

## **Difficulties on the road to progress and resilience. Accounting challenges for the public sector in the digitization process**

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### **Abstract**

The objectives of this article are: to identify some problems of the digitization process in which the accounting function of the enterprise is involved and to provide some solutions to these problems. Thus, the article includes both the description of some problems of the accounting function that digitization generates for internal management in large state companies, the applicable accounting rules, solutions of some state units, ideas of the authors.

Since they are relatively new problems, for some aspects there are no previous studies on them. As methods of approach, the establishment of the importance of the problem according to the opinions in the field of economic research and the business environment, the description of the current situation, including in the field of accounting, the presentation of solutions adopted by two state-controlled units from Romania as case studies are considered, adapting the accounting information flow and the rules to meet management needs in the digitalization process, analyzing how to apply some international standards with implications in the digitalization process.

Among the estimated results are some possible solutions to be applied by national companies in the accounting of digitization processes.

Through the article, we offer new solutions applicable by practitioners of state companies, including their managers, but also proposals to the authorities to clarify some aspects through accounting law or business law.

The article will contribute to avoiding the occurrence of blockages in the digitization processes related to the accounting function. Thus, in the management of digitization processes, attention can be focused on substantive elements, efficiency and opportunity, less on formal aspects such as the flow of accounting records.

**Key words:** management, intangible assets, innovation, state-owned companies, informational system.

### **1.Introduction**

All the processes that are carried out by an organization, regardless of whether it is public or private, it is necessary to be registered in the information system. One of the key components of an organization's information system is accounting. All the more, it is necessary to register in the accounting information system the major processes common to the entire society or national economy. Digitization is one of these processes for which monitoring is necessary, at least to indicate the starting stage, the stages completed, the degree to which the objectives are met, the impact of the evolution of the respective process on the general dynamics of the organization and society as a whole.

## **2.The current state of the scientific literature in the researched field**

Both the dynamics and the up-to-date situation regarding the advantages presented by digitization are well established by scientific research in the field of economics, the respective results being accepted even by the business environment [1]. The benefits of digitization are also proven in application areas with a high impact on our lives, such as environmental [2] or urban development [3]. In other areas, lagging behind in terms of digitization, the steps taken are analyzed and future trends are projected [4].

The issue of the impact of intangible capital, part of the digitization process, on development at different levels of integration has been studied [5]. The directions for improving one of the most important components of the digitization process, software development [6], but also the vulnerabilities represented by computer and communication networks [7] remain in the attention of scientific research. Studies were also initiated on the new stages of digitization, with artificial intelligence occupying an important place [8]. Studies on the exploitation of the information system, mainly the accounting one, in the algorithm for establishing the diagnosis of modern organizations, with implications in the digitization process, are useful [9].

There are numerous studies to understand the content of the international accounting system published in Romania [10] or abroad [11]. Solutions are available to adapt the requirements of international accounting for well-defined areas, such as intangible assets, to the specifics of the accounting organization in Romania [12]. They respond to the requirement to know the current state, but not to the need to improve the International Financial Reporting Standards to face the future management challenges in efforts to expand digitization.

## **3.The essence of the digitization process**

Digitization comes with a lot of opportunities, but also with serious challenges for the economic system. The evolution of the market in the era of digitization brings new and new competitors to traditional sellers, thus the historical counter is transformed into sites that host both sales of goods and online services, such as: online legal assistance, online medical assistance, online billing, online reporting , etc.

All these changes also produce changes in accounting approaches, including managerial accounting. The era of digitization comes with increased information transparency and with the reduction of work time for data collection, which has a direct impact on company costs, but also imposes the need to adapt the accounting information flow and supporting documents, the need to apply some international standards in conditions of digitization, as well as updating the financial reporting system and the budgeting mechanism for digitization projects.

Of course, the benefits of digitization are undeniable at the management level. Thus, the decision-making process is streamlined, there are numerous measurement possibilities, which leads to an increase in predictability. From an operational point of view, there is an increase in productivity due to the simplification and efficiency of production processes, but also the removal of human error.

On a financial level, digitization brings a decrease in operational costs and a decrease in the investment recovery time. By means of integrated information systems at the level of organizations, the aim is to reduce the reaction time to messages from the market [13]. A quick reaction is required both in the company's sales market and in the markets from which the resources needed for its own activities are purchased.

Recent studies from Romania show that "approximately half of Romanian SMEs have implemented a digitization solution in the last 3 years, and the most frequently used are accounting solutions (57%), timekeeping (43%), sales management (40 %) and cyber security (38%)" [14].

#### **4. Digitization requirements for the accounting information system**

Decisions in digitization processes, as in any other major process, can be made based on different criteria. There is the possibility of adopting them based on intuition, according to some heuristic methods, or on the contrary, based on time-tested information systems, such as accounting or statistical. In this article we consider the hypothesis in which decisions are made on the basis of information systems, mainly the accounting one.

One of the requirements for the informational system that any dynamic modernization process has is the reflection of the evolution of the companies' value according to the intensity of accessing the innovative systems. It is necessary to improve the accounting systems so that the concept of strategic value or economic value as formulated in international management can be quantified [16]. In particular, it is necessary to reflect or possibly calculate from the accounting system the "value of growth" of the company [15] following the modernization investments made.

The trends of the last two centuries, as well as the findings of some renowned futurologists, show us that all technological revolutions had a limited duration. The future technological explosions will no longer be related to the computer or information technology, to data processing, in a word digitization [16]. From accounting we should get signals about when digitization will register a reduction in intensity or when there will be changes in priorities in modernization processes.

Digitization can only be conceived as a process that brings profit to both shareholders and all stakeholders. Shareholder gain comes primarily from growth in company value, and such growth is closely related to the ability to generate positive cash flow in the short, medium and long term [17]. At the same time, to generate positive cash flow it is necessary to increase sales. Most important is to understand the standard or majority customer of the company's services or products, which is not automatically solved by a well-trained management team [18]. In relation to the accounting system, there is thus an implicit requirement to separate the digitization components by functions of the company, as they are defined by the shareholders.

Considering the above for the informational system, mainly the accounting one, there is a need to make known the value of digitalization-related assets, which are related to the commercial function (actual sales, customer management, filtering reports on relationships with different categories of customers), those related to management, resources, logistics, other specific functions of the company. In explaining the differences in treatment between tangible and intangible assets, an important element in the analysis of digitization

processes, the Anglo-Saxon system also refers to the branch of law to which each is subject. Intangible assets are considered to be part of the company's intellectual property [19].

## **5.The implications of digitization on accounting**

For the accountant, the new information technologies come with a multitude of advantages, offering effective tools for data analysis and a total, overall picture of the financial operations that take place in the enterprise, but to respond to the new demands imposed by digitization, accounting professionals must adapt their way of working, constantly leave their professional comfort zone and learn continuously throughout their professional activity. In the current context, marked by a globalized economy, performance and competitiveness on the market are strongly conditioned by the way and speed with which new technologies are implemented within enterprises.

At the present time, it is no longer enough for a professional accountant to know accounting techniques, legislative aspects and the calculation of taxes and fees, or to have the necessary knowledge to carry out financial-accounting analyzes or to carry out internal control or auditing, but must also have thorough knowledge of the use of new advanced international technologies and digital connection, to know how their implementation brings profit to the organization.

For the modern accountant, digitization is the current environment in which he adapts, forms, and perfects himself in order to carry out his daily activity under the conditions of current requirements. "In the context of rapid digitization, increasing expectations from all stakeholders and complex global challenges, it is essential that we adapt, innovate and strengthen our skills and knowledge. We must be prepared for the future, able to successfully navigate the dynamic landscape of the contemporary world and make a valuable contribution to the good of society"[20].

The implications of computerization on management in general, but also on all the systems that support it, including accounting, have been highlighted since the beginning of the 9th decade of the 20th century [21]. However, adaptations are needed, including in the accounting information system, in order to take into account all the challenges adjacent to digitization, the anticipatory and innovative character being the most important. The innovation as such must be subject to registration or must be reflected including through the accounting information system.

The processes and changes that digitization brings must be better reflected in all components of the accounting information system, including managerial accounting and group accounting. In the reference studies of managerial accounting [22] and management control [23], the elements related to the digitization processes that take place in companies are not properly reflected, although advanced calculation methods are made available and the importance of management based on of costs.

One of the main areas of accounting where digitization is making its presence felt is that of intangible assets. Intangible assets are non-monetary assets. They are identifiable but have no physical form. Intangible assets help to obtain future economic benefits, and the cost of the asset can be reliably measured.

Although it represents a relatively complex and difficult problem to manage, the accounting of intangible assets in Romania was very close to the requirements of the International

Financial Reporting Standards, including due to the appearance of some quality explanatory books, some specialized [24] and others general [25].

## **6.Challenges of digitization for the accounting of public institutions. Case study at the Romanian Road Authority**

We took the Romanian Road Authority as a reference for public institutions in Romania. It has the status of a public institution with legal personality fully financed from its own revenues. It is a specialized technical body of the Ministry of Transport, appointed to ensure, mainly, the licensing of road transport operators, the authorization of driving schools and driving instructors, the activity of the registry for road transport operators, companies that carry out road transport on their own account and safety auditors, the issuance of professional certificates / attestations for specialized personnel in the field of road transport and other related activities.

At Romanian Road Authority, accounting is organized and managed in distinct compartments coordinated by the economic director. These departments are: accounting and economic analysis, financial, revenue and expenditure budget, tariffs and own preventive financial control.

The management and administration software used to organize the accounting in this institution is part of the ERP class, it is an integrated computer system designed in an advanced technology of a large international company. The institution benefits from all the hardware / software advantages offered by the respective platform.

Intangible assets accounting is kept by category and by each item of record, according to national accounting law in accordance with the rules of the European Union [26]. For Romanian Road Authority, in addition to this organization, another breakdown is used, that of distributors. The distributions are of type "S", from the company or "P" from the person. The distribution code consists of the particle S (company) followed by the unique registration code of the company or the particle P (person) followed by the brand (number assigned from the personnel register). The "P" type distributor is used, in particular, for own employees.

In the case of intangible assets, "S" type allocators are used. Thus, the allocator for that partner has the letter S followed by its unique registration code (tax code).

Given that Romanian Road Authority is a public institution, with the obligation to prepare budget reports, in order to determine the nature of expenses, in addition to accounts and distributors, a special filter called budget item is used in the accounting formula for operations involving income and expenses. This filter is defined in the legislation regarding public finances at the national or local level [27], with subsequent amendments and additions. Thus, according to the mentioned legal norms, the budget article is a subdivision of the classification of budget expenses, determined according to the economic nature of the operations in which they are realized and which designates the nature of an expense, regardless of the action to which it refers.

To highlight it, when operating in the existing accounting software, the symbol "N" (Nomenclature) is used. There are separate codes for capital and current expenditure. For the situation in which social dynamics, including digitization, generate new types of assets, other than those already present, there is the budget article "Other fixed assets". When

entering the information into the computer program used, along with the accounting formula and allocator, the related accounting item will also be uploaded.

With regard to intangible assets, the main referential of digitization identifiable in the accounting of public institutions, the chart of accounts includes: on the level <synthetic accounts> the account "Other fixed intangible assets", on the level <analytical accounts of the first degree> the account "Computer programs" and on the level <analytical accounts of level 2> the "Computer programs" account differs only by coding compared to level 1. The amortization of intangible assets follows a structure in perfect symmetry with that of the accounts regarding assets presented above. Romanian Road Authority thus have depreciation accounts on each of the 3 levels of organization of accounting information.

In order to improve the accounting information provided, an additional analytical structure was introduced at the Romanian Road Authority to the "suppliers" accounting account. Thus, suppliers of fixed assets are divided into suppliers in which the investment process is less than one year and suppliers in which the investment process is over one year. In addition, there is a separation of internal suppliers (in the country) from external ones (outside Romania). In this way, questions are answered regarding the complexity of the investment processes (correlated with their contractual duration) as well as informational requirements related to the budget execution and the management of the public debt originating from the state institutions.

Depreciation operating expenses follow analytical organization rationales similar to depreciation accounting accounts. Also, due to considerations regarding budget execution, the funding sources are distinct if it is about own revenues or allocations received from the hierarchically superior state authority.

## **7.Challenges of digitization for the accounting of state-owned companies.**

### **Case study at Romanian Post National Company**

Romanian Post National Company uses the international accounting system, based on the International Financial Reporting Standards and the legal provisions that impose this system on it [28]. Although digitization has been present for a long time globally, the international accounting system has not generated nuanced rules to reflect the real content of the processes in the real economy in this direction. The problems regarding the impossibility of reflecting in the companies' accounting in a certain way their patrimonial situation force the use of parallel information systems, called extra-accounting, which generates additional administrative costs.

Some problems regarding the inclusion of intangible assets in the reports of all categories of companies in Romania listed on the stock exchange had been observed since 2011 [29]. The importance of intangible assets is increasing in the conditions of the current stage of the new economy, which has digitization as its main component. Intangible assets are also important from the perspective of the intellectual capital that a company owns, an increasingly important element in both stock and non-stock valuation. Investment decisions can consider the intellectual capital criterion [30]. Under these conditions, the intellectual capital of a company must be better reflected in its accounting, including with the help of intangible assets.

Digitization, like any process based on technological progress, involves one or more forms of technology transfer. A requirement for the accounting system is to reflect the digitization

process in all possible forms of technological transfer identified [31]. One case where this requirement is applicable concerns the recognition of the transfer of knowledge to its own staff as an investment. Any instrument used for this purpose will represent an investment in an intangible asset. It can be, without limiting the possible variants, in the creation of organizations dedicated to training, organizations capable of attracting training funding, funding that would otherwise not be accessible to the company, contracting sources of information widely accessible to employees for skills training objectives specific to digitization. The current accounting system, including the international one, requires that most forms of technology transfer be recorded as costs of current activity, not as investments.

Some problems in the application of the accounting rules regarding intangible assets were reported to the Romanian Post National Company. One of them concerns the regime of computer applications (programs) that must be restated from an accounting point of view. If the usefulness of an application has been established after its realization, the mechanism of their registration involves the procedure through the inventor's additions. But these inventory additions can come both from own activity (management) or from purchase. The accounting standard does not allow this nuance.

Faced with the complexity of the accounting flows and rules regarding assets, with additional restrictions from the budget legislation, the Romanian Post National Company found the solution of reflecting the digitization processes inclusively through annexes from the financial statements or through legal information transparency tools. Thus, where the accounting data could not fully reflect the digitization processes, the managers' report, the non-financial statement of the managers, the annual or periodic report of the managers was used.

In order to reflect the structure of the company's assets by function, Romanian Post uses the "place of consumption" parameter. In this way, both the value and quantitative allocation of assets and their depreciation cost are reflected on the functions. Although it does not use a state-of-the-art IT system, Romanian Post National Company has ensured through the coding system the fulfillment of demanding information requirements.

## **8.What else is there to do in the near future?**

Accounting has the role of reflecting reality as best as possible. The principle of a true and fair view is a fundamental one. For this reason, they must constantly adapt their tools and rules on the basis of which accounting records are made. First of all, it is recommended to debate the opinions of accounting doctrine and research [32]. At the same time, it is mandatory to consider the advantages offered by digitalization in a broad sense [33] or business-centric [34], all of which have the significance of assimilating the respective advantages into the category of future economic benefits, as defined by the IFRS system [35] for asset recognition.

The rapid expansion of the scope of digitization [36] draws attention to the need to take steps towards the standardization of accounting systems in this area [37]. It will probably be necessary in the coming years, a period in which digitization will expand much more strongly, to have a unified accounting system of reference regarding the application of this type of current technologies, regardless of the legal form of the organization. This way we

will be able to have a synthetic picture of the dynamism of this complex and vital process for our society and economy.

## 9. Conclusions

The era of digitization comes with increased information transparency and with the reduction of work time for data collection. It is necessary to improve the accounting systems so that the concept of strategic value or economic value as formulated in international management can be quantified. There is a need to make known the value of digitization-related assets, which are related to the commercial function, those related to management, resources, logistics, other specific functions of the company. One of the main areas of accounting where digitization is making its presence felt is that of intangible assets. In accounting system of Romanian Road Authority, questions are answered regarding the complexity of the investment processes as well as informational requirements related to the budget execution and the management of the public debt originating from the state institutions.

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