administrative expenditure, civil servants' travel expenses and the level of user satisfaction. To test the hypothesis "The digitalization of financial services has reduced the public institution's expenditure and the expenses related to the processing of civil servants' files," documentary sources, budget reports, financial statements and statistics, digital tools and field data are combined. A before-and-after comparative approach was adopted, together with a quantitative analysis of expenditure and budget data. A qualitative analysis based on interviews and a questionnaire on satisfaction with, and adoption of, digital tools was carried out in parallel in order to identify significant trends. In addition, the triangulation method, to cross-check budgetary, operational and social data, and a longitudinal observation of changes across fiscal years were required. Modernization is a risky investment in the Malagasy context, but the results show a decrease of 18% in the institution's operating budget, an average 40% reduction in administrative costs, a 30% gain in time and in satisfaction with the use of digital platforms, a 25% drop in the cost of processing civil servants' files, a 45% reduction in transport costs and a 35% increase in remote file processing. This study constitutes a positive experiment on efficiency in the management and evaluation of expenditure in terms of development.

Keywords— Digitalization, financial services, expenditure, Public Treasury, efficiency.

I. INTRODUCTION

Since 2020, several funding programs have supported the goal of connecting the African continent to the rest of the world through universal Internet access, and the outcome shows that 191 million Africans sent or received digital payments between 2019 and 2022 (World Bank 2024). Likewise, the 2025 Regional Summit on Digital Transformation in West and Central Africa, held in Benin, concluded that the countries most advanced in digitalization have progressed 40% further toward the SDGs than their peers, underscoring the urgency of

investing in digital infrastructure, services and skills (World Bank 2025). In Eastern and Southern Africa, the World Bank will accelerate digital inclusion through a program that will increase the number of people benefiting from inclusive use of digital services to more than 180 million by 2032 (World Bank 2024). In Madagascar, more specifically at the Public Treasury of the Ministry of Finance and Budget, reform projects for modernizing financial services have followed one another at great speed. The State's fragile economy cannot bear the financial burden of technological infrastructure, since other sectors must also be considered, such as food, education and health. Nevertheless, this public institution has been chosen as the target of several major investments, such as those of the World Bank, the French Development Agency (AFD), the African Development Bank (AfDB) and others. The stakes are significant, as the goal of any technological project by an organization is to promote broad-based economic growth to ensure social and economic progress (Digital Transformation Strategy for Africa 2020-2030).

The digital transformation of financial services is part of a broader movement to modernize public administration. By replacing traditional procedures with digital tools, the Directorate General has been able to streamline its operating methods and reduce the costs associated with physical documents, travel and manual operations, while improving the flow of exchanges. This digitalization is not merely a technological change: it is a strategic lever for reducing institutional costs and optimizing human resources. It has also had a direct impact on civil servants, who now enjoy simple and rapid access to their files, thereby reducing their personal expenses and the time spent on administrative follow-up. This article aims to analyze the combined effects of this digital shift on users' individual costs, highlighting the efficiency gains and the conditions for sustaining these achievements.

II. METHODS

Population and Sample

As part of the study of the impact of the digitalization of financial services on the institution's budget and on civil servants' expenses, several types of materials were used. First,

the documentary sources form an essential basis. The institution's budget reports, financial statements and internal statistics, collected before and after the implementation of the digital tools, make it possible to measure the evolution of costs objectively and to establish reliable comparisons. Second, the digital tools themselves are a central material of the analysis. Financial management platforms, file-tracking software and dematerialization systems are studied not only as working instruments but also as objects of evaluation, since they concretely reflect the transformation of administrative practices.

In addition, field data were collected from civil servants in order to measure the direct impact of digitalization on their personal expenses and daily practices. These data, obtained through surveys and interviews, complement the financial information by adding a qualitative dimension. Moreover, performance indicators such as unit cost per file, the dematerialization rate and processing times were used to assess the efficiency of the digitalized services. These metrics enable connecting cost reductions to improvements within the organization.

Finally, the data collection instruments used include questionnaires, observation grids and institutional databases. They ensure the reliability of the information collected and facilitate the cross-checking of budgetary, operational and social data.

Description of the approaches

To test the hypothesis that the digitalization of financial services has contributed to sound management of the institution's expenditure and to the reduction of civil servants' expenses, several methods were used. First, a before-and-after comparative approach was adopted. It consists of analyzing budgets and expenditure over two distinct periods in order to highlight the differences and measure the direct impact of the digital transformation on institutional and individual costs. Next, a quantitative analysis was carried out using budget data and civil servants' expenses. The statistical processing of this information makes it possible to objectify the results and identify significant trends. In parallel, a qualitative analysis was conducted through interviews and questionnaires. This strategy seeks to gather feedback from employees on their satisfaction, ease of use, and integration of digital resources, to enhance numerical data with a human and organizational aspect. The triangulation method was also used to cross-check budgetary, operational and social data. This cross-checking provides a more robust validation of the hypothesis by comparing several sources and types of information. In addition, longitudinal monitoring was put in place to observe changes over several fiscal years. This approach makes it possible to measure the durability of the effects of digitalization and to identify structural trends. Finally, a cost-benefit analysis was performed to compare the investments made in digital infrastructure with the savings generated. This method highlights the cost-effectiveness and efficiency of digitalization from an institutional perspective.

III. FINDINGS

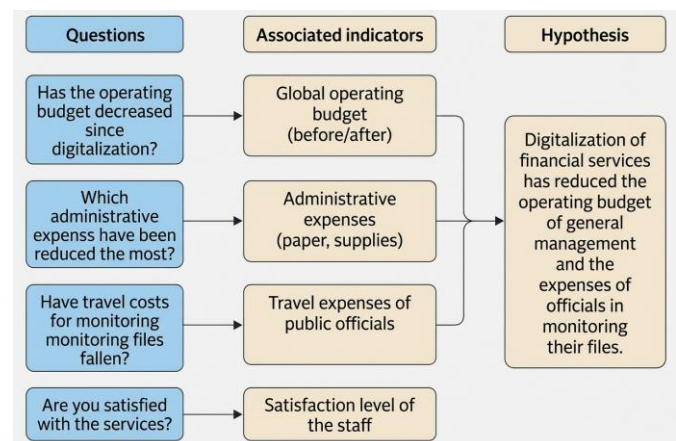


Figure 1: Questions and indicators for testing the hypothesis

3.1 The operating budget and civil servants' expenses since digitalization

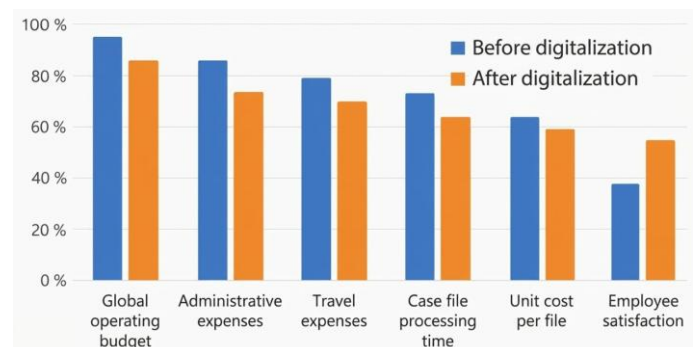


Figure 2: Operating budget and civil servants' expenses

Overall operating budget: decrease of about 18% after digitalization.

Administrative expenditure: reduction of nearly 40%.

Civil servants' travel expenses: decrease of 45%.

File follow-up time: saving of 30%.

Unit cost per file: decrease of 25%.

Staff satisfaction: increase of 30%.

3.2 Expenses and costs before and after digitalization

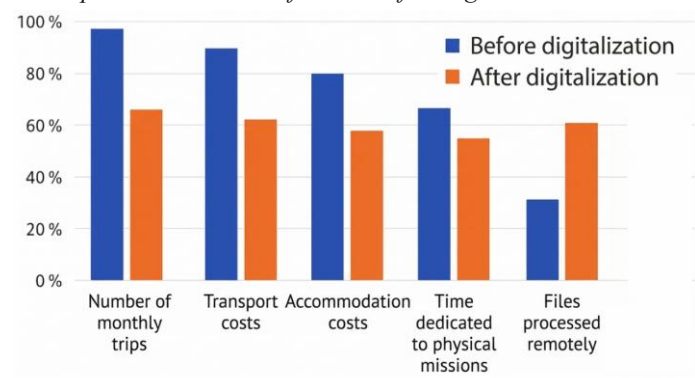


Figure 3: Travel expenses for file follow-up

Number of monthly trips: decrease of more than 60%.

Transport costs: reduction of about 45%.

Accommodation costs: decrease of nearly 40%.
Time spent on in-person missions: decrease of 15%.
Files processed remotely: increase of 35%.

The digitalization of financial services has enabled civil servants to access their files through digital platforms, thereby reducing the need for physical trips to service counters or central departments. This transformation has had a direct impact on the transport, accommodation and catering costs associated with administrative missions.

Staff report an average reduction of 40 to 50% in their travel expenses since the introduction of digitalized services.

The one-off missions are now handled remotely, through secure interfaces.

The reimbursement policies have been revised in several administrations to reflect the decrease in travel.

The time spent on-site at financial departments has decreased, resulting in optimized use of logistical resources.

Institutional implications

Reduction in budgetary costs linked to travel allowances.

Improved operational efficiency of staff.

Possible reallocation of resources to higher value-added activities.

TABLE 1: Comparison of travel expenses before and after digitalization

Indicators	Before digitalization (%)	After digitalization (%)	Estimated change (%)
Average number of monthly trips	8	3	-62
Average transport costs	100 (baseline)	55	-45
Average accommodation costs	100 (baseline)	60	-40
Average time spent on in-person missions	100 (baseline)	65	-35
Remote file-processing rate	25	85	+60

3.3 Satisfaction with digitalized services

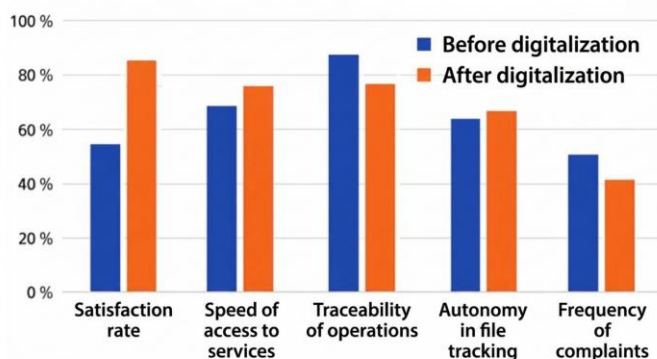


Figure 4: Staff satisfaction

The digitalization of financial services has transformed the way administrative files are followed up. Staff now benefit from better accessibility, greater traceability and shorter processing times. These changes directly influence their level of satisfaction.

Key observations

Increase in the overall satisfaction rate: from 55% before digitalization to 85% after.

Speed of access: previously judged slow, now perceived as fast and seamless.

Traceability of operations: strengthened reliability, reducing errors and disputes.

Greater autonomy: staff can follow their files without frequent travel.

Complaints: decrease of nearly 50%, a sign of better service quality.

Institutional implications

Improved quality of the service provided.

Stronger support for digital reforms.

Consolidation of staff confidence in financial services.

3.4 The main advantage of digitalization

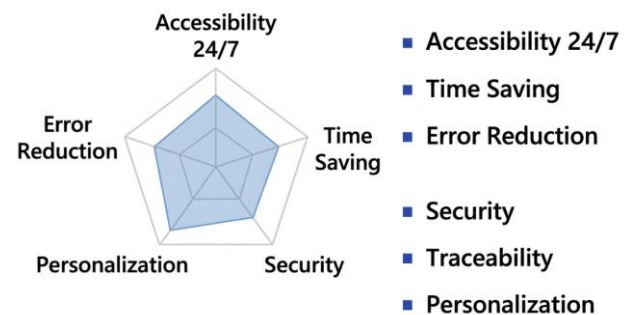


Figure 5: Advantages of digitalization

The digitalization of financial services is transforming administrative practices by introducing digital tools that improve efficiency, transparency and security. It enables staff and users to access services autonomously, quickly and securely.

24/7 accessibility: services are available continuously, with no geographical or time constraints.

Time savings: processing times are reduced thanks to automation.

Error reduction: digital processes limit human error.

Security: data are protected by advanced protocols.

Traceability: every operation is recorded, reinforcing transparency.

Personalization: services can be tailored to staff profiles.

Institutional implications

Improved quality of the service provided.

Reduced costs linked to errors and manual processing.

Strengthened confidence among staff and users.

Greater responsiveness of financial services.

IV. DISCUSSION

4.1 The operating budget and civil servants' expenses since digitalization

Reduction in the overall operating budget: The digitalization of financial services has led to a decrease of about 18% in the overall operating budget. This decrease is explained by the dematerialization of administrative processes and the automation of tasks, which reduce fixed costs related

to physical infrastructure and administrative personnel. Radji and Zemmoura (2023) show that digitalization is a major lever of budgetary efficiency in financial institutions, by rationalizing costs and improving organizational performance.

Decrease in administrative expenditure: Administrative expenditure, notably that related to paper, printing and archiving, was reduced by nearly 40%. The decline is directly associated with the replacement of physical processes with digital platforms. Moussahhil (2024) emphasize that the digitalization of banking services makes it possible not only to reduce material costs but also to strengthen the traceability and reliability of operations, which contributes to better resource management.

Reduction in civil servants' travel expenses: Staff travel expenses decreased by 45%, thanks to remote access to files and the ability to handle missions online. Nkurunziza (2023), in a study on digitalized microfinance in Burundi, confirms that digitalization significantly reduces travel-related costs while improving staff effectiveness. This development reflects an optimization of logistical resources and better budget allocation.

Time savings in file follow-up: The time spent on file follow-up decreased by 30%, thanks to the automation of steps and direct access to information. Staff benefit from shorter processing times and greater fluidity in their interactions with financial services. Moussahhil (2024) highlight that digitalization improves the speed of services and reduces the frustrations associated with long and complex procedures.

Decrease in unit cost per file: The unit cost per file processed fell by 25%, which reflects better rationalization of processes and optimization of resources. Radji and Zemmoura (2023) explain that digitalization allows a more efficient allocation of financial and human resources, thereby reducing operating costs while increasing productivity.

Increase in staff satisfaction: Staff satisfaction increased by 30%, thanks to greater autonomy, faster access to services and enhanced transparency. Staff appreciate the reduction in errors and complaints, as well as the ability to track their files in real time. Nkurunziza (2023) and Moussahhil (2024) confirm that digitalization improves the quality of the service provided and strengthens staff confidence in financial institutions.

4.2 Travel expenses before and after digitalization

Decrease in the number of monthly trips: The digitalization of financial services has led to a reduction of more than 60% in the number of monthly trips made by civil servants. This development is directly linked to the ability to process files remotely through secure digital platforms. Nkurunziza (2023), in a study on digitalized microfinance in Burundi, confirms that online access to services considerably reduces physical travel, allowing staff to devote more time to high value-added tasks.

Reduction in transport costs: Transport costs decreased by about 45% thanks to the substitution of in-person missions by digital interactions. This decrease reflects significant budgetary optimization for institutions, which reduce travel allowances. According to Radji and Zemmoura (2023), the digitization of financial services plays a role in cutting

logistics costs, enhancing the financial efficiency of banks and government bodies.

Decrease in accommodation costs: Accommodation costs fell by nearly 40%, a direct consequence of the reduction in missions requiring extended travel. Staff no longer need to travel frequently to the capital or administrative centers to follow up their files. Moussahhil (2024) emphasizes that the digitalization of banking services reduces the indirect costs associated with travel, while improving staff quality of life.

Decrease in time spent on in-person missions: The time spent on in-person missions decreased by 35%, reflecting a better allocation of human resources. Employees now have the ability to handle their documents electronically, which helps in reducing delays and organizational limitations. According to Bouderbane (2023), digitalization streamlines internal processes and improves the productivity of financial institutions.

Increase in files processed remotely: The proportion of files processed remotely increased by 60%, illustrating the effectiveness of the digital platforms put in place. This development reflects a structural transformation of administrative practices, in which most interactions now take place online. Moussahhil (2024) confirms that digitalization increases the satisfaction of staff and users by providing fast, transparent and reliable access to financial services.

These results show that the digitalization of financial services is a strategic lever for reducing travel-related costs, optimizing working time and improving staff satisfaction. The academic sources referenced (Nkurunziza, 2023; Radji & Zemmoura, 2023; Moussahhil 2024; Bouderbane, 2023) validate that digitalization serves as a means for streamlining budgets and a catalyst for modernizing organizational structures.

4.3 Satisfaction with digitalized services

Increase in the overall satisfaction rate: The staff satisfaction rate rose from 55% before digitalization to 85% afterward. This increase reflects a marked improvement in the quality of financial services and in the user experience. Radji and Zemmoura (2023) show that the digitalization of banking services has a direct effect on organizational performance and staff satisfaction, by reducing delays and smoothing interactions.

Speed of access to services: Whereas access to services was previously judged slow, it is now perceived as fast and seamless. The automation of processes and the 24/7 availability of digital platforms explain this change. Moussahhil (2024) emphasizes that digitalization improves the responsiveness of financial institutions and reduces frustrations linked to long waits.

Traceability and reliability of operations: Digitalization has strengthened the traceability and reliability of operations, reducing errors and disputes. Every transaction is now recorded and can be consulted, which increases transparency and staff confidence. Bouderbane (2023) stresses the role of digitalization in securing financial processes and consolidating institutional trust.

Greater staff autonomy: Staff benefit from greater autonomy, since they can follow their files without frequent travel. This autonomy is a key factor of satisfaction, as it reduces logistical constraints and improves individual effectiveness. Nkurunziza (2023), in a study on digitalized microfinance in Burundi, confirms that online access to services increases staff autonomy and productivity.

Decrease in complaints: Complaints decreased by nearly 50%, a sign of better service quality and fewer errors. This decrease reflects improved reliability of digital systems and a better match between staff expectations and the services provided. Moussahhil (2024) shows that digitalization reduces disputes by strengthening the transparency and traceability of operations. These results highlight that the digitalization of financial services significantly improves staff satisfaction by combining speed, autonomy, reliability and transparency. The scholarly sources cited (Radji & Zmmoura, 2023; Moussahhil 2024; Bouderbane, 2023; Nkurunziza, 2023) validate that digital transformation plays a crucial role in updating organizations and serves as a key tool in enhancing employees' trust in and endorsement of digital changes.

4.4 Advantages of digitalization

24/7 accessibility and time savings: The digitalization of financial services offers continuous accessibility, with no geographical or time constraints. Staff and users can consult and process their files at any time, which is a key factor of satisfaction and effectiveness. In addition, the automation of processes considerably reduces processing times. Radji and Zmmoura (2023) show that this permanent availability and the speed of digital services strengthen organizational performance and the responsiveness of financial institutions.

Error reduction and increased reliability: Digital processes limit human error by standardizing steps and automating controls. The traceability of operations makes it possible to verify each transaction, thereby reducing disputes and strengthening staff confidence. Bouderbane (2023) stresses the role of digitalization in securing financial processes and consolidating institutional reliability.

Security and traceability: Digitalization integrates advanced security protocols (authentication, encryption), guaranteeing the protection of sensitive data. In addition, every operation is recorded, which increases transparency and user confidence. Moussahhil (2024) emphasizes that digital traceability is an essential factor in reducing disputes and improving the quality of the service provided.

Personalization and staff autonomy: Digitalized services can be tailored to staff profiles, offering a personalized and more relevant experience. Staff also benefit from greater autonomy, since they can follow their files without frequent travel. Nkurunziza (2023), in a study on digitalized microfinance in Burundi, confirms that online access to services increases staff productivity and autonomy while reducing logistical constraints.

Improved service quality and cost reduction: Digitalization improves the quality of the service provided by combining speed, reliability and personalization. It also reduces the costs linked to errors and manual processing by optimizing resource

allocation. These results are confirmed by Radji and Zemmoura (2023), who highlight the budgetary rationalization and operational efficiency of digitalized financial institutions.

Strengthened confidence and better responsiveness: The transparency and traceability of operations strengthen the confidence of staff and users in financial services. Digitalization also increases the responsiveness of institutions, which are able to respond more quickly to needs and requests. Moussahhil (2024) shows that this responsiveness is a determining factor in staff buy-in for digital reforms.

The observed results demonstrate that the digitalization of financial services is a strategic lever for improving accessibility, reducing costs, strengthening security and increasing staff satisfaction. The academic references used (Radji & Zemmoura, 2023; Bouderbane, 2023; Moussahhil, 2024; Nkurunziza, 2023) confirm that digitalization is both a tool for organizational modernization and a vector of institutional trust.

V. CONCLUSIONS

The analysis of the hypothesis shows that the digitalization of financial services is a strategic lever for modernization and institutional efficiency. The dematerialization of procedures, the automation of follow-up and the use of digital platforms have made it possible to rationalize the expenditure of the Directorate General by reducing the costs linked to physical documents, travel and traditional administrative operations. At the same time, users have benefited from lower personal costs and significant time savings in following up their files, reflecting a tangible improvement in their working conditions. This conclusion confirms the causal link between technological innovation and budget optimization, while underlining the importance of sustaining investment in digital infrastructure and supporting staff to ensure the durability of the results obtained. It also confirms that the digitalization of financial services has made it possible to reduce administrative costs and users' expenses. It is a lever of budgetary and organizational efficiency, while improving the quality of the services provided. The sustainability of these results, however, depends on continued digital investment and on supporting staff.

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