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THE DIGITALIZATION OF PREVENTIVE FINANCIAL CONTROL: IT SOLUTIONS FOR THE EFFECTIVE MANAGEMENT OF EU-FUNDED PROJECTS

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Abstract: *The acceleration of digitalization in both public administration and the private sector has created significant opportunities for modernizing preventive financial control mechanisms applied in EU-funded projects. In a context where both public institutions and private companies manage substantial budgets derived from non-reimbursable funds, it becomes essential that preliminary verifications of expenditure compliance be integrated into robust, standardized, and user-friendly IT systems. This paper analyzes how digitalization supports the efficiency, traceability, and transparency of preventive financial control activities, based on best practice studies and real-world implementation examples. A particular focus is placed on the MySMIS 2021 platform, which includes a dedicated public procurement module requiring the upload of related documentation. However, in the absence of automatic validation or approval from the managing authority, this process remains incomplete, and the risk of financial disengagement persists. It is proposed that IT systems should include preliminary validations, automatic generation of procurement calendars, and standardized electronic forms based on the procedure type and applicable legislation. Another development path concerns the institutional digitalization of the preventive financial control visa (CFP), enabling both public and private beneficiaries to receive electronic payment authorizations, with complete traceability integrated throughout the project lifecycle. The study employs a qualitative methodology, combining documentary analysis with selected case studies, and highlights both the benefits of digitalization and the challenges posed by limited system interoperability and the need to adapt human capital.*

Keywords: *digitalization, preventive financial control, European funds, IT solutions, public procurement, CFP visa, financial management, public sector, private sector*

JEL Classification: *G32, P43, H10, H83*

1. Introduction

Over the past two decades, the process of digitalization has evolved rapidly, becoming a central pillar in the modernization of public administration and economic governance mechanisms. Particularly in the context of managing European funds—where transparency, efficiency, and accountability are paramount—digitalization is no longer merely a technological aspiration but a fundamental prerequisite for sound financial governance.

EU-funded projects inherently operate within a complex regulatory framework, marked by strict deadlines and procedural obligations, applying equally to public institutions and private beneficiaries. Within this framework, preventive financial control, a cornerstone of internal control systems, plays a strategic role by validating the legality and regularity of expenditures in advance. In Romania, this mechanism is institutionalized through the CFP visa, a formal condition for authorizing payments within the public sector.

Digitalizing such mechanisms can bring significant benefits in terms of efficiency, traceability, and reduced error risk. For instance, the MySMIS 2021 platform—used in the management of EU-funded projects—includes a module for uploading procurement documentation. However, in its current form, it does not offer automatic validation or approval by the managing authority. This shortcoming perpetuates uncertainty among beneficiaries and may lead to financial losses or temporary project suspensions. There is a clear need for the development of enhanced functionalities, such as prior digital approval of procurement documentation, automatic generation of procedural calendars based on procurement type, and the use of standardized smart forms.

This paper aims to examine how digitalization can transform preventive financial control into a proactive, intelligent, and integrated process, tailored to the operational realities of EU-funded projects. The study considers both existing digital solutions and prospective development directions, with a focus on creating a unified national framework applicable across the public and private sectors alike.

The guiding research question is: *How does the use of IT solutions influence the efficiency and effectiveness of preventive financial control in managing EU-funded projects, within an evolving administrative and regulatory digital environment?*

The article is structured as follows: the first part presents the theoretical and conceptual framework concerning preventive financial control and public sector digitalization; the methodology section then outlines the documentary analysis and case studies. The central part addresses key findings and related discussions, followed by conclusions and recommendations for policymakers and practitioners.

2. Theoretical and Conceptual Framework

Preventive financial control represents a fundamental component of the internal control system, tasked with verifying the legality, regularity, and compliance of economic and financial operations prior to the commitment or disbursement of public funds. In Romania, this mechanism is regulated by Order no. 923/2014 of the Ministry of Public Finance and serves as an institutional safeguard designed to prevent financial losses to the public budget. In the case of EU-funded projects, preventive control takes on heightened significance due to the stricter compliance requirements imposed by European legislation, funding regulations, and financing agreements—responsibilities that apply equally to public institutions and private beneficiaries.

Within this context, digitalization emerges not merely as a technological trend, but as a functional necessity for enhancing efficiency, traceability, and accountability in public fund management. The evolution of digital transformation in the public sector initially occurred in a fragmented and reactive manner. However, recent years have witnessed the maturation of national digital strategies aimed at promoting interoperability, automation, and standardization of information flows. These processes have been accelerated by conditionalities under the 2014–2020 cohesion policy and by the need to implement more transparent and rigorous control mechanisms.

IT solutions developed to support preventive financial control now play a strategic role. These range from specialized verification modules embedded in ERP systems to integrated platforms such as MySMIS, which manage the entire project lifecycle. Despite evident progress, the digitalization of these processes remains incomplete. For example, although procurement documentation can be uploaded electronically, the absence of automated validation or managing authority feedback reduces overall system efficiency. Additionally, the lack of standardized forms complicates procedural compliance and undermines consistency in implementation.

The academic literature addresses these issues from multiple perspectives. Some scholars (e.g., Dimitriu, 2020; Mihăilescu, 2018) highlight the operational efficiencies generated by digitalization, while others (Popa and Ștefănescu, 2022) emphasize the value of traceability and institutional accountability in financial execution. Persistent challenges are also identified: limited interoperability, institutional resistance to change, insufficient training of personnel, and regulatory fragmentation.

Examples of good practices include the use of MySMIS in Romania, applications developed by well-established providers such as Integrisoft and SIVECO for local government, and international solutions aligned with advanced digital governance models, such as those implemented in Estonia or the Netherlands. These cases underscore the fact that the success of digital financial control depends not only on technology but also on legislative coherence, organizational culture, and the capacity to integrate financial and operational processes into a standardized, intelligent framework.

In conclusion, the theoretical and conceptual framework of this research positions preventive financial control as a dynamic process, situated at the intersection of legal compliance, institutional efficiency, and technological innovation. Digitalization is not an end in itself, but a means of transforming financial practices into a coherent, predictable, and integrated system applicable across both the public and private sectors.

3. Concrete benefits of digitalization in preventive financial control

The digitalization of preventive financial control in EU-funded projects has led to a series of structural improvements in financial decision-making, procedural transparency, and institutional risk management capacity. These benefits are particularly evident in projects utilizing the MySMIS 2021 platform, as well as among beneficiaries who have implemented project-configured ERP systems.

A first observable benefit is the optimization of operational workflows within the financial verification process. MySMIS 2021 centralizes project-related documentation—budgets, procurements, payment requests, contracts, reports—in a standardized and secure format, thereby reducing informational fragmentation and minimizing the risk of data loss or degradation. This centralization facilitates fast access to key documents for internal or external verification and ensures complete, auditable digital archiving.

Additionally, a significant reduction in document processing time has been noted, particularly during the verification of reimbursement claims. The platform allows real-time tracking of document status, while built-in notification features reduce delays caused by communication gaps between internal departments and the managing authority. In institutions using ERPs integrated with internal control workflows, these time savings are even more substantial due to automated internal approvals.

Another key benefit is the increased traceability of financial decisions, a fundamental condition for sound public fund governance. Every action performed on the platform—upload, modification, resubmission—is logged and linked to a specific user, allowing for an accurate reconstruction of the operation history. This not only enhances administrative transparency, but also simplifies the work of audit bodies (Managing Authorities, Court of Accounts, internal auditors), which can directly access the documents without requiring additional submissions from beneficiaries.

A collateral, yet significant advantage is the prevention of financial disengagements—a phenomenon that, in the EU funding context, can lead to substantial budgetary losses for Romania. When digitalization is properly implemented, it enables early identification of incomplete documentation, procedural errors, or discrepancies between supporting documents and legal requirements. This early detection allows beneficiaries to rectify issues in due time, avoiding situations where already-incurred expenses are later deemed ineligible. Moreover, digital systems contribute to strengthening institutional capacity by enforcing procedural discipline and creating the foundations for financial management based on clear, predictable, and verifiable rules. These benefits are particularly pronounced in public institutions with complex hierarchical structures, where digitalization facilitates interdepartmental coordination and accountability of those involved in project management.

In summary, digitalization offers not only enhanced speed and efficiency, but also a paradigm shift in how preventive financial control is understood and applied: moving from a formal, often bureaucratic validation, to an integrated, intelligent process genuinely focused on mitigating financial risk.

3.1. Systemic Limitations and Dysfunctionalities

Despite clear progress in the digitalization of preventive financial control, the applied analysis of ongoing EU-funded projects reveals a series of systemic dysfunctions and technical limitations that hinder the overall efficiency and coherence of the process—particularly within the MySMIS 2021 platform.

The most frequently reported issue is the absence of real-time validation mechanisms for documents uploaded to the system, especially in the public procurement module. In its current form, the platform allows the submission of procurement documentation but does not provide automated, institutional, or formal feedback on the compliance of submitted materials. This procedural ambiguity leads, in practice, to beneficiaries advancing to subsequent stages (e.g., contracting, implementation) without prior confirmation of the legality or validity of the preceding steps.

The direct consequence of this dysfunction is the occurrence of financial disengagements—that is, the classification of incurred expenses as ineligible due to procedural noncompliance that was not detected or flagged in time. This leads to direct financial losses for the national budget and undermines the credibility of the EU fund management mechanisms.

Another major limitation lies in the redundancy of the document submission process, which requires beneficiaries to upload the same documents in multiple sections of the platform or at different implementation stages. The lack of functionality to automatically retrieve previously validated documents results in unnecessary delays, consistency errors, and an inflated administrative burden. This issue is especially acute for institutions managing multiple projects simultaneously and struggling with limited specialized personnel.

A further challenge is the lack of interoperability between MySMIS 2021 and other essential financial systems, most notably the State Treasury's digital infrastructure. In the absence of direct interconnection, beneficiaries must operate in parallel digital environments, using different document formats and separate approval procedures. This fragmentation significantly reduces institutional responsiveness and diminishes the overall added value of digitalization.

Beyond technical shortcomings, the research highlights recurring institutional problems, including:

- resistance to change among administrative personnel,
- insufficient continuous training for system users,
- the lack of standardized internal procedures across different types of beneficiaries (e.g., public authorities, universities, NGOs).

These dysfunctions are not merely operational—they reflect a deeper issue of digital governance, namely the lack of a unified and coherent vision regarding the digitalization of financial control processes, both at the policy-making level and within institutional practice.

In conclusion, while existing IT platforms provide a promising technological framework, the actual effectiveness of digital preventive financial control remains constrained by the absence of key functionalities, limited system interoperability, and institutional inconsistencies that hinder the coherent implementation of good financial governance principles.

4. Development Directions: Technical and Institutional Proposals

Based on the analyzed results and consultations with practitioners directly involved in the implementation of EU-funded projects, a clear set of development directions and intervention measures emerges, aimed at enhancing the efficiency and relevance of digital preventive financial control. These proposals address both the technological dimension—by introducing essential functionalities into digital platforms—and the institutional component, through the harmonization of procedures and the development of professional competencies.

A first necessary measure is the integration of a digital pre-validation module into the MySMIS 2021 platform, particularly in the area of public procurement. This module should allow the managing authority to issue an electronic approval or digital visa confirming the compliance of procurement documentation before the contract is signed with the supplier. Such validation—whether fully automated or assisted by human expertise in a digital environment—would significantly reduce the risk of financial disengagements and provide greater predictability for beneficiaries.

In parallel, the development of an automated procedural calendar generation mechanism is recommended, based on the procurement type, estimated value, and initiation date. This function would ensure compliance with legal deadlines and serve as a digital operational guide, directly integrated into the project management platform.

Another crucial aspect is the standardization of forms through the use of smart, dynamic PDF formats, with predefined fields tailored to the applicable legislation and the project typology. This would eliminate unnecessary variation in content and structure, streamline verification procedures, and accelerate approvals.From an institutional standpoint, it is vital to ensure interoperability between the MySMIS 2021 platform and the State Treasury's IT system, to maintain continuity in the financial process. This interconnection would enable the automatic transmission of approvals, supporting documents, and payment requests to the national payment system, thereby eliminating duplicate procedures and the risk of inconsistencies across parallel platforms.

Additionally, a unified regulatory framework is needed to explicitly govern digital financial control workflows in EU-funded projects. Currently, many best practices arise from local initiatives and are not embedded in a standardized procedural structure applicable to all beneficiaries.

Equally important is the continuous professional development of staff involved in project implementation. Specific training modules should be developed on digital financial control, targeting both beneficiaries and managing authority representatives, to ensure a consistent level of competence and coherent rule application.

Altogether, these proposals outline an integrated vision for the future of preventive financial control—one that not only digitizes existing processes but redefines them based on modern technological and institutional foundations, aligned with the principles of good governance and the demands of effective EU fund management.

5. Conclusions

This research has provided a structured assessment of the current state of digitalization in preventive financial control in Romania, focusing on its application within EU-funded projects. The analysis revealed that, despite visible progress in the implementation of digital solutions—such as the MySMIS 2021 platform and customized ERP systems—digitized preventive financial control remains a partially functional process, heavily dependent on technical, institutional, and human factors.

One of the study's key conclusions is that digitalization alone does not guarantee efficiency; it merely establishes the preliminary conditions for it. In the absence of critical functionalities—such as automated validation, interoperability with the State Treasury, or standardized forms—digital platforms risk becoming mere repositories of documents, offering limited added value in decision-making or in mitigating financial risks. Therefore, digital efficiency is inherently tied to the quality of the IT architecture, the coherence of procedures, and the skill level of its users.

The study also found that the main benefits of digitalization manifest where IT systems are fully integrated into the operational workflows of beneficiaries and where there exists a minimum level of organizational culture geared toward prevention, compliance, and transparency. In such contexts, the platforms facilitate not only faster verification but also enhanced traceability, greater capacity for digital audit, and a tangible reduction in the risk of financial disengagements. Conversely, the lack of a unified system-wide vision—reflected in fragmented regulations, non-interoperable systems, and inconsistent procedural application—significantly undermines the transformative potential of digitalization. This challenge is exacerbated by disparities in administrative capacity among beneficiaries, particularly between experienced public institutions and smaller private or non-governmental entities, where preventive financial control is often either absent or applied informally, without digital support.

In conclusion, the digitalization of preventive financial control should not be approached solely as an IT infrastructure issue, but rather as a systemic reform, requiring legislative coherence, procedural standardization, professionalization of human resources, and—most importantly—a paradigm shift in the understanding of financial responsibility within EU-funded project management.

5.1. Practical Implications

The findings of this research have direct and relevant implications for how digitalized preventive financial control is perceived, regulated, and implemented in practice, both at the level of EU fund beneficiaries and public authorities involved in coordinating and verifying these projects.

First and foremost, for managing authorities, the study highlights the need to reconfigure the architecture of the control process, shifting from a focus solely on formal compliance toward actively supporting beneficiaries during the critical phase of financial risk prevention. This reconfiguration entails a transition from a reactive control system—based on post-factum detection of irregularities—to a proactive, digitally assisted system, where pre-validation mechanisms, automated alerts, and self-assessment tools are integrated into project implementation.

For beneficiaries—whether public institutions, NGOs, or eligible private entities—digitalization presents both the opportunity to professionalize financial project management and the challenge of integrating these tools into an organizational culture oriented toward prevention, compliance, and performance. IT platforms become not only procedural frameworks but also decision-making environments, where budget execution can be monitored, bottlenecks anticipated, and expenditures justified to control bodies.

For control institutions (such as the Court of Accounts, audit structures, and certifying authorities), digitalization facilitates a more objective, faster, and deeper verification of public fund spending processes. The ability to track the full path of a document—from upload to approval or rejection—eliminates many of the ambiguities associated with traditional paper-based controls, reducing subjectivity and ensuring full traceability of decisions.

The study also draws attention to the real risk of institutional inequality: in the absence of a coherent national framework and sustained investment in personnel training, less prepared or under-resourced beneficiaries may be penalized—not out of bad faith, but due to procedural incapacity. In this sense, uneven digitalization can generate a new form of institutional vulnerability, which runs counter to the declared purpose of digital reform—to simplify and clarify administrative processes.

In conclusion, the practical implications of this research go beyond the technical sphere and extend to the broader administrative and managerial logic of EU fund management. They highlight the need for a balance between standardization and support, between control and administrative capacity, and between digitalization and institutional adaptability.

5.2. Technical and Institutional Recommendations

Based on the empirical and conceptual analysis carried out in this research, a set of strategic recommendations can be formulated to transform digital preventive financial control from a standalone technological tool into a functional, predictable, and integrated mechanism within the financial governance framework of EU-funded projects.

5.2.1.Technical Recommendations

– Implementation of electronic pre-validation in MySMIS 2021

The platform should include functionality allowing the managing authority to issue a digital visa or formal approval for procurement documentation before contract signing. This digital validation would reduce procedural risks and enhance beneficiaries' confidence in their financial decisions.

– Automation of procedural calendars

It is recommended to develop an integrated algorithm that generates legal timelines automatically, based on procurement type and estimated value, highlighting all deadlines and mandatory steps for each stage.

– Standardization of digital forms

All control-related documents should be transformed into **dynamic PDF formats** with intelligent fields, auto-fill options, and internal logic validation, thereby reducing human error and processing time.

– Interoperability with the State Treasury's IT system

A critical step is to establish functional integration between MySMIS 2021 and the Treasury's digital platform, enabling real-time, fully digital payment authorization workflows that accurately reflect project financial execution.

5.2.2. Institutional Recommendations

– Development of a unified legal framework for digital preventive financial control

Currently, this control is governed by fragmented regulations. A dedicated set of norms is required to support digitalization, applied uniformly across all beneficiary types.

– Introduction of preventive control mechanisms in the private sector, via tailored regulations

Given the significant share of EU funds managed by private entities, it is justified to establish a preventive control mechanism (formal or digital) adapted to the private sector, ensuring an equivalent level of accountability and traceability.

– Investment in professional training and digital competency development

Digital transformation cannot succeed without properly trained human resources. Mandatory, continuous training programs should be implemented for all stakeholders—beneficiaries, financial officers, controllers, auditors—focused on digital control procedures and the use of specialized platforms.

– Creation of real-time technical support for MySMIS users

Many procedural errors occur not from negligence but from misunderstanding how to properly use the system. A dedicated support system—such as a call center, integrated chat, or interactive guides—would reduce user errors and streamline processes.

These recommendations aim to strengthen the state's capacity to exercise effective and intelligent preventive control, adapted to the demands of the digital era and safeguarding Romania's financial interests within the broader EU funding framework.

5.3. Future Research Perspectives

The digitalization of preventive financial control is a rapidly evolving field, situated at the intersection of economics, public administration, and information systems engineering. This study has provided a solid qualitative foundation for understanding the existing challenges and opportunities, while also opening a series of relevant avenues for future research with both national and European applicability.

A first promising direction is the quantitative analysis of the impact of digitalization on the financial performance of EU-funded projects. Comparative studies could be conducted between projects that actively utilize digital functionalities and those that make minimal use of them, using indicators such as document processing time, disengagement rates, frequency of financial corrections, or levels of procedural compliance. Such research would support data-driven policy-making and help prioritize investments in the most efficient IT components.

In addition, it is worthwhile to conduct an international comparative analysis to identify best practices from EU member states that have successfully implemented integrated digital financial control systems. Countries such as Estonia, the Netherlands, and Finland can offer scalable models adaptable to the Romanian administrative context. This type of research would enable both knowledge transfer and the formulation of legislative and technical proposals aligned with European standards for interoperability and digital governance.

Another valuable research direction is the cost-benefit evaluation of digitalizing preventive financial control, from the perspectives of both managing authorities and beneficiaries. Such a study should consider not only the initial technological costs but also the indirect benefits—reduced errors, shorter implementation times, increased absorption rates, and improved staff professionalism.

Finally, it would be beneficial to explore the ethical and accountability dimensions of digital control systems. Automation should not eliminate human responsibility, and the design of IT systems must reflect a balanced approach between automated verification and professional judgment. This perspective could be developed through interdisciplinary research involving experts in audit, IT, administrative law, and public policy.

In conclusion, research in the area of digital preventive financial control holds significant potential to support structural reforms in the management of EU funds—provided that future investigations are institutionally grounded, methodologically rigorous, and oriented toward concrete application.

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