Considerations Regarding Recordkeeping Tools in Accounting Information Systems

Traian Cristin Nicolae
„Ovidius" University of Constanta, Faculty of Economic Sciences, Romania
traian.nicolae.profesor@gmail.com

Abstract

The purpose of this work consists in the brief description of the developments concerning the instruments used for records in accounting information systems. The accounting information system is currently subject to a major impact generated by new information technology applications, new software programs and hardware devices. We are in full expansion of the use of the Internet in accounting, software and cloud solutions, new legislative requirements, the e-invoice system, new financial reports, reports - the standard fiscal control file SAF-T.

Key words: recordkeeping, accounting, tehnologies
J.E.L. classification: M41, G32

1. Introduction

The tools used to create accounting records have experienced a wide evolution in the course of business in the current period. We are witnessing a set of extensive changes in the accounting information system of entities. The classic accounting system based on classic accounting books has been amplified and expanded by information technology tools. (www.hyperledger.org)

The processing of accounting data in computer networks that communicate via the Internet, the automated acquisition of input data through electronic scanning, the transmission of geo-location data allow a new way of integration in accounting records. (www.hyperledger.org)

Using smart software programs based on smart phones, tablets, laptops allows accounting information to be reported in real time. Wireless, high-speed 5G networks enable the transfer and processing of very large volumes of reliable data. (www.hyperledger.org)

2. Theoretical background regarding the use of accounting tools in accounting information systems

The use of large volumes of accounting data can bring important gains in the accounting records of entities, which can translate into benefits for the different categories of users of accounting information: investors, employees and society in general. Organizations can choose better strategies and allocate resources more efficiently. Accounting data creates significant value for the economy by driving innovation, efficiency and productivity. The use of large volumes of data and the development of their analysis and processing capabilities in accounting have generated substantial benefits for entities in the sense of streamlining the activity and improving the quality of services, for example, by improving the decision-making process, forecasting, predicting market trends and by allowing a better segmentation and understanding of consumer needs.

The use and management of large volumes of accounting data affects many areas of activity, not only digital ones. Big data applications have demonstrated a high level of adaptability to the diverse requirements of the scientific and industrial fields in which they are used. Large volumes of data influence the activity of entities, which are forced to reconsider their organization and business processes taking into account the data they have and which could be transformed into a competitive advantage in the new information-based market. (www.hyperledger.org)

The decision-making process in management accounting is moving from a model based primarily on the experience of the decision-maker to one based on information. The use of large volumes of accounting data offers a new perspective by improving the practices of analysis and predictive modeling in the accounting information system, with a positive effect in the real-time decision-making process. By processing large sets of accounting data collected on existing or potential customers, entities can adapt both their products/services to customer needs and their pricing strategies. The use of accounting data processing algorithms brings entities advantages related to cost reductions and/or revenue increases. Just as it helps companies to increase their productivity, large volumes of data allow public administrations to improve their efficiency in managing areas of interest, it helps global companies to analyze financial-accounting information for strategic planning. (www.hyperledger.org)

3. Research methodology

The research methodology used in this article consists of the empirical research of a data set available on the Internet and the construction of models of accounting records.

The technologies of large volumes of accounting data are becoming a defining element for increasing the competitiveness of companies, which can collect more accurate and detailed data, which will help them understand the needs of customers, their preferences, but also the phenomena that influence performance to obtain superior results. (www.hyperledger.org)

The use of solutions for large volumes of accounting data and the development of analysis and processing capabilities have generated substantial benefits for businesses in the sense of streamlining the activity and improving the quality of services, which can be transferred to consumers, employees and society in general. (www.hyperledger.org)

By using dynamic accounting data processing algorithms, companies can adjust their price level in real time to changes in the supply/demand ratio, thus rebalancing supply and demand. The calibration of individual offer characteristics to those of competitors' offers is a distinct facet of the use of pricing algorithms, the implications of which have been outlined in the previous section.

A key question in the enforcement of tax fraud legislation is whether the emergence of computer algorithms, which are based on large volumes of data, should lead to a rethinking of the way legislation is enforced in this area. Even in a changing technology and business environment, businesses can take traditional efforts, such as corporate compliance programs, to reduce their exposure to potential criminal liability. Large volumes of data and algorithms enable increasingly innovative means of implementing and monitoring tax compliance. (www.hyperledger.org)

Without discounting the role of the human factor in setting business objectives, in choosing the methods to achieve them and, implicitly, in the creation, implementation and use of artificial intelligence (AI) technologies, it has been suggested that, in the future, it could fundamentally affect competitive dynamics. Thus, clearer guidelines are needed on how to apply competition legislation, in situations where cartel agreements are reached through interactions between different AI technologies, without the involvement of the human factor in the actual implementation process.

4. Findings

4.1. Assessments on the changes in the use of record-keeping tools in the information systems of accounting entities

Users of accounting information are now able to extract the data needed for decision-making in an interactive manner and with short reaction times. The use of hardware and software tools, access to high-speed 5G internet or optical cable allows a variety of options for analyzing financial-accounting data issued by entities. (www.hyperledger.org)

We are currently witnessing an explosive evolution of the volume of accounting data, accessible to users through various platforms. In the mentioned context, the users of the accounting data from the annual financial statements: the statement of the financial position, the statement of cash flows, the statement of the overall result, the statement of changes in equity, the notes comprising the

accounting policies, are able to perform quantifications of the financial-accounting information in comparatively new ways with traditional approaches. (www.hyperledger.org)

The mentioned technological developments raise in front of the accounting, accounting data processing systems perspectives but also new challenges to which they must give the appropriate answers. The information record system based on double-entry bookkeeping is being expanded and profoundly modified. Accounting through the use of blockchain tools causes the de-localization and multiplication of accounting registers. (www.hyperledger.org)

4.2. Case study on aspects of the implementation of accounting record-keeping tools

Table no. 1 Table of transactions related to the case study for accounting record tools (Nicolae, 2010)

Transactions	Textual description of the transactions
01.01.2024	The entity Swa55 launched on 01.01.2024 a loan from the bond issue in the amount of 100,000,000 monetary units (mu), guaranteed by an investment in fund units.
01.01.2024	*The acquisition of the stock portfolio is recorded*
01.01.2024	Installment 1 of the 25,000,000 mu of the loan from the bond issue is transferred
01.04.2024	Installment 2 of the 25,000,000 mu of the loan from the bond issue is transferred
01.07.2024	Installment 3 of the 25,000,000 mu of the loan from the bond issue is transferred
01.10.2024	Installment 4 of the 25,000,000 mu of the loan from the bond issue is transferred
31.12.2024	The capitalized interest in the amount of 500,000 mu relating to the investment is highlighted
31.12.2024	The calculated interest related to the loan in the amount of 1,000,000 mu is highlighted
31.12.2025	The capitalized interest in the amount of 500,000 mu relating to the investment is highlighted
31.12.2025	The calculated interest related to the loan in the amount of 1,000,000 mu is highlighted
31.12.2026	The capitalized interest in the amount of 500,000 mu relating to the investment is highlighted
31.12.2026	The calculated interest related to the loan in the amount of 800,000 mu is highlighted
31.12.2027	The capitalized interest in the amount of 500,000 mu relating to the investment is highlighted
31.12.2027	The calculated interest related to the loan in the amount of 600,000 mu is highlighted
01.01.2028	The loan from the bond issue due is repaid
01.01.2028	The portfolio is for sale - investments in fund units

Note: Debit = D, Credit = C

Source: Case study data proposed by the author

Accounting data

(Accounting records made by the author)

The following operations take place in the Entity's accounting:

Table no. 2 Recording the purchase of the stock portfolio used as collateral

Account - D	Account - C	Amount
Financial instruments – Equity portfolio	*Available in digital currency*	100,000,000

Source: Calculations and records made by the author

Table no. 3 Installment 1 of the bond loan is transferred

Account - D	Account - C	Amount
Available in digital currency	*Bond loan issued in digital currency*	25,000,000

Source: Calculations and records made by the author

Table no. 4 Installment 2 of the bond loan is transferred

Account - D	Account - C	Amount
Available in digital currency	*Bond loan issued in digital currency*	25,000,000

Source: Calculations and records made by the author

Table no. 5 Installment 3 of the bond loan is transferred

Account - D	Account - C	Amount
Available in digital currency	*Bond loan issued in digital currency*	25,000,000

Source: Calculations and records made by the author

Table no. 6 Installment 4 of the bond loan is transferred

Account - D	Account - C	Amount
Available in digital currency	*Bond loan issued in digital currency*	25,000,000

Source: Calculations and records made by the author

Table no. 7 Capitalized interest in the amount of 500,000 mu relating to the share portfolio is highlighted

Account - D	Account - C	Amount
Financial instruments – Equity portfolio	*Financial gains related to the share portfolio*	500,000

Source: Calculations and records made by the author

Table no. 8 The calculated interest related to the bond loan in the amount of 1,000,000 mu is highlighted

Account - D	Account - C	Amount
Financial expenses related to the bond loan issued in digital currency	*Available in digital currency*	1,000,000

Source: Calculations and records made by the author

Table no. 9 Capitalized interest in the amount of 500,000 mu relating to the share portfolio is highlighted

Account - D	Account - C	Amount
Financial instruments – Equity portfolio	*Financial gains related to the share portfolio*	500,000

Source: Calculations and records made by the author

Table no. 10 The calculated interest related to the bond loan in the amount of 1,000,000 mu is highlighted

Account - D	Account - C	Amount
Financial expenses related to the bond loan issued in digital currency	*Available in digital currency*	1,000,000

Source: Calculations and records made by the author

Table no. 11 Capitalized interest in the amount of 500,000 mu relating to the share portfolio is highlighted

Account - D	Account - C	Amount
Financial instruments – Equity portfolio	*Financial gains related to the share portfolio*	500,000

Source: Calculations and records made by the author

Table no. 12 The calculated interest related to the bond loan in the amount of 800,000 mu is highlighted

Account - D	Account - C	Amount
Financial expenses related to the bond loan issued in digital currency	*Available in digital currency*	800,000

Source: Calculations and records made by the author

Table no. 13 Capitalized interest in the amount of 500,000 mu relating to the share portfolio is highlighted

Account - D	Account - C	Amount
Financial instruments – Equity portfolio	*Financial gains related to the share portfolio*	500,000

Source: Calculations and records made by the author

Table no. 14 The calculated interest related to the bond loan in the amount of 500,000 mu is highlighted

Account - D	Account - C	Amount
Financial expenses related to the bond loan issued in digital currency	*Available in digital currency*	500,000

Source: Calculations and records made by the author

Table no. 15 The bond loan owed is repaid

Account - D	Account - C	Amount
Bond loan issued in digital currency	*Available in digital currency*	100,000,000

Source: Calculations and records made by the author

Table no. 16 The portfolio is sold - investments in fund units

Account - D	Account - C	Amount
Available in digital currency	*Financial instruments – Equity portfolio*	100,000,000
Available in digital currency	*Earnings realized on portfolio investments*	2,000,000

Source: Calculations and records made by the author

The following operations take place in Cloud Mirror accounting:

Table no. 17 Registration of the electronic transfer of the purchase of the stock portfolio used as collateral

Account - D	Account - C	Amount
Mirror account N - Financial instruments - Share portfolio	*N Mirror Account - Available in digital currency*	100,000,000

Source: Calculations and records made by the author

Table no. 18 The electronic transfer is recorded - installment 1 of the bond loan

Account - D	Account - C	Amount
Mirror account N - Financial instruments - Share portfolio	*N Mirror Account - Available in digital currency*	25,000,000

Source: Calculations and records made by the author

Table no. 19 The electronic transfer is recorded - installment 2 of the bond loan

Account - D	Account - C	Amount
Mirror account N - Financial instruments - Share portfolio	*N Mirror Account - Available in digital currency*	25,000,000

Source: Calculations and records made by the author

Table no. 20 The electronic transfer is recorded - installment 3 of the bond loan

Account - D	Account - C	Amount
Mirror account N - Financial instruments - Share portfolio	*N Mirror Account - Available in digital currency*	25,000,000

Source: Calculations and records made by the author

Table no. 21 The electronic transfer is recorded - installment 4 of the bond loan

Account - D	Account - C	Amount
Mirror account N - Financial instruments - Share portfolio	*N Mirror Account - Available in digital currency*	25,000,000

Source: Calculations and records made by the author

Table no. 22 The electronic transfer is registered - the capitalized interest in the amount of 500,000 mu related to the share portfolio

Account - D	Account - C	Amount
Mirror account N - Financial instruments - Share portfolio	*Mirror account N - Financial gains related to the share portfolio*	500,000

Source: Calculations and records made by the author

Table no. 23 The electronic transfer is registered - the calculated interest related to the bond loan in the amount of 1,000,000 mu

Account - D	Account - C	Amount
Mirror account N - Financial expenses related to the bond loan issued in digital currency	*N Mirror Account - Available in digital currency*	1,000,000

Source: Calculations and records made by the author

Table no. 24 The electronic transfer is registered - the capitalized interest in the amount of 500,000 mu related to the share portfolio

Account - D	Account - C	Amount
Mirror account N - Financial instruments - Share portfolio	*Mirror account N - Financial gains related to the share portfolio*	500,000

Source: Calculations and records made by the author

Table no. 25 The electronic transfer is recorded - the calculated interest related to the bond loan in the amount of 1,000,000 mu

Account - D	Account - C	Amount
Mirror account N - Financial expenses related to the bond loan issued in digital currency	*N Mirror Account - Available in digital currency*	1,000,000

Source: Calculations and records made by the author

Table no. 26 The electronic transfer is registered - the capitalized interest in the amount of 500,000 mu related to the share portfolio

Account - D	Account - C	Amount
Mirror account N - Financial instruments - Share portfolio	*Mirror account N - Financial gains related to the share portfolio*	500,000

Source: Calculations and records made by the author

Table no. 27 The electronic transfer is registered - the calculated interest related to the bond loan in the amount of 800,000 mu

Account - D	Account - C	Amount
Mirror account N - Financial expenses related to the bond loan issued in digital currency	*N Mirror Account - Available in digital currency*	800,000

Source: Calculations and records made by the author

Table no. 28 The electronic transfer is registered - the capitalized interest in the amount of 500,000 mu related to the share portfolio

Account - D	Account - C	Amount
Mirror account N - Financial instruments - Share portfolio	*Mirror account N - Financial gains related to the share portfolio*	500,000

Source: Calculations and records made by the author

Table no. 29 The electronic transfer is registered - the calculated interest related to the bond loan in the amount of 500,000 mu

Account - D	Account - C	Amount
Mirror account N - Financial expenses related to the bond loan issued in digital currency	*N Mirror Account - Available in digital currency*	500,000

Source: Calculations and records made by the author

Table no. 30 The electronic transfer is registered - loan repayment from bonds due

Account - D	Account - C	Amount
Mirror account N - Bond loan issued in digital currency	*N Mirror Account - Available in digital currency*	100,000,000

Source: Calculations and records made by the author

Table no. 31 The electronic transfer is recorded - sale of the portfolio - investment in fund units

Account - D	Account - C	Amount
N Mirror Account - Available in digital currency	*Mirror account N - Financial instruments - Share portfolio*	100,000,000
N Mirror Account - Available in digital currency	*Mirror Account N - Earnings realized from portfolio investments*	2,000,000

Source: Calculations and records made by the author

5. Conclusions

In my opinion, the use of solutions for large volumes of accounting data and the development of their analysis and processing capabilities have generated substantial benefits for businesses in the sense of streamlining the activity and improving the quality of services, which can be transferred to consumers, employees and society in general. Big volumes of accounting data is a technology that can be implemented in almost any industry and has the ability to significantly influence the operation of that industry. (www.hyperledger.org)

The use of digital platforms increases consumer choice, generates alternative business models, based on new technologies and access to the global market. The use of accounting data processing algorithms brings advantages to companies, which adjust, in real time, the price level to changes in the demand/offer ratio, ensuring the rebalancing of demand and supply. The high level of transparency of retail markets, due to the possibility to compare prices on the Internet, has generated fiercer price competition, both online and offline, as well as an increase in the visibility of products/brands on the Internet, with beneficial effects on consumers, while raising competition concerns related to tacit coordination or anti-competitive agreements. On the one hand, the use of technologies of large volumes of accounting data helps companies to increase their productivity, achieve increases in operational and transactional efficiency, allows public administrations to improve their efficiency in managing areas of interest, helps global organizations in analyzing information for developing strategic plans. (www.hyperledger.org)

6. References

- IASB (International Accounting Standards Board), 2011. *International Financial Reporting Standard 13 Fair Value Measurement*. [online] Available at: http://eifrs.ifrs.org
- IASB (International Accounting Standards Board), 2022. *International Financial Reporting Standards (IFRSs)*. [online] Available at: http://eifrs.ifrs.org
- * * * *Law of the Fiscal Code of Romania*
- Nicolae, T., 2010. *Standarde contabile [Accounting standards]*. Constanta: Ex Ponto Publishing House.
- Nicolae, T. C., 2015. *Contabilitate financiară aprofundată: caiet de studiu individual: învățământ la distanță(ID) [Advanced financial accounting: individual study book for distance learning (DL)]*. Constanta: Ovidius University Press Publishing House.

- www.arbc.ro
- www.bnr.ro.
- www.cdep.ro.
- www.ccr.ro.
- https://eba.europa.eu.
- www.insse.ro.