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Accounting Information System under the Digital Transformation

Abstract. Modern theory and accounting practice are formed under the influence of many factors, including economic integration, digitalization of communication and management processes, expansion of requirements for the information content of financial and non-financial reporting. In this regard, the purpose of the article is to disclose the structure of the accounting information system, the interdependence of its components, and determine the factors of its modernization in the context of the digital transformation of the socio-economic environment. The structure of the accounting information system was disclosed based on the identification of components that ensure the integration of the internal accounting systems of individual economic entities with the general accounting system. The modeling of the relationship of the components of the accounting information system with other information management systems of economic entities has been carried out. Information systems used to manage organizations were classified. It has been proven that an accounting information system is irreplaceable and plays a fundamental role in the management system. The improvement of information technologies determines the constant modernization of accounting and reporting, the formation of a qualitatively new accounting information environment (cloud accounting, blockchain, network accounting, etc.). Prospects for the further development of enterprise management are associated with the integration processes between the components of the accounting information system. Deepening the digitalization of accounting processes will expand the possibilities of analysis, planning, and forecasting at the management level of an enterprise, industry, and state economy.

Keywords: accounting, financial reporting, accounting system, information system, digital transformation.

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Бухгалтерська інформаційна система в умовах цифрової трансформації

Анотація. Сучасна теорія і практика бухгалтерського обліку формується під впливом багатьох факторів, серед яких: економічна інтеграція, діджиталізація комунікаційних та управлінських процесів, розширення вимог до інформаційного наповнення звітності. У зв'язку з цим, метою статті є розкриття структури інформаційної системи бухгалтерського обліку, взаємозалежності її складових, а також визначення чинників її модернізації в умовах цифрової трансформації соціально-економічного середовища. Розкрито структуру інформаційної системи бухгалтерського обліку на основі ідентифікації компонентів, що забезпечують інтеграцію внутрішніх облікових систем окремих економічних суб'єктів із загальною системою рахівництва. Здійснено моделювання взаємозв'язку компонентів інформаційної системи бухгалтерського обліку з іншими інформаційними системами управління економічних суб'єктів. Класифіковано інформаційні системи, що застосовуються для управління організаціями. Доведено, що саме інформаційна система бухгалтерського обліку є незамінною і відіграє основоположну роль у системі менеджменту. Удосконалення інформаційних технологій обумовлює постійну модернізацію бухгалтерського обліку та звітності, формування якісно нового бухгалтерського інформаційного середовища (хмарний облік, блокчейн, мережевий облік та ін.). Перспективи подальшого розвитку управління підприємствами нерозривно пов'язані із процесами інтеграційного взаємодоповнення між компонентами бухгалтерської інформаційної системи. Поглиблення діджиталізації облікових процесів розширить можливості аналізу, планування та прогнозування на всіх рівнях управління: від управління окремим підприємством до управління галуззю та економікою держави в цілому.

Ключові слова: бухгалтерський облік, фінансова звітність, система бухгалтерського обліку, інформаційна система, цифрова трансформація.

INTRODUCTION

Forming a single global financial and information space occurs throughout market economy development. At the same time, public financial information about the business, its purpose, founders, etc., has been formed. The main source of such information is financial reporting, which develops under the influence of modern needs of its primary users (creditors, investors), and over time, certain groups of society, which for various reasons are interested in the relevant information. Today, the relevant issue is adequately disclosing financial business information and its social and environmental components, economic relationships with counterparties, enterprise's potential ability to create added value, increase equity, and capital market position in conditions of uncertainty and risks. Thus, society needs to develop a system of social control over the economy. At present, this process is provided through the development of information and information technology, contributing to the development of the information society and the formation of the digital economy. Under such conditions, the accounting system of individual business entities and the public sector is integrated into the overall business management system and, through the information contained in the reporting of enterprises, becomes a powerful tool for monitoring and forecasting the economic life of both economic entities

and the country in general. At the same time, the issues of current regulation of economic relations to achieve the desired results, implement budgets, and formulate clear and understandable development strategies for the future can be addressed. According to well-known American scientists B. Needles, H. Anderson and J. Caldwell, the modern accountant, is engaged in accounting and plans and makes decisions, monitors and attracts management's attention, and creates an information system that satisfies the user [6, p. 24].

LITERATURE REVIEW

The works of the following Western and domestic researchers are devoted to the study of the evolution of the accounting system, its purpose, principles in the context of current trends in the digital economy: Benko (2010), Castells (2000), Muravskiy (2019), Needles, Anderson & Cardwell (1997), Pushkar (2007), Davydov et al. (2017), Legenchuk & Usatenko (2016), Sokolenko (2019) [1, 2, 4, 6-8, 10, 11] and others.

The purpose of the article is to identify the concept of "accounting information system", its structure and interdependence of its components, to establish the factors of modernization of the accounting information

system within the conditions of the latest information environment and digital transformation.

RESULTS AND DISCUSSION

The development of communication processes, integration of financial information, the need to disclose economic entities' reports for potential users' needs, the transfer of network management and monitoring functions significantly affect the theory and practice of accounting, their integration with IT technologies. IT technologies contribute to the transformation of accounting, forecasting, budgeting,

analysis, and control into a single information management space, which leads to a new qualitative characteristic (paradigm) – an accounting information system. As a set of interconnected components and their constituent elements inextricably linked, such an information system creates a particular environment (Fig. 1). In such an environment, both internal accounting systems of individual economic entities (serve to meet internal needs in the information of individual economic units) and the general accounting system (records the results of activities at the macroeconomic level and determines the vectors of state development) coexist.

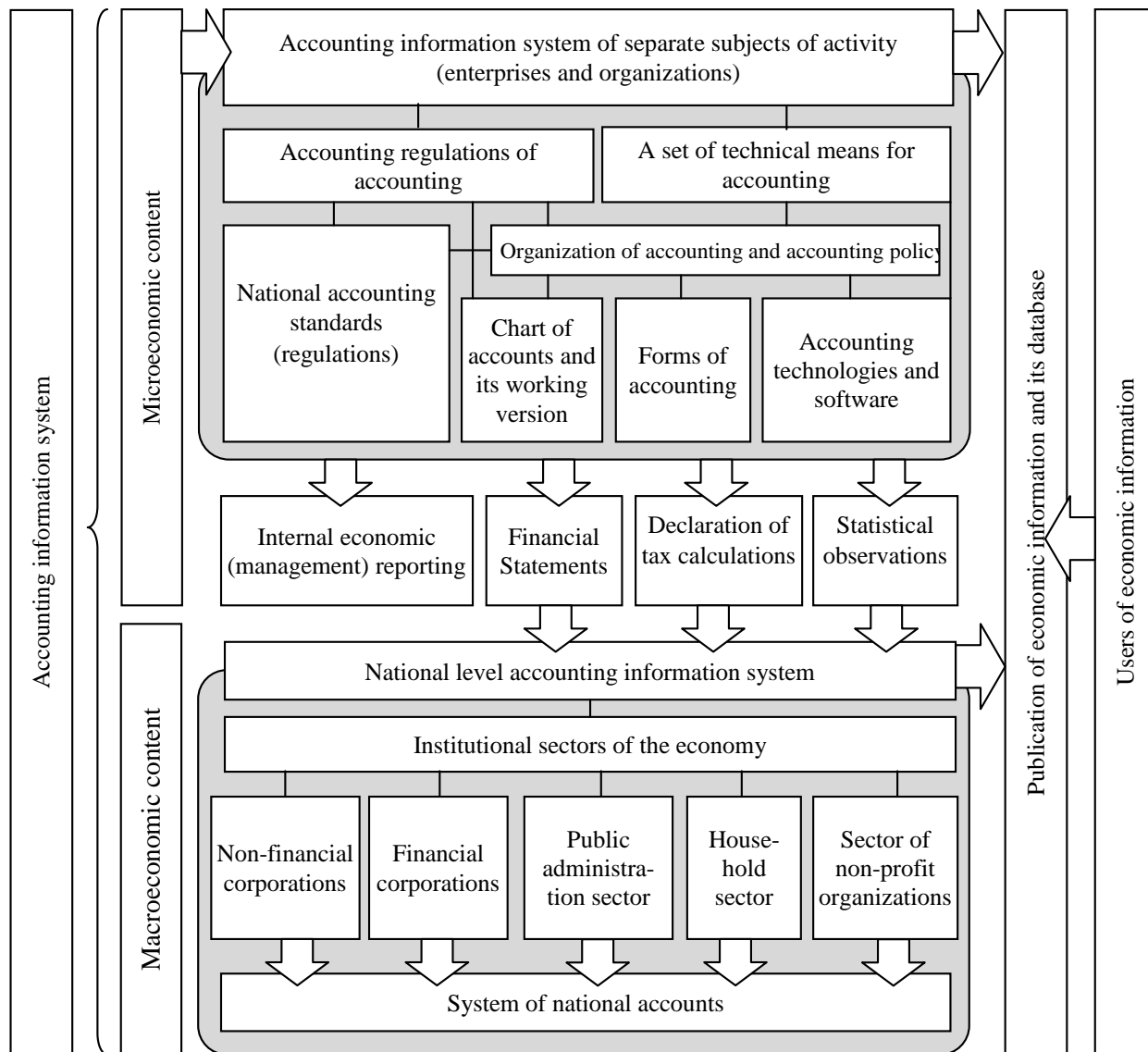


Figure 1. Model of accounting information system and interrelation of its components

Source: modeled by the authors.

The most flexible in the described model is the reporting of individual economic entities, which is the primary link of the entire information system, which focuses on all its components. As traditional public accounting is conservative and only characterizes the

historical aspect of events and processes that have taken place in the past. Some financial statements and indicators do not provide insight into the prospects and directions of business development, its strategic goals, and objectives to assess current results. Therefore, the

change in reporting on its elements' content is quite obvious. Today, this component of the accounting information system is gaining special importance since the transformation of the intended use and purpose of its compilation occurs under the conditions of the development of the information society. Combining elements of financial and non-financial socially significant information, integrated reporting as the most important resource facilitates management decisions at various levels. That is why in the context of expanding information requests of potential users of economic data, reporting should be adequate, which is subject to mandatory disclosure of its indicators. "Information society (digital society, electronic society, e-society) is seen as a stage of transition to a new promising state of socio-economic and scientific and technological development – to the knowledge society (k-society), in which the main source of existence and development, the main resource of functioning and the driving force of progressive change will be the knowledge accumulated by mankind and which will be effectively used by almost all subsystems of society, the vast majority of its members to solve their daily and future problems" [7].

Accounting accumulates, groups, and systematizes the facts of economic activity; it is a perfect information base for company management in conjunction with analysis and control. The preliminary stage of the management process is forecasting the company's main activities and developing more detailed budgets for the near future. These stages of the accounting information system determine the main tasks and parameters of both individual business processes and the business. The application of analysis and control methods allows revealing the causal trends in the composition of assets, liabilities, financial results, cash flows, other components, and processes of economic activity of the economic entity. In the macroeconomic aspect, the functioning of the accounting information system is reduced to the system of national accounting. With the development of communication technologies, appropriate techniques allow the use of completely new approaches to aggregate macroeconomic indicators. Thanks to the introduction of virtualization and cloud services, it is possible to remove unnecessary stages in forming consolidated indicators of state development, making this process faster, automated, and public. Electronic reporting makes it possible to bring together accounting information systems at different levels (particular subjects according to their institutional affiliation and the state as a whole).

Strengthening the interaction between different areas of accounting – bookkeeping, forecasting, budgeting, analysis, control in the context of the use of IT technologies provides: improving the quality of economic information (speed, reliability, security); timely adoption of management decisions; the publicity and availability of data from the accounting information system. It, in turn, will help expand the boundaries of business, its transparency, and investment attractiveness.

The accounting information system is a qualitatively new stage of management decisions at the level of individual business processes and in general of the economy, industry, region, country, starting with the initial registration of individual transactions, reflection in accounting and reporting, and then - display of relevant information in the system of national accounts. Today, an integral part of the accounting system is tax reporting. Tax reporting is a complex reporting subsystem (declaration) that determines the format of information interpretation of accounting processes at the enterprise, building them under the Tax Code of Ukraine. To ensure the integrity of the accounting information system, it should be supplemented by statistical observations, which are the basis of a set of indicators of the most important processes and phenomena of the economy: production, income, consumption, capital, and finance. All these components together and interconnected form the unity of the accounting information system, which due to the development of information technology becomes a prerequisite for building information space for information exchange, formation of relevant databases, and organization of a "highly intelligent accounting system" [1, p. 16; 7, p. 35], which is one of the features of the information economy.

The demand for a single information space is becoming a sign of the digital age. According to M. Castells [2], one of the most prominent sociologists of today, specializing in the information society, information and information exchange have accompanied the development of civilization throughout human history and have been critical in all societies. At the same time, the "information society" is built so that the generation, processing, and transmission of information become fundamental sources of productivity and power.

Currently, a detailed classification of modern information systems takes place. Some of them can be found in almost every modern company. Each system has a specific functional purpose and occupies its unique niche in the company's management, implementing a set of actions related to the information support of a decision-making process. The main types of information systems reflect the individual content of business tasks and regulate certain areas of relations of business entities (Table 1). Despite their own purpose and structure, the analyzed information systems cannot exist autonomously. What unites and creates the basis for their operation is the accounting information system, which is fundamental to others because each of its components becomes the basis for maintaining the life cycle of economic information for decision-making and optimization in various areas of economic activity.

At the same time, only the accounting information system becomes indispensable because it collects data on the object of management, the availability of resources, capital, and performance, etc. (Fig. 2).

Information systems of company management

| Type of information system | The main purpose of application | Content and purpose of the system |
|--|--|---|
| CRM system (Customer Relationship Management) | Creating a single ecosystem to attract new and develop cooperation with existing customers | Displays the model of interaction with customers, aimed at substantiating the main areas of activity related to sales support, effective marketing and quality operational customer service. |
| ERP system (Enterprise Resource Planning) | Company resource planning and management | Within this system, the strategy of integration of production as a set of business operations, asset management, material, labor and financial resources is implemented. The system aims to ensure continuous balancing and optimization of all resources of the company, which are necessary for its efficient operation. |
| CPM system (Corporate Performance Management) | Business efficiency management, which absorbs the widest range of tasks related to financial and strategic business management | The system is based on the principles of business value management. It includes the use of technologies such as functional cost analysis, strategy modeling, balanced scorecard, process-oriented planning, budgeting, monitoring of key performance indicators (KPI), the formation and analysis of consolidated management reporting. |
| ECM system (Enterprise Content Management) | Digital document management | It is a technical architecture and strategic infrastructure designed to support a single life cycle of unstructured content of various formats and types (including storage, processing and delivery of documents to recipients and users within the company). |
| EDMS system (Electronic Document Management Systems) | Company document management, including accounting | Is an integral part of the corporate content management system (ECM) |
| EAM system (Enterprise Asset Management) | Management of processes related to the operation of fixed assets | It is used to automate the processes of equipment maintenance and repair. Allows to provide also after-sales service of the given equipment |
| HRM system (Human Resource Management) | Human resources management of the company | Timely provision of the company with qualified personnel, as well as promotion of optimal use of labor resources |
| Workflow system | Automation of business processes and document management | Provides for the exchange of information between participants in business processes to ensure the necessary consistency of their actions in accordance with established technical, technological and organizational requirements; document flow at the enterprise, starting from standard primary documents and ending with the final routes, and reporting and analytical versions of the documentation used |
| Collaboration system | Management and automation of collaboration | Designed for electronic interaction between company employees who work together on common tasks |

Source: Compiled by the authors according to sources [1-3, 9].

In its development, economic information systems have evolved from automating the processing of particular documents through the introduction of automated control systems (ACS) with their subsequent transformation into a decision support system (DSS) to later building automated offices based on the capabilities of existing information systems. The emergence of the concept of CSRP (Customer Synchronized Resources Planning) – resource planning, synchronized with the buyer, due to the emergence of such systems as a consequence and the urgent need to adjust production to

consumer needs can be considered the next stage in the development of IS. CSRP, in turn, has prepared the ground for a new class of systems in company management – CRM (Customer Relationship Management). Many experts consider CRM as an information system and technology and as a business strategy. As a rule, CRM systems consist of contact management modules, sales automation, customer support, and a number of others depending on the functionality [1].

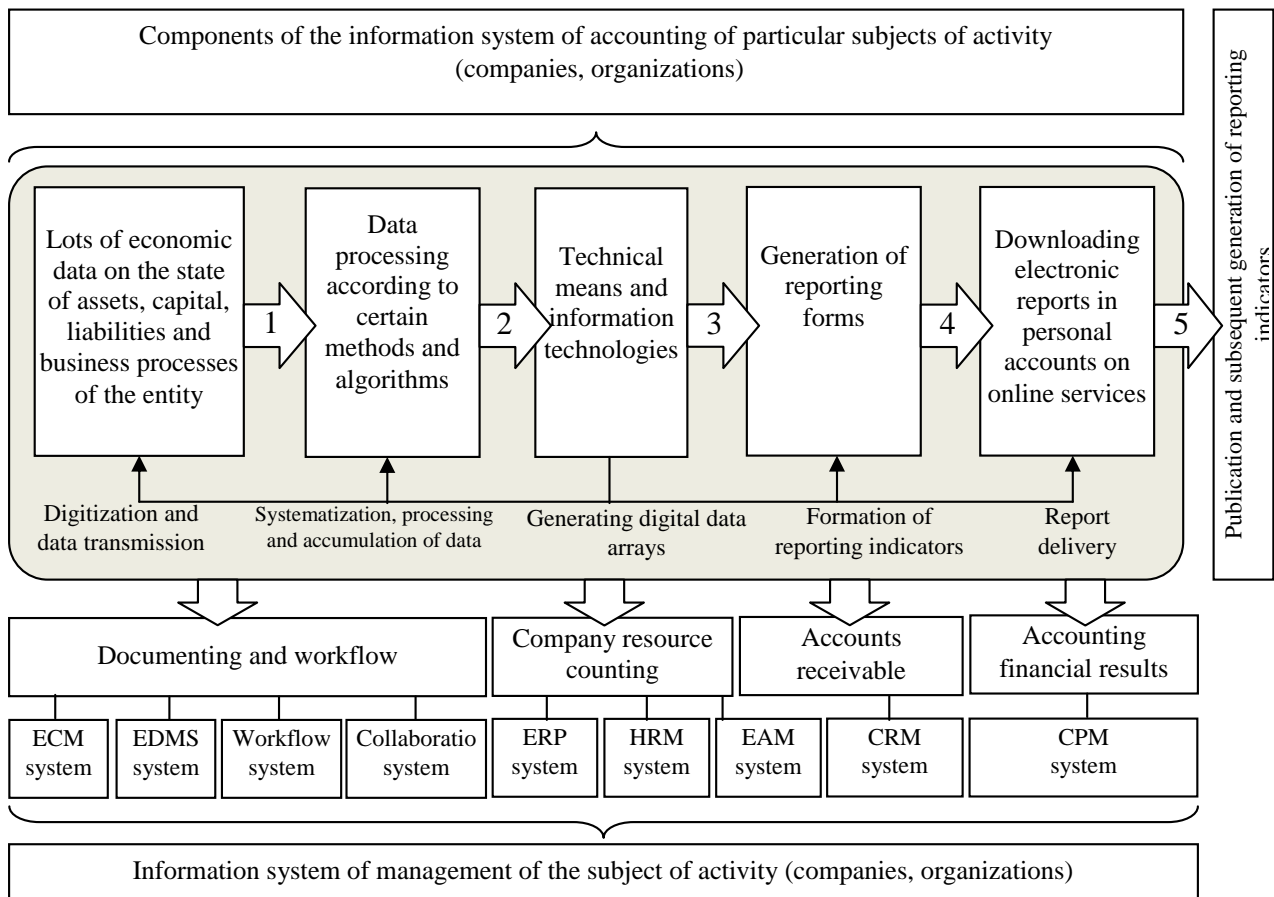


Figure 2. Interconnection of components of the accounting information system with other information management systems of the entity

Notes:

- 1 – arrays of recorded data;
- 2 – arrays of processed data;
- 3 – formation of reporting indicators;
- 4 – reporting to the business entity.

Source: Compiled by the authors.

Simultaneously with CRM-systems systems aimed at managing business processes in various fields were developed. Currently, ERP systems are also called integrated information systems, which in turn are divided into local small, medium and large. Typically, such systems are used to automate all company functions and cover the entire work cycle, from business planning to product sales.

In turn, local systems focus on automating any business function, for instance, bookkeeping. At the same time, many local systems aimed at solving the problems of logistics management (Supply Chain Management), warehouse (Warehouse Management Systems), documents (WorkFlow), business processes (Business Process Management Systems), projects (Project Management Systems), begin not only to exist autonomously or as a module or subsystem of a more extensive information system, but also to integrate new tasks. Thus, besides the traditional tasks of archive management and collective document processing, document management systems solve new problems: systematization and routing of ever-increasing flows of

documents and tasks; management of collective knowledge (intellectualization of business processes).

In the case of business process management systems, or BPMS systems (Business Process Management System), it is a class of software designed for direct business process management (the terms “BPM system” and “BPM” are also used). The boundary between IS-focused and non-focused on business process management is determined by their ability to support business process reengineering and tune in to the process models created by the company designer.

One of the areas of development of the accounting information system is expanding of its management capabilities, including support and decision-making, expert decisions (conclusions); construction of executive information systems with automated templates for information processing, including structural (cluster) or geographical segmentation of data sets; neural statistical analysis, construction of digital models of business processes, etc.

CONCLUSIONS

In the context of information society formation, accounting information systems are an expression of the level of development of economic and technological processes of business management both within an individual business entity and at the national level. Improving technology and information technology leads to constant modernization of accounting and reporting and the creation of the latest accounting information

environment. The development of the management system is inextricably linked with its further integration with the accounting information system as an indispensable element of the management information system. Deepening the digital transmission of accounting processes will expand the possibilities for analysis, planning, and forecasting at all levels, from individual economic entities to the system of national accounts.

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