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Digitalization of accounting within the concept of cost management

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Abstract

Digital technologies have penetrated managerial accounting and have immense potential to transform this profession. Implementation of emerging digital technologies, such as artificial intelligence, blockchain, the Internet of Things, big data and cloud computing, can trigger a crucial leap forward, which can lead to a paradigm shift in the accounting management of transport organizations. The main objective of the research is to investigate the perception of Romanian accountants regarding the implementation of digital technologies in the accounting management of transport organizations. In this study we identified the influence of cost accounting tools improved through digital transformation on the performance of transport organizations, from which we inferred that it is much more robust in the case of innovative tools than in traditional cost calculation tools. The proposed model provides managers within transport organizations with information on the most effective methods in the context of digital transformation.

Keywords: digital transformation, accounting, management, cost accounting tools, innovation

1. Introduction

Over the past decade, technological advances generated by the increasing use of technologies such as artificial intelligence (AI), big data (BD), blockchain (BC), cloud computing (CC), and the Internet of Things (IoT), have been the vectors of the technological revolution known as Industry 4.0.

New technologies make it possible to process and interpret large amounts of data in real time, enhancing transparency and generating increased confidence. When companies talk about cost management, they usually focus on reducing current expenses.

But in today's digital age, cost management has taken a new hue: it offers a strategic leverage to generate savings that can be invested in boosting growth. In recent years, innovations in finance and accounting have revolutionized operations, and significant trends are reforming the entire financial function. In all financing and accounting processes, be it accounting, paid accounts, loans

or even complex analyses, a remarkable trend is the adoption of automation and AI. These innovative technologies have the potential to revolutionize finance and accounting.

There is almost no counter-argument about the benefits of these technologies to streamline processes, reduce errors, and improve decision-making, and they also provide real-time insights into financial data. This departure from time-consuming manual tasks has allowed finance professionals to focus on higher-value activities such as strategic planning and risk management. Compared to other methods, the use of innovative technologies in finance and accounting ensures efficiency and accuracy in results. For example, machine learning algorithms can analyze large data sets and identify patterns, improving fraud detection and risk assessment at the same time. Moreover, blockchain technology has revolutionized the way transactions are recorded, leading to transparency and security in financial operations. These advances empower companies to make informed decisions while ensuring compliance with regulations. Conventional practices, on the contrary, often involve entering data that are prone to errors and time consuming, leading to potential delays and discrepancies in financial reporting.

Innovative processes cover a wide range of activities, including robotic process automation (RPA), predictive analysis, cloud-based accounting software, and digital audit tools (see "High Impact Activities"). RPA uses software robots to manage repetitive tasks such as data extraction and invoice processing, freeing human resources for judgment-based strategic analysis. Similarly, predictive analysis uses historical data, statistics, and algorithms to predict future trends and patterns that can help in processes such as budgeting and financial planning. Cloud-based accounting software enables real-time collaboration and data access, facilitating remote work and reducing the need for physical infrastructure, thus allowing for reduced loads and enhanced work done by multiple people in a team. Digital audit tools increase audit efficiency by automating test procedures and improving the accuracy of financial statements. These activities have advanced basic processes such as logging, closing at the end of the month, bills paid, purchase orders, billing and payments to suppliers.

2. Literature review

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Technological Innovations in Accounting the landscape of accounting is undergoing a revolutionary transformation driven by the relentless progression oftechnology (Singh, 2023, Suherlan, 2023).

The accounting task most likely to be automated is accounting (Huerta & Jensen, 2017). However, (Frey & Osborne2017) identified specific audit and tax tasks with a high risk of automation beyond administrative accounting and tax preparation. According to him (Silva et al. 2023), basic accounting functions, such as payrolling, auditing, bank reconciliation and bill payment, have already been automated.

Communication skills are interpersonal skills that enhance employees' ability to interact with various stakeholders (Walker et al. 2019). Face-to-face and virtual meetings, team skills, emails and formal presentations are communication skills that leaders consider essential (Cao and Zhu, 2012). Good communication also includes awareness of what can and cannot be shared (Royer et al., 2022).

3. Cost accounting methods and techniques

Cost accounting is the process of collecting information about the costs incurred by the activities of a company, allocating selected costs to products and services and other cost objects and assessing the efficiency of cost use.

Apart from costing methods, the following are the types of costing techniques that are used by management only to control costs and make some important managerial decisions. As a matter of fact, they have not eaten independent methods of finding costs, such as workplace or process costs, but are essentially cost techniques that can be used as an advantage with any of the methods below.

Table no. 1 Cost accounting methods and techniques

Cost Types	Description
Marginal costs	Marginal costing is a costing technique in which the allocation of production costs is limited to those costs that arise as a result of production, for example, materials, labour, direct expenditure and variable costs. Fixed surfaces are excluded in cases where production varies because it can give misleading results. The technique is useful in manufacturing industries with variable production levels.

Direct costs	The practice of charging all direct costs of operations, processes or products and letting all indirect costs be depreciated by profits during the period in which they occur is called direct costs. This technique differs from marginal costs in that some fixed costs can be considered direct costs under appropriate circumstances.
Absorption or total cost	The practice of charging all both variable and fixed costs for operations. products or processes is called the cost of absorption.
Uniform costs	A technique in which standardized cost accounting principles and methods are used by a number of different companies and firms is called uniform costs. Standardization may extend to methods of costing, accounting classification, including codes, methods for defining costs and depreciation taxation, and methods to allocate or distribute funds to cost centres or cost units. Thus, the system facilitates comparison between firms, the establishment of realistic pricing policies, etc.

The transformative impact of technology requires a paradigm shift in professional development and education of accountants. Traditional set of accounting tools are no longer sufficient to meet the requirements of the modern accounting landscape. Professionals need to adapt to the changing environment by acquiring expertise in data analysis, AI and ML.

Professional development programmes and educational programmes must include courses that focus on emerging technologies, ensuring that accountants are equipped with the necessary skills to fully exploit the potential of these innovations. Lifelong learning becomes a cornerstone of the profession, enabling accountants to keep up with technological advances and remain effective in their roles (Kroon, do Céu Alves & Martins, 2021).

Technological innovations in accounting, driven by the integration of artificial intelligence, machine learning and advanced data analysis, are reviving the profession in unprecedented ways. The automation of routine tasks, improved accuracy and evolution of decision support systems increase the efficiency and strategic impact of accounting professionals. As the roles and responsibilities of accountants go through a transformation, professional development and education become essential to ensuring that the workforce is equipped to navigate this dynamic landscape. The merger of technology and accounting announces a new era, in which accountants appear not only as custodians

of financial records, but also as strategic partners contributing to the success and resilience of their organizations.

4. Digitization is a process of transition to digital business

It is characterized by the widespread use of digital technologies that change business models and offer new organizational opportunities. All areas of activity are subject to digitization: from conceptual business building models to auxiliary operations, such as managerial accounting.

Thanks to digitization, innovative formats of collaboration between companies, suppliers, consumers and employees have emerged. The result has been the appearance of new types of products and services on the market. At the same time, for many organizations, digitization is a serious challenge, as it cannot be implemented without a thorough review and reassessment of their core strategies and exploration of the new business potential.

In the area of finance, digitization has enabled the automation of template processes, ensured the implementation of business analysis and data analysis. Digital technologies are transforming and expanding the types and sources of data used in managerial accounting. They also transform important accounting processes.

The first phase of digitization, which significantly changed the working methods of organizations and, in fact, managerial accounting, was the emergence of computerized information systems.

The digitisation of a large number of companies and their departments implies the creation of a new business model. For example, improving stock management requires moving to an innovative operational model. This model is an advanced management approach that integrates digital technologies and operations.

This integration is carried out in a comprehensive, logical and consistent manner, leading to step-by-step improvements in the quality of management, accounting and control. The process of digital transformation of managerial accounting is seen in the following stages:

- First of them. Understanding the objectives of the digitization strategy. Evaluation of organizational efficiency.
- Second. Collaboration with staff in implementing changes.

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- Third. Focus on value creation processes.
- Fourth. Migration of inherited data.
- Fifth. Advanced use of new digital technologies and software products.

Often, the digital transformation of the supply chain leads to operational failures, but, from a strategic point of view, prevents much more serious disruptions. Technologies that ensure digital transformation ensure the integration of data by the participants in the supply chain, form a favourable and convenient environment for interaction with customers.

The big data ecosystem serves as the basis for the process of digitizing stock movement control. Digital transformation begins with the installation of detectors that transmit information through Internet channels on a cognitive computing platform. This platform implements data analysis and interpretation needed to develop motivated management decisions.

Which digital technologies will be applied in the company is determined by a number of factors and, first of all, the area of economic activity of the company. The business activity of the company always involves a large amount of documentation, which includes procurement contracts, supply orders, delivery documents and much more. Most of this documentation can be implemented in electronic format, on the basis of which experts recently recommend the use of digital technologies in the implementation of TMC motion control.

In addition, digital transformation implies a radical change in the paradigm of business processes and operations, because companies will have to not only purchase new digital products, but also form a modernized management system, make the transition to a new thinking.

We distinguish five stages of the digitization of a particular company, in particular the process of digital transformation of managerial accounting and control of the TMC movement:

1) digital coherence based on the application of smart technologies, cloud infrastructures, automated accounting means and distribution. Digitization of managerial accounting within the concept of process management

2) automation using wireless means;

3) implementation of forecasts, optimization of stocks and improvement of supply chain organization;

4) strategic partnerships with suppliers and customers;

5) use of artificial intelligence.

Thus, the digital transformation of the management and control of the TMC movement will begin with the introduction of smart technologies and blockchain and will end with the connection of artificial intelligence responsible for developing and making the best management decisions without the direct involvement of staff in this process.

However, it would be wrong to miss the fact that the digital transformation implemented within the process approach, although it undoubtedly increases the efficiency of managerial accounting and control of the TMC movement and management in general, but also generates significant risks. We will list the main ones:

- the risk of an incorrect or partial video image of the data as a result of accidental errors or deliberate actions of the staff;
- risk of complete or partial loss of information due to the presence of network vulnerabilities for external interference;
- risk of stagnation of the production process of the enterprise due to temporary failures in the operation of software products, computer equipment, problems in the work of Internet service providers.

In accordance with the international quality standards of the ISO series, process approach is a priority in the management of the company.

Therefore, the management and control procedures of the TMC movement must be considered as one of the processes that break down into individual subprocesses and create the conditions for the operation of the entire company.

The realization of the process approach and digitization make it possible to automatically record the entry, transport, application and implementation of TMC, monitor the compliance of the TMC presence with the minimum regulation volume of the current storage stock. If the system detects that the volume of the TMC stock has reached the minimum permissible level, it sends the corresponding signal to the responsible employee, who will make the decision to request an unplanned order or to fill the stock at the expense of other resources.

5. Conclusion

In exploring accounting innovations, the main findings highlight a transformative landscape shaped by technological advances, regulatory changes and changing roles within professions. The integration of artificial intelligence, machine learning, advanced data analysis and blockchain technology is revolutionizing traditional practices, increasing efficiency, accuracy and strategic value in both accounting processes. Moreover, cost evolution in the era of Big Data is marked by increased transparency, security and the potential for more intuitive financial valuations. Regulatory changes and reporting standards lead to greater transparency, overall coherence and strategic decision-making, while posing challenges in terms of non-implementation and continued compliance.

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