STRATEGII MANAGERIALE

MANAGEMENT STRATEGIES

Revistă editată de
Universitatea „Constantin Brâncoveanu”
Piteşti

Anul XVII, nr. IV (66) / 2024

Editura
Independența Economică

COLECTIV EDITORIAL:

Prof. univ. dr. Alexandru Puiu – Fondatorul revistei şi Preşedinte al consiliului ştiinţific, Fondatorul Universităţii „Constantin Brâncoveanu"

Consiliul ştiinţific:
Dumitru Miron, *ASE Bucureşti*
Viorel Lefter, *ASE Bucureşti*
Victor Manole, *ASE Bucureşti*
Ovidiu Puiu, *Universitatea "Constantin Brancoveanu"*
Ion Scurtu, *Universitatea "Constantin Brâncoveanu"*
Marius Gust, *Universitatea "Constantin Brâncoveanu"*
Iuliana Ciochină, *Universitatea "Constantin Brâncoveanu"*
Mihaela Asandei, *Universitatea "Constantin Brâncoveanu"*
Nicolae Grădinaru, *Universitatea "Constantin Brancoveanu"*
Camelia Vechiu, *Universitatea "Constantin Brâncoveanu"*
Sebastian Ene, *Universitatea "Constantin Brâncoveanu"*
Dorina Luţă, *Universitatea "Constantin Brâncoveanu"*
Iuliana Talmaciu , *Universitatea "Constantin Brâncoveanu"*
Niculina Stănescu *Universitatea "Constantin Brâncoveanu"*
Cristina Gănescu *Universitatea "Constantin Brâncoveanu"*
Gianina Negrău *Universitatea "Constantin Brâncoveanu"*
Laura Panoiu *Universitatea "Constantin Brâncoveanu"*

CONSILIUL EDITORIAL:
Redactor Şef:
Dan Micudă

Redactori:
Cristina Şerbanică
Cristian Morozan
Razvan Decuseară

Georgiana Mândreci (Referent limba engleză)
Cristinel Munteanu (Referent limba română)

Autorii îşi asumă deplina responsabilitate în ceea ce priveşte materialele publicate.

© Editura „Independenţa Economică"
Piteşti, Calea Bascovului nr. 2A
Tel./Fax: 0248/21.64.27

Editură acreditată de către C.N.C.S.I.S.

Niciun material nu poate fi reprodus fără permisiunea scrisă a Editurii.

ISSN 2392 – 8123
ISSN–L 1844 – 668X

CUPRINS

SECTION I
REGIONAL DEVELOPMENT STRATEGIES AND POLICIES

SECTION II
FINANCIAL AND ACCOUNTING

SECTION I
REGIONAL DEVELOPMENT STRATEGIES AND POLICIES

EMAS – THE COMMUNITY ENVIRONMENTAL MANAGEMENT AND AUDIT SYSTEM, TOOL FOR CONTINUOUS IMPROVEMENT OF ENVIRONMENTAL PERFORMANCE

Albu Mădălina[1]

Abstract: *Monitoring and permanent improvement of environmental performance is a desire of all organizations, regardless of the field of activity. In this sense, the member countries of the European Union agreed on a common environmental management and audit tool - EMAS. Participation in this system is accessible to all economic and industrial entities, including public and private services. Organizations that voluntarily decide to undertake, through their own commitments, the evaluation and reduction of their impact on the environment, will monitor their activity and make reports in the field. All these aspects will be registered in the EMAS national register. By implementing, developing and continuously improving an environmental management system and as a result of applying audit actions, organizations manage to monitor and improve their environmental performance, providing customers with information that reflects their commitment to compliance with legislation in the field.*

This paper presents the current state of implementation of the concepts promoted by EMAS at the level of organizations in Romania, identifying the possibilities for improving this activity.

Cuvinte cheie: *environment, audit, performance, implementation, improvement*

Clasificarea JEL: P28, M42

1. Introduction

Monitoring and continuous improvement of environmental performance is a desire of all organizations, regardless of the field of activity. At the level of the European Union, it was agreed upon the implementation of a common environmental management and audit instrument - EMAS. Through it, the member countries wish to promote the concept of continuous improvement of all their performances, especially those concerning environmental management systems. Establishing indicators that lead to the achievement of an activity through which environmental performance is systematically assessed is the main objective of all regulations on the basis of which the Community environmental and audit system operates.

The implementation of this European environmental management system cannot be achieved without the objective involvement of all stakeholders, employees, customers, all organizations.In the context of sustainable development of organizations, the activity aimed at protecting the environment represents a major objective, and becomes an integral part of general management.

The evolution of the concept of a Community environmental management system is reflected in European and national regulations. The role of legislation in the field is to facilitate the implementation of these concepts, to familiarize and train organizations in the measures they must apply. Romania, like all member countries of the European Union, is making efforts to implement the concepts promoted by EMAS.

Continuous monitoring of environmental performance and their improvement are aspects through which organizations can contribute to the sustainable development of society and to environmental protection, at the same time as improving their own reputation.

2. Legislative introspection in the field of EMAS

In order to regulate the Community Eco-Management and Audit Scheme, a series of documents have been drafted and approved at the European Union level, which have the role of setting the rules in this vast field.

[1] PhD Associate Professor, Petroleum-Gas University of Ploiești, Faculty of Economic Sciences, malbu@upg-ploiesti.ro

Over the years, the documentation has aimed to adapt to the innovations in the field and maintain the access of organizations to it.

Starting with 1993, through a series of normative acts and regulations, the European Parliament has integrated into its proceedings the regulation of the voluntary participation of organizations in a Community Eco-Management and Audit Scheme (EMAS). The main purpose of these domains was and is to determine organizations, regardless of their field of activity and size, to have a pro-active attitude towards the field of environmental protection.

The main documents that establish the EMAS domain are:

Table no. 1. EMAS documents at international level

Documents	Issuer	Content
Regulation (CEE) no. 1836/1993	European Parliament and Council of Europe	Voluntary participation of enterprises in the industrial sector and organisations in a Community eco-management and audit scheme (EMAS)
Regulation (CE) no. 761/2001	European Parliament and Council of Europe	Voluntary participation of enterprises in the industrial sector and organizations in a Community eco-management and audit scheme (EMAS)
Regulation (CE) no. 1221/2009	European Parliament and Council of Europe	Voluntary participation of enterprises in the industrial sector and organizations in a Community eco-management and audit scheme (EMAS)
Decision (UE) 2023/2463	European Commission	Publication of the user guide setting out the steps required to participate in the EU Eco-Management and Audit Scheme (EMAS)

Source: www.anpm.ro – National Environmental Protection Agency website

At the national level, Romania has aligned itself with international requirements. In this regard, a series of regulations in this field are valid in our country. Among these are:

- Government Decision no. 57/2011 on the application of the provisions of Regulation (EC) no. 1221/2009
- Order no. 2086/2011 laying down the requirements for the registration procedure in the Community environmental management and audit system

The main role of these regulatory acts is to encourage all organizations to participate in the EMAS requirements, on a voluntary basis. The ultimate goal is to have control over the way in which environmental protection issues are managed.

EMAS creates synergy between existing documents and assumes the role of completing the regulations in force. At the heart of all the regulations defined by the European environmental management and audit system are the principles listed and established by the standards in the ISO 9000 series - quality management systems, ISO 14000 - environmental management systems or ISO 50000 - energy management.

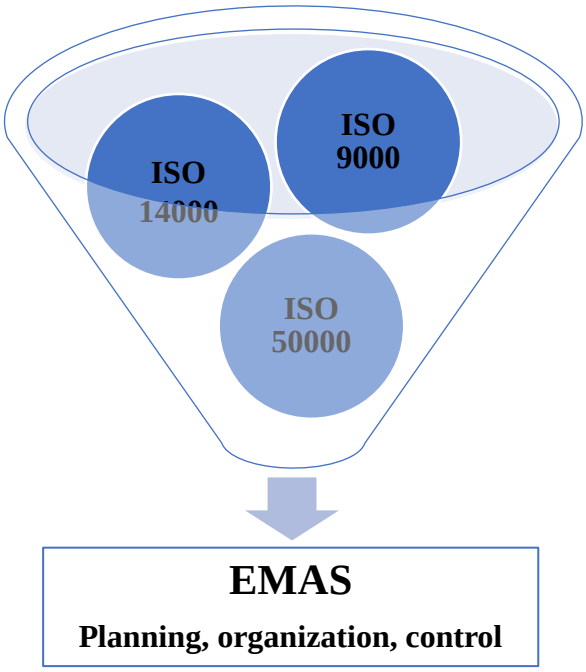


Figure nr. 1. Interaction between management systems
Source: Decision (UE) 2023/2463

Access to information, the application of assistance measures in the field, as well as the availability of all parties involved, are aspects that justify the requirements of EMAS.

The international EMAS regulations apply to all 27 member countries of the European Union, as well as to those countries that are candidates for accession.

All member states have undertaken to facilitate access to all available information, to encourage enterprises to access available support funds and to ensure specialized technical assistance.

3. Community Eco-Management and Audit Scheme – features, advantages, registration

The Community Eco-Management and Audit Scheme – EMAS is a management tool that provides tools for assessing, reporting and improving environmental performance.

Participation in EMAS is open to all companies and other private and public sector organisations that are committed to improving their overall environmental performance and are located in Member States of the European Union and in other countries of the European Economic Area (EEA) - Iceland, Liechtenstein and Norway.

Organisations participating in EMAS come from all sectors, from the industrial or primary production sector, the service sector, the public sector or non-governmental organisations (NGOs).

An important aspect is to encourage SMEs to take part in this scheme. The support that SMEs can receive from EU Member States must be manifested by obtaining easy access to information, to existing support funds and by providing technical assistance measures.

EMAS aims to contribute to the optimization of production processes in various sectors of activity and to reduce the impact that all industrial activities have on the environment.

At the European Union level, the rationale for environmental policy is characterised by economic and environmental factors:

• Economic factors:
  - the advantages and/or disadvantages of harmonising regulations and standards depending on the level of development of each EU country;
  - the advantages and/or disadvantages of implementing directives in EU countries.

• Environmental factors:
  - transboundary pollution, hazardous imports and exports, acid rain, etc.;
  - protection of the ozone layer, the greenhouse effect,
  - protection of biodiversity; protection of rivers, streams, surface and coastal waters.

Through the regulations and actions within EMAS, organisations have the opportunity to demonstrate that they are able to comply with all aspects of environmental protection. Organisations can also encourage all entities that collaborate with them to formulate a strategy based on environmental management regulations.

3.1. The advantages of EMAS

The priority for the European environmental management and audit system is to provide advantages in terms of reducing the impact that various activities have on the environment. The EMAS documentation defines the elements through which information can be reported in the field, so that sustainable management can be defined at the level of organizations.

Figure no. 2. EMAS acronym

In accordance with the regulations in force, EMAS has the following main advantages:
- management of reports on the sustainability of the activity carried out
- environmental protection
- efficient use of all resources used
- monitoring the supply chain and making it more efficient from the point of view of sustainability
- defining and updating the environmental strategy
- developing sustainable projects ¬ integrating environmental legislation
- using the EMAS logo

The implementation of EMAS regulations at the level of organizations allows them to develop competitive advantages domestically and internationally. The opportunities offered by entering the sustainability area must be maximized by company management in order to streamline production costs and increase profitability.

Achieving transparency in environmental aspects leads to increased trust given by customers, suppliers and all stakeholders. Improving the image on the market is the result of all these steps.

3.2. EMAS registration

According to the specifications in the documents in force, voluntary registration in EMAS is allowed for all organizations that prioritize increasing environmental performance.

In our country, the Ministry of Environment has the competence regarding registration in EMAS. Within it, the General Directorate for Impact Assessment and Pollution Control operates, with direct responsibilities in this area.

In order to continuously improve environmental performance, organizations can undertake the preparation of EMAS reports. For this, the following stages are carried out:

- assessment of the impact of the activity carried out on the environment
- adoption and implementation of the environmental policy
- implementation, maintenance and improvement of the environmental management system in accordance with ISO 14001
- internal auditing
- preparation of the environmental statement
- verification of documents prepared by the environmental verifier.

Following the preparation of reports in the EMAS register, organizations should be able to respond to a number of important aspects for the conduct of their activities. These are schematically presented in figure 3.

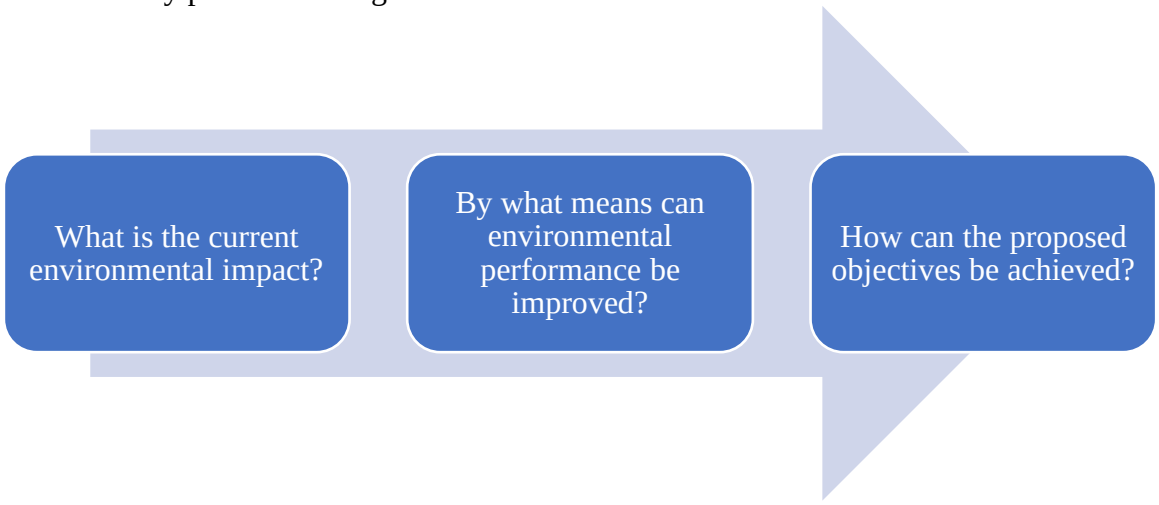


Figure no. 3. Debate topics based on EMAS reporting

3.4. EMAS at the level of organizations in Romania

EMAS regulations are also implemented and maintained within organizations in Romania. In order to validate the documentation to be registered in EMAS, organizations must contact an environmental verifier from Romania or from outside the country.

Following the verification activity, he is able to confirm that there are no risks at the level of the respective organization in terms of environmental protection activity.

At the national level, more and more organizations are aware of the advantages offered by EMAS registration and the implementation of the principles of these regulations.

On 28.11.2024, 18 organizations covering a wide range of fields of activity are registered in the national EMAS register.

We can highlight as an example:

- Nuclearelectrica SA Branch Nuclear Fuel Plant Pitesti

- Agency for Environmental Protection Sibiu
- Bruckenthal National Museum – Sibiu
- SC MONTAJ CARPATI SA – Prahova

It is obvious that Romania is at the beginning of its journey in this field and that there are many aspects to improve.

The primary way in which organizations in Romania could be made aware of the advantages of registering in EMAS can be represented by organizing conferences, symposiums, round tables on this topic.

Affiliation to the concepts promoted by international and national regulations in the field of environmental management and audit systems, have the role of improving the trust given by customers, increasing visibility on the market and reducing the impact on the environment.

4. Conclusions

In the context of sustainable development of organizations, the activity aimed at protecting the environment represents a major objective, and becomes an integral part of general management.

The implementation within organizations of the concepts derived from the EMAS documentation cannot be achieved without the objective involvement of all stakeholders, employees, customers, all organizations.

The implementation of EMAS regulations allows organizations that voluntarily adopt these regulations to develop their competitive advantages domestically and internationally. Maximizing the opportunities offered by entering the sustainability area must be a strategic objective at the level of company management.

Although our country is at the beginning of its journey in this field, the organization of conferences, round tables with appropriate themes will have the role of increasing managers interest in these aspects.

Biliography

1. Enescu, M – *Managementul mediului*, Editura Universitaria, 2016
2. Moraru, Radu-Adrian – *Managementul mediului*, Editura Ion Ionescu de la Brad, 2018
3. Rațiu, P., Mortan, M – *Dynamics of certified environmental management systems: ISO 14001 and EMAS in Romania*, Annales Universitatis Apulensis series Oeconomica, 16(1), 2014, p. 198-211
4. Rojanschi, V, Grigore Rădulescu, F – *Sisteme de management*, Editura Pro Universitaria, București, 2016
5. Eco-Management and Audit Scheme (EMAS) - An official website of the European Union

INTEGRATING CIRCULAR ECONOMY STRATEGIES IN LOCAL PUBLIC TRANSPORT: A BUSINESS DEVELOPMENT PERSPECTIVE

Dumitrașcu, Sorin-Ion[1]

Summary

The paper explores integrating circular economy strategies into local public transport systems, emphasizing sustainable urban development and business innovation. It examines resource efficiency, waste reduction, and energy optimization through innovative models like predictive maintenance, product-as-a-service, and modular vehicle designs. Employing a mixed-methods approach, the study highlights the role of municipalities in leveraging local governance and digital solutions to enhance circularity. Case studies demonstrate successful implementations, such as Amsterdam's renewable-powered buses and Warsaw's collaborative efforts. Challenges, including regulatory, financial, and technological barriers, are addressed with scalable solutions. The research underscores the transformative potential of circular strategies for sustainable urban mobility.

Keywords: circular economy, local public transport, business development

JEL code: Q01, R41, L91

1. Introduction

The integration of circular economy strategies in local public transport systems presents a unique opportunity for sustainable urban development and business innovation. This approach aligns with the growing emphasis on urban-scale competitiveness and the ability of cities to engage various constituents in a smart urban ecosystem, as highlighted by Angelidou. By focusing on local-level strategies, municipalities can leverage their flexibility to explore different business and governance models tailored to the specific needs and resources of their communities.

1.1 Background on Circular Economy

The circular economy concept emphasizes the importance of closing resource loops and minimizing waste, which is particularly relevant in the context of urban public transport systems. This approach aligns with the growing emphasis on urban-scale competitiveness and the ability of cities to engage various constituents in a smart urban ecosystem (Anttiroiko, 2023). In the realm of public transport, circular economy strategies can be applied to various aspects, including vehicle lifecycle management, infrastructure development, and energy consumption patterns (Blinova, Ponomarenko and Knysh, 2022).

1.2 A Business Perspective on Local Public Transport

From a business development perspective, local public transport systems present unique opportunities for implementing circular economy strategies. These strategies can encompass various aspects of the transport ecosystem, including vehicle lifecycle management, infrastructure development, and energy consumption patterns . By focusing on local-level strategies, municipalities can leverage their flexibility to explore different business and governance models tailored to the specific needs and resources of their communities (Anttiroiko, 2023).

1.3 Research Objectives and Scope

This research aims to investigate the potential for integrating circular economy strategies within local public transport systems, with a focus on business development opportunities and challenges. Specifically, we will examine how municipalities can leverage their unique position to implement innovative circular economy practices in public transport, considering factors

[1] PhD Candidate, Valahia University of Târgoviște, sorin.dumitrașcu2@gmail.com

such as vehicle lifecycle management, infrastructure development, and energy consumption patterns (Anttiroiko, 2023).

2. Literature Review

The literature review begins by examining the conceptual foundations of circular economy in the context of urban development and public transport systems. A key aspect of this analysis is the exploration of how circular economy principles can be integrated into local-level strategies, leveraging the unique position of municipalities to implement innovative practices (Anttiroiko, 2023). This approach aligns with the growing emphasis on urban-scale competitiveness and the ability of cities to engage various constituents in a smart urban ecosystem.

2.1 Circular Economy Models and Frameworks

The circular economy concept encompasses various models and frameworks that aim to optimize resource use and minimize waste throughout the lifecycle of products and services. One such framework is the ReSOLVE model, which outlines six key actions for implementing circular economy principles: Regenerate, Share, Optimize, Loop, Virtualize, and Exchange (Blinova, Ponomarenko and Knysh, 2022). This model provides a structured approach for businesses and policymakers to identify opportunities for circularity in local public transport systems, addressing aspects such as vehicle design, infrastructure development, and energy management.

2.2 Current State of Local Public Transport Systems

Local public transport systems across the globe are undergoing significant transformations to address environmental concerns and improve operational efficiency. In many urban areas, these systems are characterized by aging infrastructure, inefficient resource utilization, and high carbon emissions, presenting both challenges and opportunities for implementing circular economy strategies (Anttiroiko, 2023). The integration of smart technologies and data-driven solutions is emerging as a key enabler for optimizing resource flows and enhancing the circularity of urban transport networks (Anttiroiko, 2023).

2.3 Business Development Strategies in Public Transport

The development of business strategies in public transport within the context of circular economy principles requires a multifaceted approach that considers both economic and environmental factors. One key aspect is the implementation of innovative business models that promote resource efficiency and waste reduction, such as pay-per-use schemes for vehicles or infrastructure sharing among different transport operators (Stoian, 2023). Additionally, the integration of digital technologies and data analytics can enhance the optimization of resource flows and improve the overall circularity of urban transport networks (Anttiroiko, 2023).

3. Methodology

To investigate the integration of circular economy strategies in local public transport systems, this study employs a mixed-methods approach combining quantitative and qualitative data analysis. The methodology includes a comprehensive literature review, case studies of successful implementations, and semi-structured interviews with key stakeholders in the public transport sector (Stoian, 2023). Additionally, we utilize statistical indicators to quantify the impact of digitalization on the development of circular economy business models within the context of local public transport (Țurcan, Turcan and Stratila, 2023).

3.1 Research Design

The research design for this study incorporates a mixed-methods approach, combining quantitative analysis of circular economy indicators with qualitative case studies of innovative

public transport initiatives. To capture the multifaceted nature of circular economy integration in local public transport, we employ a multi-level analysis framework that examines micro (individual transport operators), meso (urban transport networks), and macro (city-wide policies) levels of implementation (Anttiroiko, 2023). This approach allows for a comprehensive assessment of the challenges and opportunities associated with circular economy strategies across different scales of urban transport systems.

3.2 Data Collection Methods

The data collection process involves a multi-pronged approach, combining quantitative and qualitative methods to capture a comprehensive picture of circular economy integration in local public transport systems. Primary data sources include semi-structured interviews with key stakeholders such as transport operators, city planners, and policymakers, as well as surveys distributed to public transport users to gauge their perceptions and experiences with circular economy initiatives (Anttiroiko, 2023). Additionally, secondary data is gathered from municipal reports, industry publications, and environmental performance indicators to provide a broader context for the analysis.

3.3 Analysis Techniques

The analysis techniques employed in this study include both quantitative and qualitative methods to provide a comprehensive understanding of circular economy integration in local public transport. Quantitative analysis involves statistical modeling of key performance indicators related to resource efficiency, waste reduction, and economic impact, while qualitative analysis focuses on thematic coding of interview transcripts and case study narratives (Țurcan, Turcan and Stratila, 2023). Additionally, a multi-scalar approach is adopted to examine the interplay between micro, meso, and macro levels of circular economy implementation, considering factors such as the geographical locus of knowledge and urban-scale competitiveness (Anttiroiko, 2023).

4. Circular Economy Strategies for Local Public Transport

This section examines specific circular economy strategies that can be implemented in local public transport systems. One key approach is the adoption of product-as-a-service models for vehicle fleets, which can optimize resource utilization and extend the lifespan of transport assets (Mukhlis, 2021). Additionally, the integration of smart technologies in public transport infrastructure can facilitate real-time monitoring and optimization of energy consumption, leading to improved efficiency and reduced environmental impact (Anttiroiko, 2023).

4.1 Resource Efficiency and Waste Reduction

Enhancing resource efficiency in local public transport involves implementing predictive maintenance systems for vehicle fleets. These systems leverage real-time data analytics and machine learning to optimize maintenance schedules, minimize downtime, and extend the lifespan of transport assets (Zhang, Gruhler and Schiller, 2023). Furthermore, integrating waste-to-energy technologies in public transport infrastructure helps close resource loops by converting organic waste into biofuels for vehicles, thereby reducing the sector's environmental impact.

4.2 Sustainable Fleet Management

One innovative approach to sustainable fleet management is the implementation of vehicle-to-grid (V2G) technology, which allows electric buses to serve as mobile energy storage units when not in use (Kurniawan *et al.*, 2022). This technology not only optimizes the use of renewable energy sources but also provides additional revenue streams for public

transport operators, enhancing the economic viability of circular economy strategies in the sector (Mahjoob, Alfadhli and Omachonu, 2023).

4.3 Energy-efficient Infrastructure

One innovative approach to developing energy-efficient infrastructure in local public transport is the implementation of smart lighting systems along bus routes and at transit stations. These systems utilize motion sensors and adaptive controls to optimize energy consumption, reducing overall electricity usage while maintaining safety standards (Wardono *et al.*, 2023). Additionally, the integration of solar-powered charging stations for electric buses at key transit hubs can further enhance the sustainability of public transport systems, aligning with circular economy principles by harnessing renewable energy sources (Dimitriou and Karagkouni, 2022).

4.4 Digital Solutions for Optimization

Digital solutions play a crucial role in optimizing circular economy strategies within local public transport systems. Advanced data analytics and artificial intelligence can be leveraged to develop predictive maintenance models, reducing vehicle downtime and extending asset lifespans (Akberdina *et al.*, 2023). Additionally, blockchain technology can enhance supply chain transparency and traceability, facilitating the tracking of materials and components throughout their lifecycle in public transport infrastructure (Rukanova *et al.*, 2023).

5. Business Development Opportunities

The integration of circular economy principles in local public transport systems presents numerous business development opportunities. One key area is the creation of innovative financing models that leverage the extended lifecycle of assets in a circular economy, such as performance-based contracts for vehicle manufacturers that incentivize durability and recyclability (Stoian, 2023). Additionally, the implementation of digital platforms for real-time asset tracking and predictive maintenance can create new revenue streams for technology providers while optimizing resource utilization in public transport operations (Sgambaro *et al.*, 2024).

5.1 New Revenue Streams

One innovative approach to creating new revenue streams in local public transport is the implementation of data monetization strategies. By leveraging the vast amounts of data generated through smart transport systems, municipalities can develop valuable insights for urban planning, traffic management, and targeted advertising, creating additional income sources while enhancing service quality (Fernando, Shaharudin and Abideen, 2022). Furthermore, the adoption of product-as-a-service models for vehicle fleets can optimize resource utilization and extend the lifespan of transport assets, potentially reducing long-term costs and generating new revenue opportunities.

5.2 Cost Reduction through Circular Practices

One effective approach to cost reduction through circular practices in local public transport is the implementation of predictive maintenance systems. These systems leverage real-time data analytics and machine learning algorithms to optimize maintenance schedules, minimize vehicle downtime, and extend the lifespan of transport assets, ultimately reducing operational costs and resource consumption. Additionally, the adoption of product-as-a-service models for vehicle fleets can further optimize resource utilization and generate new revenue opportunities while aligning with circular economy principles (Vargas-Terranova *et al.*, 2022).

5.3 Partnerships and Collaborations

One innovative approach to fostering partnerships and collaborations in circular economy initiatives for local public transport is the establishment of cross-sector innovation hubs. These hubs can bring together transport operators, technology providers, local governments, and academic institutions to co-create solutions that address specific challenges in implementing circular economy strategies (Dollan, Ramadhan and Abrina, 2023). Additionally, leveraging public-private partnerships (PPPs) can provide a framework for scaling up circular economy projects in the transport sector, as demonstrated by successful waste management initiatives in various regions (Maslova, 2023).

5.4 Green Branding and Customer Loyalty

One effective approach to enhancing green branding and customer loyalty in local public transport is the implementation of transparent sustainability reporting and eco-labeling initiatives. By providing clear and accessible information about the environmental impact of public transport services, municipalities can build trust with environmentally conscious consumers and differentiate their offerings in an increasingly competitive mobility market (Zhyvko, 2024). Additionally, leveraging digital platforms to engage customers in sustainability initiatives, such as gamification of eco-friendly travel choices, can foster a sense of community and shared responsibility among public transport users (Reimers, 2021).

6. Implementation Challenges and Solutions

The implementation of circular economy strategies in local public transport systems faces several challenges, including regulatory barriers, technological limitations, and stakeholder resistance. One significant obstacle is the lack of standardized metrics for assessing the circularity of transport operations, which hinders effective benchmarking and progress tracking (Droege, Raggi and Ramos, 2021). Additionally, the transition to circular practices often requires substantial upfront investments, creating financial barriers for many municipalities and transport operators (Maslova, 2023).

6.1 Regulatory and Policy Barriers

One significant regulatory barrier to implementing circular economy principles in local public transport is the lack of standardized metrics for assessing the circularity of transport operations, which hinders effective benchmarking and progress tracking (Droege, Raggi and Ramos, 2021). Additionally, existing regulations often fail to incentivize the adoption of circular practices, such as product-as-service models for vehicle fleets, which could optimize resource utilization and extend asset lifespans (Milios, 2021).

6.2 Financial Constraints

One significant financial constraint in implementing circular economy strategies for local public transport is the substantial upfront investment required for transitioning to more sustainable technologies and infrastructure. This challenge is particularly acute for municipalities and transport operators with limited budgets, potentially hindering the adoption of innovative circular practices . To address this issue, some cities have explored alternative financing models, such as green bonds or public-private partnerships, to fund circular economy initiatives in the transport sector (Utegulova *et al.*, 2024).

6.3 Technological Adoption

One significant challenge in technological adoption for circular economy strategies in local public transport is the integration of diverse systems and data sources across different stakeholders. This complexity is further compounded by the need for robust cybersecurity

measures to protect sensitive operational data and ensure the integrity of interconnected transport systems (Rejeb *et al.*, 2022). To address these challenges, some municipalities have implemented blockchain technology to enhance supply chain transparency and traceability in public transport infrastructure, facilitating the tracking of materials and components throughout their lifecycle .

6.4 Stakeholder Engagement

Effective stakeholder engagement in circular economy initiatives for local public transport requires a multi-faceted approach that addresses diverse interests and concerns. One innovative strategy is the implementation of collaborative decision-making platforms that facilitate real-time input from various stakeholders, including transport operators, local businesses, and community representatives (Muriithi and Ngare, 2023). These platforms can leverage digital technologies to enhance transparency and foster a sense of shared ownership in the transition towards more sustainable transport systems.

7. Case Studies

Several case studies demonstrate the successful integration of circular economy strategies in local public transport systems. Amsterdam stands out with its comprehensive approach, incorporating electric buses powered by renewable energy and repurposing old tram tracks into new infrastructure (Tashtamirov, 2023). In Warsaw, the Mokotów district exemplifies how diverse local entities—including private companies, public institutions, and NGOs—can work together to implement circular practices in urban transportation (Sadowy and Biernacka, 2022).

7.1 Successful Circular Economy Initiatives in Public Transport

One notable example is the city of Amsterdam, which has implemented a comprehensive circular economy program for its public transport system, including the use of electric buses powered by renewable energy and the recycling of old tram tracks into new infrastructure . Similarly, the Mokotów district in Warsaw has demonstrated how various local entities, including those from private, public, and NGO sectors, can collaborate to implement circular practices in urban transportation, highlighting the importance of networking in achieving efficient circular solutions (Sadowy and Biernacka, 2022).

These platforms can also facilitate the integration of circular economy principles by enabling real-time tracking of resource flows and waste generation in public transport operations (Gurning and Tangkau, 2022). Furthermore, the implementation of green port initiatives using circular economy approaches in port complexes demonstrates the potential for collaborative waste management across different entities, which could be adapted to urban transport systems (Gurning and Tangkau, 2022).

7.2 Lessons Learned and Best Practices

One key lesson learned from successful circular economy initiatives in public transport is the importance of cross-sector collaboration and stakeholder engagement. For instance, the Mokotów district in Warsaw demonstrated how various local entities from private, public, and NGO sectors can work together to implement circular practices in urban transportation, highlighting the critical role of networking in achieving efficient circular solutions. Additionally, the implementation of green port initiatives using circular economy approaches in port complexes has shown potential for collaborative waste management across different entities, which could be adapted to urban transport systems .

Furthermore, the implementation of transparent sustainability reporting and eco-labeling initiatives can enhance green branding and customer loyalty in local public transport systems. By providing clear and accessible information about the environmental impact of public transport services, municipalities can build trust with environmentally conscious consumers and differentiate their offerings in an increasingly competitive mobility market . Additionally, leveraging digital platforms to engage customers in sustainability initiatives, such as gamification of eco-friendly travel choices, can foster a sense of community and shared responsibility among public transport users .

8. Future Outlook

The outlook for integrating circular economy strategies in local public transport systems is promising, with emerging technologies and innovative business models paving the way for more sustainable urban mobility. One key trend is the increasing adoption of blockchain technology to enhance supply chain transparency and traceability in public transport infrastructure, facilitating the tracking of materials and components throughout their lifecycle (Rukanova *et al.*, 2023). Additionally, the implementation of cloud computing solutions tailored for small and medium-sized enterprises (SMEs) in the transport sector is expected to drive improvements in energy efficiency, decrease carbon footprints, and reduce operational costs (Dura *et al.*, 2022).

8.1 Emerging Technologies and Their Potential Impact

One emerging technology with significant potential impact on circular economy strategies in local public transport is the Internet of Things (IoT). IoT devices can enable real-time monitoring of vehicle performance, energy consumption, and maintenance needs, facilitating predictive maintenance and optimizing resource utilization across public transport fleets (Țurcan, Turcan and Stratila, 2023). Additionally, the integration of artificial intelligence and machine learning algorithms with IoT data can enhance route optimization and demand forecasting, further improving the efficiency and sustainability of urban mobility systems.

8.2 Scaling Circular Economy Strategies

One innovative approach to scaling circular economy strategies in local public transport is the implementation of modular vehicle design, which allows for easier component replacement and upgrades, extending the lifespan of transport assets (Milios, 2021). Additionally, the adoption of blockchain technology can enhance supply chain transparency and traceability in public transport infrastructure, facilitating the tracking of materials and components throughout their lifecycle.

9. Conclusion

The integration of circular economy principles in local public transport systems presents both challenges and opportunities for sustainable urban development. One innovative approach to addressing these challenges is the implementation of modular vehicle design, which allows for easier component replacement and upgrades, thereby extending the lifespan of transport assets. Additionally, the adoption of blockchain technology can enhance supply chain transparency and traceability in public transport infrastructure, facilitating the tracking of materials and components throughout their lifecycle.

9.1 Key Findings and Implications

The integration of circular economy principles in local public transport systems has demonstrated significant potential for enhancing sustainability and resource efficiency. A notable example is the implementation of modular vehicle design in Amsterdam's public

transport fleet, which facilitates easier component replacement and upgrades, thereby extending the lifespan of transport assets. Furthermore, the adoption of blockchain technology in Warsaw's Mokotów district has shown promise in enhancing supply chain transparency and traceability for public transport infrastructure, enabling more effective tracking of materials and components throughout their lifecycle.

9.2 Recommendations for Policy Makers and Transport Operators

To effectively implement circular economy strategies in local public transport, policymakers should prioritize the development of comprehensive regulatory frameworks that incentivize sustainable practices and facilitate cross-sector collaboration (Chung and Phuong Le, 2023). Additionally, transport operators should focus on adopting innovative business models, such as product-as-a-service for vehicle fleets, to optimize resource utilization and extend asset lifespans (Stoian, 2023).

9.3 Areas for Further Research

Further research is needed to explore the potential of emerging technologies such as artificial intelligence and machine learning in optimizing circular economy strategies for local public transport systems. Additionally, investigating the scalability of successful circular economy initiatives across different urban contexts and transportation modes could provide valuable insights for policymakers and transport operators.

References

1. Anttiroiko, A.-V. (2023) "Smart Circular Cities: Governing the Relationality, Spatiality, and Digitality in the Promotion of Circular Economy in an Urban Region," *Sustainability*. MDPI AG. doi: 10.3390/su151712680.
2. Blinova, E., Ponomarenko, T. and Knysh, V. (2022) "Analyzing the Concept of Corporate Sustainability in the Context of Sustainable Business Development in the Mining Sector with Elements of Circular Economy," *Sustainability*. MDPI AG. doi: 10.3390/su14138163.
3. Stoian, E. (2023) "The circular economy as a strategic option for increasing business sustainability," *Management Strategies and Policies in the Contemporary Economy*. Academy of Economic Studies of Moldova. doi: 10.53486/icspm2023.36.
4. Țurcan, I., Turcan, R. and Stratila, A. (2023) "Digitalization and its role in the development of circular economy business models," *Competitiveness and sustainable development - 2023*. Technical University of Moldova. doi: 10.52326/csd2023.16.
5. Mukhlis, I. (2021) "Circular Economy Business Model in the COVID – 19 Pandemic Era in Local Communities," *International Journal of Social Science and Human Research*. Everant Journals. doi: 10.47191/ijsshr/v4-i11-13.
6. Zhang, N., Gruhler, K. and Schiller, G. (2023) "A review of spatial characteristics influencing circular economy in the built environment," *Environmental Science and Pollution Research*. Springer Science and Business Media LLC. doi: 10.1007/s11356-023-26326-5.
7. Kurniawan, T. A. *et al.* (2022) "Transformation of Solid Waste Management in China: Moving towards Sustainability through Digitalization-Based Circular Economy," *Sustainability*. MDPI AG. doi: 10.3390/su14042374.
8. Mahjoob, A., Alfadhli, Y. and Omachonu, V. (2023) "Healthcare Waste and Sustainability: Implications for a Circular Economy," *Sustainability*. MDPI AG. doi: 10.3390/su15107788.
9. Wardono, G. *et al.* (2023) "ENVIRONMENTAL ACCOUNTING: ENERGY EFFICIENCY, RENEWABLE ENERGY, AND CIRCULAR ECONOMY,"

International Journal of Contemporary Accounting. Universitas Trisakti. doi: 10.25105/ijca.v5i1.16951.
10. Dimitriou, D. and Karagkouni, A. (2022) "Due Diligence of Transport Infrastructure Operators Sustainability: A Circular Economy Driven Approach," *Frontiers in Sustainability*. Frontiers Media SA. doi: 10.3389/frsus.2022.916038.
11. Akberdina, V. *et al.* (2023) "Information Technology and Digital Sufficiency for Building the Sustainable Circular Economy," *Energies*. MDPI AG. doi: 10.3390/en16031399.
12. Rukanova, B. *et al.* (2023) "A Framework for Understanding Circular Economy Monitoring: Insights from the Automotive Industry," *Proceedings of the 24th Annual International Conference on Digital Government Research*. ACM. doi: 10.1145/3598469.3598530.
13. Sgambaro, L. *et al.* (2024) "Exploring industrial symbiosis for circular economy: investigating and comparing the anatomy and development strategies in Italy," *Management Decision*. Emerald. doi: 10.1108/md-04-2023-0658.
14. Fernando, Y., Shaharudin, M. S. and Abideen, A. Z. (2022) "Circular economy-based reverse logistics: dynamic interplay between sustainable resource commitment and financial performance," *European Journal of Management and Business Economics*. Emerald. doi: 10.1108/ejmbe-08-2020-0254.
15. Vargas-Terranova, C.-A. *et al.* (2022) "M-GRCT: A Dynamic Circular Economy Model for the Optimal Design of Waste Management Systems in Low-Income Municipalities," *International Journal of Environmental Research and Public Health*. MDPI AG. doi: 10.3390/ijerph19052681.
16. Dollan, E., Ramadhan, B. D. K. and Abrina, N. (2023) "Assessing the Outcomes of Circular Economy and Waste Management Partnerships between Indonesia and Denmark," *IAIC Transactions on Sustainable Digital Innovation (ITSDI)*. Pandawan. doi: 10.34306/itsdi.v5i1.609.
17. Maslova, S. V. (2023) "Regional projects of public-private partnership in the field of waste management: The transition to a circular economy and sustainable development," *Vestnik of Saint Petersburg University. Management*. Saint Petersburg State University. doi: 10.21638/11701/spbu08.2023.405.
18. Zhyvko, M. (2024) "EFFICIENCY OF INVESTMENTS IN THE GREEN ECONOMY TO INCREASE CORPORATE SOCIAL RESPONSIBILITY," *INNOVATIVE ECONOMY*. Institute of Economics, Technologies and Entrepreneurship. doi: 10.37332/2309-1533.2024.1.17.
19. Reimers, P. (2021) "The Subsidized Green Revolution: The Impact of Public Incentives on the Automotive Industry to Promote Alternative Fuel Vehicles (AFVs) in the Period from 2010 to 2018," *Energies*. MDPI AG. doi: 10.3390/en14185765.
20. Droege, H., Raggi, A. and Ramos, T. B. (2021) "Overcoming Current Challenges for Circular Economy Assessment Implementation in Public Sector Organisations," *Sustainability*. MDPI AG. doi: 10.3390/su13031182.
21. Milios, L. (2021) "Overarching policy framework for product life extension in a circular economy—A bottom-up business perspective," *Environmental Policy and Governance*. Wiley. doi: 10.1002/eet.1927.
22. Utegulova, B. S. *et al.* (2024) "Transport logistics as a driver of business development," *Bulletin of the Karaganda university Economy series*. Karagandy University of the name of academician E.A. Buketov. doi: 10.31489/2024ec1/111-120.
23. Rejeb, A. *et al.* (2022) "Barriers to Blockchain Adoption in the Circular Economy: A Fuzzy Delphi and Best-Worst Approach," *Sustainability*. MDPI AG. doi: 10.3390/su14063611.

24. Muriithi, J. K. and Ngare, I. O. (2023) “Transitioning circular economy from policy to practice in Kenya,” *Frontiers in Sustainability*. Frontiers Media SA. doi: 10.3389/frsus.2023.1190470.
25. Tashtamirov, M. (2023) “The circular economy and regional economic development,” *E3S Web of Conferences*. Edited by D. V. Rudoy, A. V. Olshevskaya, and M. Yu. Odabashyan. EDP Sciences. doi: 10.1051/e3sconf/202343107003.
26. Sadowy, K. and Biernacka, J. (2022) “Institutional potential and barriers for a circular economy. The case study of Warsaw,” *Journal of Management and Financial Sciences*. Warsaw School of Economics. doi: 10.33119/jmfs.2022.45.4.
27. Gurning, R. O. S. and Tangkau, D. I. (2022) “The Analysis of the Conceptual Framework of Green Port Implementation in Indonesia Using Circular Economy: The Case Study of Benoa Public and Fishing Terminals,” *Sustainability*. MDPI AG. doi: 10.3390/su14106083.
28. Dura, C. C. *et al.* (2022) “Analyzing Performance in Wholesale Trade Romanian SMEs: Framing Circular Economy Business Scenarios,” *Sustainability*. MDPI AG. doi: 10.3390/su14095567.
29. Chung, D. K. and Phuong Le, N. (2023) “Linear or Circular Economy: A Review of Theories, Practices, and Policy Recommendations for Vietnam,” *Vietnam Journal of Agricultural Sciences*. Agricultural University Press. doi: 10.31817/vjas.2023.6.3.02.

THE EUROPEAN CIVIL PROTECTION MECHANISM - IMPLICATIONS FOR ROMANIA IN THE MANAGEMENT OF CRISIS SITUATIONS

Bogdan-Mihai Frățilă[1]
Constanța Popescu [2]

Abstract:
Disasters can strike anywhere and at any time. Whether natural or man-made, they can have a considerable human and economic impact, as well as the environment. The European Union Civil Protection Mechanism is an important tool that allows European Union member countries, including Romania, to collaborate in the management of natural or human disasters. This mechanism aims to improve prevention, preparation and response to such events, ensuring effective coordination of efforts at European and international level. Any country in the world can call on the European Union Civil Protection Mechanism for help when the scale of a disaster exceeds its ability to respond on its own. Good disaster management can save lives, and effective coordination between different response agencies is indispensable to ensure successful disaster preparedness and response. Romania has demonstrated over time that it is an active member of the European Union Civil Protection Mechanism, calling on this instrument in times of crisis and contributing, in turn, to supporting other member states in similar situations..

Keywords: *crisis management, civil protection, performance management, disasters*

JEL Classification: H12, Q54

1. Introduction

Disasters, both natural and human-made, pose significant threats to lives, property, and infrastructure worldwide. They can have far-reaching consequences, disrupting economies, displacing communities, and causing long-lasting trauma. To face these inevitable threats at the European Union level, a series of measures have been taken, including the establishment of a mechanism to better face these challenges. The European Union Civil Protection Mechanism (EUCPM) is a framework established in 2001 to enhance collaboration among EU member states and participating countries in managing disasters and crises. It facilitates coordinated responses to natural and human-made emergencies both within and outside the EU (*European Commission, 2017*).

In addition to the EU countries, there are currently 10 participating states in the Mechanism (Albania, Bosnia and Herzegovina, Iceland, Moldova, Montenegro, North Macedonia, Norway, Serbia, Türkiye, and Ukraine).

Since its inception in 2001, the EU Civil Protection Mechanism has responded to over 700 requests for assistance inside and outside the EU. The Mechanism also helps coordinate disaster preparedness and prevention activities of national authorities and contributes to the exchange of best practices. This facilitates the continuous development of higher common standards enabling teams to understand different approaches better and work interchangeably when a disaster strikes.(*European Commission, 2024*)

The current basis of the Mechanism is Decision No 1313/2013/EU of the European Parliament and of the Council of 17 December 2013 on a Union Civil Protection Mechanism. This decision was amended several times, for example, by decision 2019/420 in March 2019(*opens in a new tab*) and by Regulation (EU) 2021/836 of 20 May 2021.(*https://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:347:0924:0947:EN:PDF, accessed 20 november, 2024*).

[1] PhD. Student, "Valahia" University of Târgoviște, Romania, E-mail: fbogdanmihai@gmail.com
[2] Professor PhD., "Valahia" University of Târgoviște, Romania, E-mail: tantapop@yahoo.com

Since its inception in 2001, the EU Civil Protection Mechanism has responded to over 700 requests for assistance inside and outside the EU. The Mechanism also helps coordinate disaster preparedness and prevention activities of national authorities and contributes to the exchange of best practices. This facilitates the continuous development of higher common standards enabling teams to understand different approaches better and work interchangeably when a disaster strikes.

The European Commission has been providing humanitarian aid since 1992 in over 110 countries, reaching millions of people across the globe each year. The initial EU budget of the European Civil Protection and Humanitarian Aid Operations (ECHO), as programmed in the EU's Multi-annual Financial Framework (MFF) 2014-2020, amounts to approximately €1 billion per year, but the funding has been continuously growing. Notably, in 2022, the EU's final humanitarian budget saw a 20% rise, up to €2.62 billion, €440 million more than the year before (*European Commission, 2024*).

1.1. Romania's role within the EU framework

Romania joined the European Union on January 1, 2007, marking a significant milestone in its journey towards European integration. Since then, it has actively participated in the EU's decision-making processes and contributed to the bloc's overall development. Romania plays an increasingly significant role within the European Union (EU) framework, actively contributing to various policy areas, strengthening EU solidarity, and addressing regional and global challenges.

One of the most important aspects is represented by accessing and benefiting from European Union funds. Romania has received substantial EU funding, particularly through the Cohesion Fund and the European Agricultural Fund for Rural Development. These funds have been instrumental in modernizing infrastructure, supporting regional development, and enhancing agricultural practices.

A second element as important as the first is Romania's contribution to the EU economy. Romania's growing economy, particularly in sectors like automotive, IT, and services, contributes to the EU's overall economic growth.

In addition to the economic implications, our country plays an important role in the security and defense of Europe's borders, being one of NATO's main pawns, on the alliance's eastern flank. As a NATO member, Romania plays a crucial role in European security. It actively participates in NATO missions and exercises, contributing to collective defense efforts. Romania's strategic location on the EU's eastern border makes it a vital player in addressing security challenges in the region. It hosts US military bases and is involved in various regional security initiatives.

The cultural and linguistic diversity of Romania's geographical regions enriches the cultural heritage of the European Union. Romania's rich history, culture, and language add to the EU's diverse tapestry. It contributes to the EU's cultural heritage and promotes intercultural dialogue.

As a former member state of the Soviet Union, Romania faces a series of challenges, followed by opportunities within the European Union. Among the „exam" topics that Romania must promote, we can list: Corruption, Judicial Reform, Adoption of the Euro, Accession to the Schengen Area. Romania continues to face corruption problems, which may hinder its progress and integration into the EU. Reforms in the judicial system are essential to strengthen the rule of law and improve the country's governance. Euro adoption: Romania intends to adopt the euro, but must meet specific economic criteria and ensure price stability. Romania is a member of the Schengen area only for air and sea borders. Controls at air and sea borders have been lifted since 31 March 2024. Discussions on a new decision to lift controls at land borders will continue in 2024. Overall, Romania is an active and committed member of the European Union.

It seeks to leverage its membership to promote its economic development, enhance its security and contribute to the overall objectives of the EU.

1.2. The Importance of Crisis Management Mechanisms

Crisis management mechanisms are essential tools for ensuring the safety and resilience of societies when faced with emergencies. These mechanisms play a crucial role in mitigating the impact of crises, coordinating effective responses and preparing for future threats. The importance of these mechanisms is reflected in the proposed objectives:

1. Protecting human lives and property by minimizing loss of life and reducing material damage. Crisis management mechanisms ensure a rapid and organized response to emergencies, saving lives at crucial moments after a disaster. Organized and timely intervention reduces the destruction of infrastructure, homes and livelihoods during events such as natural disasters, industrial accidents or terrorist attacks.

2. Ensuring a rapid response and coordination of all authorities involved in crisis management. Crisis management mechanisms bring together government agencies, local authorities, NGOs and international organizations to create a unified response. Allocating resources such as personnel, equipment and funding efficiently where they are needed most, avoiding duplication of effort and financial waste. In an interconnected world, crises often have transnational implications. Mechanisms such as the EU Civil Protection Mechanism (EUCPM) allow countries to collaborate and help each other.

3. Building resilience in communities through preparedness and training, community engagement and reducing vulnerabilities. Crisis management mechanisms focus on preparedness through training exercises, awareness campaigns and early warning systems. Local communities are better prepared to deal with emergencies when they are informed and involved in disaster planning. Mechanisms identify high-risk areas and implement measures (e.g. flood defences, fire prevention systems) to reduce exposure to hazards.

4. Supporting economic stability by mitigating economic losses and protecting critical infrastructure. Crises caused by natural disasters, pandemics or cyberattacks can disrupt economies. Crisis management mechanisms minimise these disruptions by ensuring a rapid return to normality. The mechanisms protect essential services (e.g. electricity, water, transport, healthcare) to maintain stability during and after a crisis.

5. Improving international cooperation between the member states of different international organisations. Mechanisms such as the EUCPM, the NATO disaster response system or the United Nations frameworks allow countries to pool resources and share experience and lessons learned from crises they have faced. By promoting solidarity by providing assistance to countries in need, crisis management mechanisms strengthen diplomatic ties and mutual trust between nations.

6. Addressing modern and complex threats by adapting to emerging risks: Natural disasters (earthquakes, floods and fires), Health crises (biological crises, pandemics such as COVID-19), Technological risks (cyber attacks, nuclear incidents), Geopolitical conflicts (refugee crises and hybrid threats). Multi-hazard approach to disasters by using modern crisis management systems that are designed to address multiple, simultaneous threats, ensuring flexibility and adaptability.

7. Key examples of crisis management mechanisms. At the global level we have the UN Sendai Framework for Disaster Risk Reduction providing guidelines for disaster risk reduction and improving preparedness, at the European level we have the EU Civil Protection Mechanism (EUCPM) which coordinates disaster responses, mobilizing resources from Member States as well as participating countries, as well as the RescEU capabilities which improve the EU's capacity to respond to large-scale emergencies such as fires and chemical threats, and at the

national level each country implements its own national crisis management systems (e.g. FEMA in the USA, IGSU in Romania) adapted to local needs and risks.

8. Stimulating public trust by strengthening trust in institutions with a role in managing crisis situations and by strengthening social cohesion. Effective crisis management assures the public that authorities are prepared to deal with emergencies, and mechanisms that emphasize transparency, inclusion and communication help maintain societal stability during crises.

9. Learn and improve from past crises through ongoing post-crisis assessments and by promoting and using new technologies. Crisis management mechanisms involve analyzing responses to identify gaps and improve future preparedness. By methodically analyzing the crisis response, organizations can draw actionable lessons, refine their crisis management plans, and enhance their overall readiness and resilience. It's a crucial step in not just recovering from the current crisis but in building a more robust framework for navigating future challenges.Technologies such as artificial intelligence, drones and satellite imagery are integrated into modern crisis management to improve prediction and response capabilities. Learning from mistakes is crucial for preventing future crises. Organizations should conduct a thorough analysis of the crisis, including the causes and contributing factors. By understanding what went wrong, organizations can develop strategies to prevent similar crises from occurring in the future.

Crisis management mechanisms are indispensable for mitigating risks, saving lives and ensuring societal resilience in the face of increasingly complex and frequent emergencies. They provide the framework for coordinated, efficient and effective responses, ultimately protecting communities and promoting sustainable development. By implementing robust crisis management mechanisms, organizations and societies can better protect themselves from the devastating effects of crises and emerge stronger.

2. What is the European Union Civil Protection Mechanism (EUCPM)?

As we said in the introduction, the European Union Civil Protection Mechanism (EUCPM) is a European Union initiative aimed at strengthening cooperation and coordination between EU Member States and other participating countries in the field of disaster prevention, preparedness and response.

The objectives on which EUCPM is based are focused on **Preparedness**: Strengthen disaster management capabilities by offering training, exercises, and tools for effective responses. **Prevention**: Promote risk assessment and knowledge-sharing to mitigate potential crises. **Response**: Coordinate and mobilize resources during disasters to provide rapid and effective assistance, and **Solidarity**: Foster a sense of mutual aid among EU and neighboring countries (*European Commission, 2024*).

The activity of the European Union Civil Protection Mechanism is supported by its component elements. Some of these components are:

- ✓ *Emergency Response Coordination Centre (ERCC):* Based in Brussels, the ERCC is the operational hub of the EUCPM. It monitors emergencies 24/7, facilitates the deployment of resources, and provides real-time information.
- ✓ *European Civil Protection Pool (ECPP):* A reserve of pre-committed response capacities and experts provided by participating states.
- ✓ *Union Civil Protection Knowledge Network:* A platform for knowledge sharing, training, and innovation in disaster management.
- ✓ *Prevention and Preparedness:* The mechanism funds initiatives to assess and reduce disaster risks, including training, risk assessments, and scenario planning.

In *Figure 1* we shows a schematic representation of how the EU Civil Protection Mechanism works, when a disaster occurs.

Figure 1: Schematic presentation of the European Union Civil Protection Mechanism. *Source: Emergency Response Coordination Centre (ERCC).*

2.1. EU Civil Protection Mechanism Priorities

The UCPM priorities for the period 2021-2027 focus on the following elements:

Progress in implementing the disaster prevention framework: measured by the number of Member States that have made available to the Commission a summary of their risk assessments and a summary of the assessment of their risk management capability as referred to in Article 6 of Decision n° 1313/2013/EU, in line with the guidelines to be developed by the Commission and by the number/outcome of Member States participating in voluntary peer reviews on the assessment of risk management capabilities

Progress in increasing the level of readiness for disasters: measured by the quantity of response capacities included in the European Civil Protection Pool and additional capacities developed as rescEU capacities, in relation to the capacity goals referred to in Article 11 and the number of modules registered in the CECIS

Progress in improving the response to disasters, measured by the speed of interventions under the Mechanism and the extent to which the assistance contributes to the needs on the ground

Progress in increasing public awareness and preparedness for disasters, measured by the level of awareness of Union citizens and private sector of the risks in their region

Progress in improving the protection of citizens and critical infrastructure against chemical, biological, radiological, nuclear and explosives incidents (CBRN-E) and emerging threats

Support to the implementation of the Commission's Action Plan to enhance preparedness against chemical, biological, radiological and nuclear (CBRN) security risks (COM(2017) 610)

Support to achieving the objectives of Council Regulation 2020/2094 establishing a European Union Recovery Instrument to support the recovery in the aftermath of the COVID-19 crisis by increasing the level of the Union's crisis preparedness and avoiding a re-emergence of the crisis. (*https://www.welcomeurope.com/en/programs/eu-civil-protection-mechanism/, accessed 10 december, 2024*)

2.2. Recent Activations of European Civil Protection Mechanism

The EUCPM has been activated frequently for crises across Europe and globally. Wildfires in Southern Europe (Summer 2021, 2023 & 2024). Countries impacted: Greece, Italy, France and Turkey.

Romania sent over firefighting units, helicopters, and personnel to assist in wildfire containment efforts, showcasing its active participation in EU solidarity.

COVID-19 Pandemic (2020-2022): Coordinated transport and distribution of personal protective equipment (PPE), ventilators, and vaccines.

Romania received critical equipment during the early pandemic stages and later contributed medical staff and vaccines to other EU countries.

Ukraine Crisis (2022-2024): EUCPM facilitated the delivery of medical supplies, temporary shelters, and humanitarian aid.

Romania played a critical role as a logistics hub for distributing supplies and hosting displaced populations from Ukraine.

Flooding in Germany and Belgium (2021): EUCPM activated to assist with rescue operations and post-disaster recovery. Romania contributed teams specialized in flood mitigation and emergency infrastructure repair.

Turkey-Syria Earthquake (2023): Romania contributed teams specialized in search and rescue and sent materials for the affected people from the rescEU reserves (tents, beds, blankets, power and light generators, etc.)

Medical evacuation from the Gaza Strip (2024): Medical evacuation to Romania, Belgium and Spain of pediatric patients from the Gaza Strip. The European Union, through EUCPM, supported the coordination of activities for the medical evacuation of Palestinian pediatric patients to Europe, with several such missions being carried out during 2024, in which Romania played an important role in taking over and transferring patients to other European states (*European Commission, 2024*).

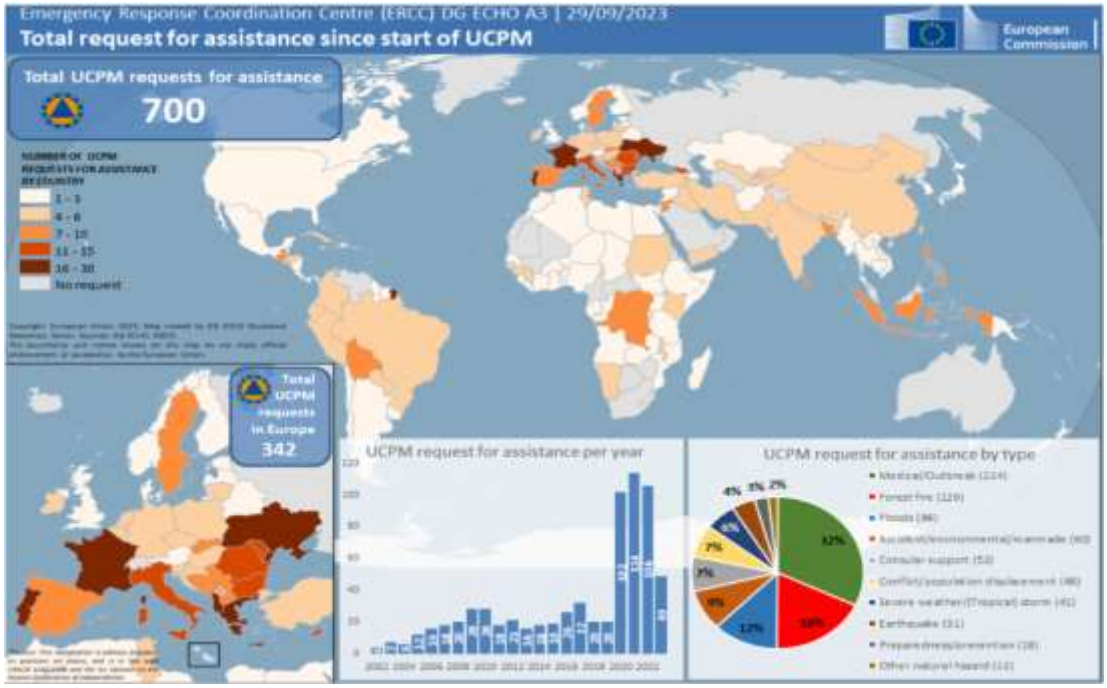


Figure 2: Requests for assistance since start of EUCPM
Source: Emergency Response Coordination Centre (ERCC).

3. The role of Romania in European Union Civil Protection Mechanism

Romania plays an important role in the European Union Civil Protection Mechanism (EUCPM), actively contributing to its objectives of promoting solidarity, cooperation and effective crisis management across Europe and beyond. Key aspects of Romania's role within the EUCPM are represented by the provision of specialized teams/modules for different types of disasters. These teams are usually made up of firefighters, doctors and experts. Romania also

plays an important role in the preservation and management of rescEU reserves, with a number of these materials being stored in our country. Romania benefits from EU financial support for disaster preparedness programs and the modernization of its emergency infrastructure.

Romania's expertise in earthquake response, rooted in its history of seismic activity (e.g. the Vrancea region), is valuable in EU initiatives to reduce the risks posed by seismic activity. Also, frequent flooding along the Danube and in other regions positions Romania as a key player in preventing and responding to water-related disasters.

Romania actively participates in EU-level training programmes, exercises and knowledge exchange, including contributing to the Union Knowledge Network in the field of civil protection. Through its experienced crisis management personnel, Romania participates in large-scale simulation exercises to improve coordination and preparedness for disasters.

Due to its geographical location, Romania coordinates the Hub for providing aid and assistance in the Eastern European area. This Hub often acts as a bridge for European Union assistance to Eastern European and Balkan countries. During the Ukrainian crisis, Romania played a key role in channeling humanitarian aid and coordinating refugee assistance through EUCPM mechanisms.

Romania's active role in the EUCPM demonstrates its commitment to collective security and crisis management in Europe. By hosting strategic reserves, deploying resources and leveraging its regional expertise, Romania strengthens the EU's disaster response capabilities, while strengthening its own preparedness and resilience.

3.1. Future directions for Romania

As Romania continues to play a vital role in the European Union Civil Protection Mechanism (EUCPM), there are several key areas where it can enhance its contributions and align itself with the evolving challenges of disaster management. Future directions that Romania should consider to improve its crisis management should focus on:

1. Investing in infrastructure and strengthening national disaster preparedness. Modernizing disaster response infrastructure, such as emergency operation centers and logistics centers. Purchasing and developing a national fleet of forest firefighting aircraft, purchasing heavy earthquake rescue equipment, and developing mobile medical units to meet the growing demands in this area.

2. Develop and implement advanced risk mapping systems, in particular for earthquakes and floods, to improve early warning systems and prevention strategies, as well as integrate climate resilience measures into disaster management plans to address the increasing impact of climate change.

3. Improve and expand the RescEU capacity stocks by hosting rescEU medical reserves and creating additional strategic reserves, such as equipment for chemical, biological, radiological and nuclear (CBRN) emergencies.

4. Strengthen regional leadership through coordination with neighbouring countries. Romania should act as a regional hub for disaster management in Eastern Europe, facilitating cross-border cooperation and knowledge exchange. Organizing and conducting joint training exercises with Balkan and Black Sea countries to improve disaster response coordination gives us the privilege of continuing to be a “key player” within the EUCPM. Also, continuing the efforts to manage the Eastern Europe Hub, which serves as a bridge for EU assistance to non-EU countries, such as Moldova and Ukraine, ensuring the efficient delivery of aid and resources.

5. Developing training and knowledge sharing by establishing a disaster management training centre in Romania, hosting international workshops and simulation exercises, and by improving community preparedness by launching public education programmes on disaster response and prevention.

6. Sustainable disaster management and mainstreaming climate change adaptation. Implementing sustainable disaster management practices to address climate change-related hazards and developing policies to mitigate the impact of extreme weather events, such as heat waves, fires and floods.

By focusing on these future directions, Romania can further strengthen its role as a key player in the European Union Civil Protection Mechanism. Enhanced preparedness, expanded capabilities, and improved regional leadership will not only benefit Romania, but will also contribute to a more resilient and united European disaster response framework.

Conclusion

The European Union Civil Protection Mechanism (EUCPM) plays a pivotal role in enhancing disaster management capabilities across Europe by fostering cooperation, resource sharing, and coordinated responses to crises. For Romania, participation in the EUCPM has proven to be highly beneficial, both in terms of addressing domestic challenges and contributing to regional and global solidarity.

Romania has gained access to critical resources, training opportunities, and expertise, which have strengthened its ability to manage crises such as earthquakes, floods, and public health emergencies. Hosting key rescEU reserves and deploying teams to assist other nations have solidified Romania's reputation as a reliable and proactive partner in disaster management.

Looking ahead, it is essential for Romania to continue strengthening its disaster response infrastructure, enhance regional cooperation, and invest in training programs to optimize its contributions to the EUCPM. By doing so, Romania can further ensure the safety and well-being of its citizens while reinforcing its role as a leader in European crisis management.

References:

1. European Commission: Directorate-General for European Civil Protection and Humanitarian Aid Operations (ECHO), Overview of natural and man-made disaster risks the European Union may face, Publications Office of the European Union, 2017, https://data.europa.eu/doi/10.2795/861482

2. European Parliament. DECISION No 1313/2013/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 December 2013 on a Union Civil Protection Mechanism (Text with EEA relevance). 2013.

3. European Commission. EU Civil Protection Mechanism. EurCiv Prot Humanit Aid Oper - Eur Comm 2018. https://ec.europa.eu/echo/what/civil-protection/mechanism_en (accessed November 19, 2024)

4. https://igsu.ro/InformatiiUtile/CooperareInternationala(accessed November 19, 2024)

5. European Commission, European Civil Protection and Humanitarian Aid Operations. rescEU 2022. https://civilprotection-humanitarian-aid.ec.europa.eu/what/civilprotection/resceu_en (accessed November 19, 2024)

6. https://www.welcomeurope.com/en/programs/eu-civil-protection-mechanism/ (accessed 10 december, 2024)

7. https://civil-protection-knowledge-network.europa.eu/UCPM-training-programme (accessed 10 december, 2024)

SECTION II
FINANCIAL AND ACCOUNTING

SOFTWARE SOLUTIONS FOR FINANCIAL MANAGEMENT THROUGH THE DIGITIZATION OF FISCAL DECLARATIONS

Bogdan Drăgulin[1]

Abstract:

The intense activity of implementing digital solutions by ANAF, especially the SAF-T fiscal reporting standard, has created new possibilities in the field of financial-accounting analysis, financial management, decision-making possibilities for management, with the aim of a more efficient business administration and extended possibilities of representation and graphic illustration of the economic situation of the entities.

The use of the XML reporting file within computer applications made with advanced technologies can contribute to the realization of detailed economic analyzes and to the optimization of performance and economic efficiency indicators for entities. This paper present an innovative software solution for the management of fiscal data, specifically addressing the SAF-T requirements and offering a series of tools for importing, modifying and managing of fiscal declarations.

We will discuss the development process, key technical features and potential impact on financial management practices in Romania.

Keywords: *Fiscal declaration, SAF_T, Software solution, Financial management*

JEL Clasification: O3, M41

1. Introduction

The new fiscal administration modernization projects such as the SPV platform, the SAF-T fiscal reporting standard, the new solutions for eInvoice, eTransport or OSS, bring new opportunities for digitizing the financial and accounting activity.

In this context, the paper explores the essential impact of the SAF-T (Standard Fiscal Control File) in the analyse and reconstruction of financial-accounting situations, focusing on its central role in the modern context of electronic reporting. SAF-T is an international standard imposed by the OECD (Organization for Economic Cooperation and Development), becoming mandatory in Romania starting in 2022 (SAF-T Guide, 2021). This standard regulates the electronic exchange of accounting data between organizations and tax authorities, using an internationally standardized XML format, thus facilitating tax reporting for companies. Through the detailed analysis of the functions and implications of SAF-T, the paper highlights its effectiveness in the recovery process, as well as its essential role in maintaining financial integrity in the accounting field. Thus, this research makes a significant contribution to the understanding of financial reconstruction processes and emphasizes the practical importance of SAF-T in ensuring an efficient and integral management of financial information in the accounting environment.

In addition to all this, the APIC (*Performance Administration through Consolidated Information*) project (APIC project, 2023) is an ambitious initiative to modernize the tax administration, with a particular focus on the implementation of Big Data technology and the development of an advanced application for Tax Inspectors.

The aim of this project is to efficiently manage a massive volume of data, both structured and unstructured, and to automate fiscal risk analysis, thus bringing significant benefits in the field of budget revenue collection.

[1] PhD student, IOSUD Doctoral School of Economics and Humanities Sciences, Valahia University of Târgoviște, dragulinbogdan@gmail.com

Analysis and Predictive Modeling are the core of the project, bringing significant benefits in understanding fiscal data and anticipating future developments.

Digitization consists in the use of digital technologies to modify a business model and generate new revenues and value generation opportunities, it is the transition to a digital business (Gartner, 2022). This implies that more responsibilities will be delegated to software applications connected to the Internet. With the drive towards digitization of the accounting profession, it is anticipated that the accounting industry will undergo parallel transformations (Tekbas & Nonwoven, 2019). To meet the demands of a variety of business models, several advances in digital technology are available, such as its adoption in accounting, FinTech industries, Big Data and data analytics, artificial intelligence (AI), and cloud adoption.

The current research aims to explore these distinct digitization projects with the aim of identifying new solutions and possibilities of extracting some advantages from the integrated and collaborative approach between these projects, such as SAF-T and APIC.

2. The new projects for the modernization of the fiscal administration

Adapting to technology and digital challenges is now essential for the accountancy profession to remain relevant in today's business environment (Bolcu D.L., 2014). Considering all these aspects of computerization through the use of advanced systems, the paper explores the functionalities of some of the most known and used systems of this type, through the lens of interconnection with the digital services offered by ANAF (*Strategy of the National Fiscal Administration Agency*, 2020), as well as the possibilities of improving them with new modules and functionalities.

The accounting industry is expanding and improving. Due to technological advances and changing consumer expectations, the scope of work of accountants is expanding (Duong, 2019). Thus, the scope of work of an accountant should expand and become more adaptable to technological advances and digitization, as the accounting profession now uses more automated systems that did not exist ten years ago (Johansson & Sudzina, 2008). With the implementation of digitalization in the accounting industry, the work of accountants has changed to become more and more dependent on the development of modern equipment and technology. As an effect of digitalization, people's thinking and accounting practices have also changed (Fettry & all, 2019).

At the macroeconomic level, the digitization of the accounting profession has a positive impact on emerging economies, facilitating a more efficient management of financial resources and contributing to increasing the integrity of financial markets.

SPV (Virtual Private Space) has become an innovative tool in fiscal administration and the efficiency of reporting systems in Romania. This reduced red tape and facilitated electronic reporting, increasing transparency and tax efficiency.

The implementation of SAF-T (Standard Audit File for Tax) has improved financial reporting and auditing processes. This standard has had a positive impact on tax transparency and compliance.

RO e-invoice has revolutionized the invoicing process in Romania, bringing significant benefits for the business environment, such as reducing administrative costs and eliminating errors.

RO e-Transport has brought closer control over the transport of goods with high tax risk, contributing to combating tax evasion and ensuring compliance with tax regulations.

Digitization of payment systems has brought a number of benefits, including speed and security in transactions. This has improved financial processes nationally and internationally, impacting the business environment and the daily lives of citizens.

Open Banking has created significant opportunities for innovation in financial services. This concept enabled access to financial data and paved the way for the development of personalized and efficient financial products and services.

The FinTech sector has grown rapidly, offering innovative and affordable financial solutions. These technologies have reshaped the financial industry with an emphasis on mobility, security and user experience. The implementation of digital services in economic entities has led to an increase in efficiency, accuracy and transparency in business management.

The process of continuous digitization of the economy presents special challenges and opportunities for the accounting profession as well as for the accounting professional, especially in terms of big data analysis (Alles, M.G,. 2015) as well as in the field of artificial intelligence (AI) applications (Nowak A. & all, 2018).

All these innovations will contribute to the rigorous substantiation of decisions made by professionals, supporting the adoption of decisions and reducing the possibility of recording errors (Rane N.L., 2023).

The advantages of modernizing the fiscal administration are obvious, but at the same time, the barriers and difficulties that can constitute real challenges in this process will have to be taken into consideration (table nr. 1).

Table 1. Advantage and challenges for digitization in romanian accounting

Advantage	Challenges
Increased efficiency in financial processes.	Lack of infrastructure and resources to implement digitization at scale.
Enhanced accuracy and predictive capabilities.	Workforce lacks AI-related skills, creating a skills gap.
Better decision-making through real-time insights.	High costs associated with acquiring and maintaining digital technologies.
Automated compliance with regulatory updates.	Legacy financial systems may not integrate easily with modern digital technologies.

Source: Rane 2023

3. Advanced technology for an efficient administration

The companies adopt IT to improve business performance and gain a competitive advantage in the national and international market (Johansson & Sudzina, 2008). Globalization increases the demand for homogeneity of processes, and by examining business operations, similarities and common needs among manufacturing companies are easy to see. Companies constantly set goals, which they compare to corporate performance. Through long-term strategic control and short-term performance task control, information is collected and analyzed for managerial purposes. ERP systems open the way for SMEs to standardize operations and centralized financial management (Granlund, 2011). These systems also facilitate the collection and analysis of financial and non-financial information from various departments and consequently help management in decision making and achieving goals.

Projects such as the SAF-T digitization platform focus on past data and the possibility of using them for complex analyzes or data restoration, while other ambitious tax administration digitization projects are moving towards the vision of future developments, facilitating the use of predictive models for the fiscal data that will be obtained in the future and forecasts of the use of these data.

The APIC project aims to achieve several essential objectives, adopting an innovative approach and integrating emerging technologies to capitalize on the information collected from taxpayers through ANAF tools, such as E-Invoice, E-transport and SAF -T.

Pioneering software applications of some private initiatives in the IT sector can facilitate the connection between the two components.

3.1. Key Components of the proposed software application

Financial accounting information is essential in the decision-making process, being an integral part of the information system of an economic entity. This information influences the quality and consistency of the decisions made. The decision-making process within an economic entity is an important component of management and is closely related to the available financial accounting information. This conclusion emphasizes the central importance of accounting information in supporting and improving the quality of decisions made within organizations.

Financial accounting information provides a structured and reliable framework for decision making. They allow management to assess current financial performance and anticipate the impact of decisions on the organization's future financial situation.

Whether approving a budget, assessing the feasibility of a project, setting prices, or analyzing profitability, financial accounting information provides essential data for evaluating available options in many fields, such as:

Analytics and Predictive Modeling

- Use of Advanced Algorithms: Integrating data analysis algorithms, including machine learning and artificial intelligence to examine complex tax information sets.
- Identification of Patterns and Trends: Detailed analysis to identify behavioral patterns of taxpayers and emerging trends in tax activity.
- Predictive Modeling: Implementation of predictive models for anticipating future fiscal behaviors, based on the analysis of historical data and significant variables.
- Adaptability to Change: Creating adaptable models that respond to legislative and economic changes, integrated with periodic updates to maintain accuracy.

Resource Optimization

- Using predictive analytics to efficiently allocate resources and prioritize tax investigations.
- Streamlining the decision-making process by identifying risk areas and focusing efforts strategically.

Transparency and Collaboration

- Ensuring transparency and explainability of predictive models, facilitating user understanding and trust.
- Encouraging an open dialogue with taxpayers regarding the analysis and forecasting processes, promoting collaboration and mutual respect.

3.2. Key Features of the proposed software application

This application would be a main element in the fight against tax evasion and would bring many advantages, including efficient management of budgetary resources.

The key features of the application refers to:

User-Friendly Interface: Development of an intuitive interface for easy use of the application by Tax Inspectors, regardless of their level of technical expertise.

Automated data analysis: Implement automated data analysis functions to quickly identify significant patterns, trends, and correlations in tax information.

Easy data extraction: Integration of efficient tools for easy extraction of relevant data from large and complex tax information sets, including documents: E-Invoice, E-transport and SAF-T.

Machine Learning and Artificial Intelligence: The use of advanced technologies for the automatic identification of fiscal anomalies and risk areas.

Custom report generation: Implementation of functionality to create custom and interactive reports, presenting analysis results in an accessible way.

Real-Time Updates: Integration of real-time update mechanisms to ensure constant availability of tax data and information.

Advanced Security: Implementation of security measures to protect sensitive data and comply with strict privacy standards.

Feedback and Collaboration: Features that allow Inspectors to provide feedback, collaborate effectively and communicate transparently with taxpayers.

4. The functionalities of the proposed application

The following case study is an example of the results that can be obtained through the collaboration between platforms and macro digitization projects in the financial accounting field and the software development initiatives of some companies specialized in information technology.

Starting from the implementation of the SAF-T standard for fiscal reporting, trying to use all the advantages offered by this standard, the application proposed proves to be a connecting element with the future digitization projects of ANAF, such as the APIC project.

The ***SAF-T Analyzer Application*** is designed to maximize the benefits of SAF-T reporting by leveraging advanced technologies to streamline and optimize the handling of accounting data. The following are the main functionalities integrated into the application to enhance efficiency and data integrity:

- ***Mapping XML to Business Models****:* The core functionality involves mapping the

SAF-T XML declarations to business models, allowing users to utilize structured data for verification and business intelligence analyses. The XML structure, along with its corresponding XSD schema, is utilized to generate strongly typed C# classes, which serve as the backbone for data organization and manipulation (figure nr. 1).

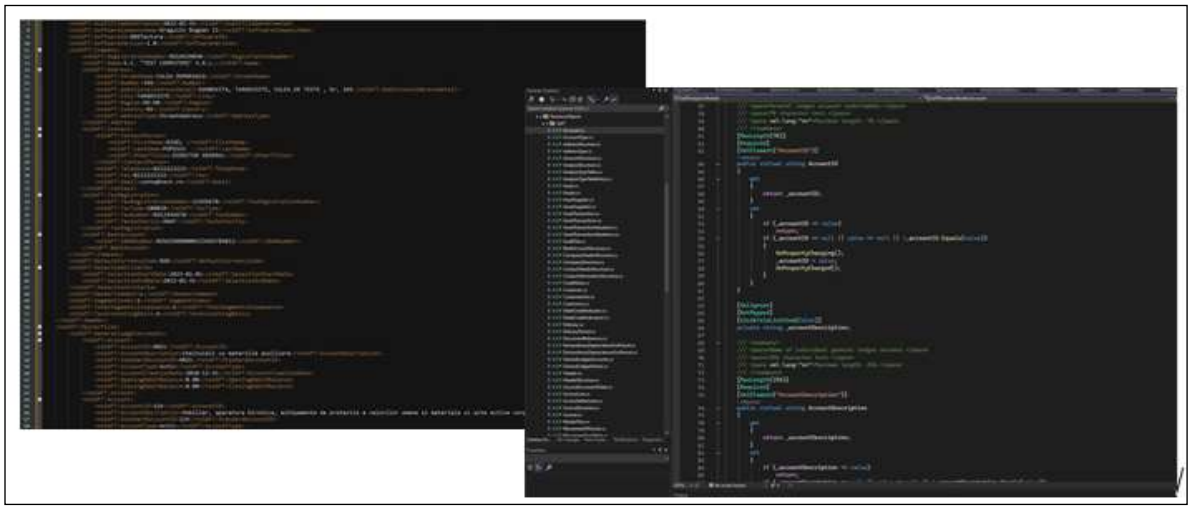


Figure 1. The conversion of XML File Structure to C# Classes
Source: author

- ***SQL Database Integration****:* Once mapped, the data is imported into a SQL

database. This data transformation from XML to structured database tables enhances the ability to perform analyses, facilitates data management, and creates a foundation for generating custom reports and visual insights (figure nr. 2).

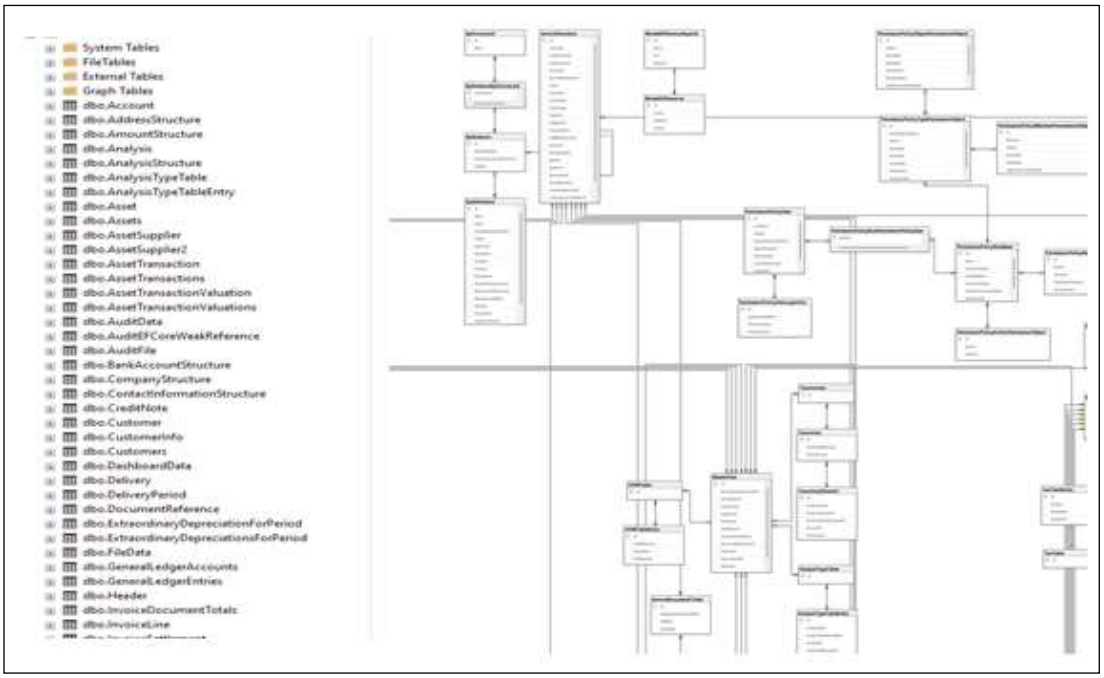


Figure 2. Resulting database physical model
Source: author

- ***Automated Data Analysis****:* The application integrates automation tools that identify patterns, trends, and correlations within the tax information, making it easier for accounting professionals to derive actionable insights. This reduces manual effort and increases the overall efficiency of data analysis.
- ***Recovery Capabilities****:* By using standardized data files, such as SAF-T, the application ensures that accounting systems are more robust and resilient. This functionality is especially valuable in critical situations involving data loss or corruption, as it facilitates the rapid reconstruction of financial records.
- ***Custom Reporting and Dashboards****:* Users can generate personalized reports based on the imported SAF-T data. The user interface allows easy configuration of dashboards to present key information visually, thereby improving decision-making capabilities and facilitating efficient communication between tax authorities and taxpayers.

The development of these functionalities ultimately contributes to the ***streamlined auditing process***, facilitating better data recovery, compliance verification, and ensuring financial transparency.

5. Results and benefits for the proposed solution

Digitization in the reporting of tax declarations represents a significant transition towards the use of information and communication technology to streamline and improve accounting processes. This change brings with it many important features and benefits that transform the way financial information is managed and reported within an organization.

The user interface (UI) of the proposed application is designed to enhance accessibility and ease of use, targeting both tax professionals and business users with varying levels of technical expertise. Below are the key features of the application's interface:

- ***File Import Options****:* The interface allows users to import SAF-T declarations from various formats, such as XML, ZIP, or PDF files. This multi-format import capability ensures flexibility and convenience for users, simplifying the initial setup of

data within the application. The ZIP format support was added to allow importing big files (compression of XML file is under 10% of the initial file size)

- ***Overview and Management of Declarations:*** The application includes a dashboard listing all the previously imported declarations, enabling users to easily manage and track existing data. Users can browse through declarations, view summary information, and access individual details for in-depth analysis.
- ***Purchase Invoices and Details****:* A dedicated section for managing purchase invoices is available. Users can filter and view invoices, payments, stocks, assets and other information included into SAF-T declaration, check their details, and perform necessary edits. User can navigate through the purchase invoices, highlighting specific details such as invoice numbers, suppliers, and transaction dates.
- ***Data Dashboard and Data Source Configuration:*** Users can create and customize data dashboards for a more interactive analysis experience. This functionality is essential for monitoring trends in sales, expenses, and other fiscal parameters. The interface allows users to configure new data sources, enabling a diverse set of reports to be generated based on tailored criteria.
- ***Query Builder:*** Using a graphical query builder, end user can visually build a complex interrogation over the existing database model to extract relevant information used in data analysis. The query builder has integrated capabilities for selecting, creating relationships, filtering, ordering, grouping and aggregating data from database model.
- ***Visualization Tools:*** The interface also includes robust visualization features that enable users to create charts and pivot tables to facilitate the exploration of accounting data. These visualization tools help in simplifying complex financial data, making it easier to detect anomalies or trends, and in enhancing the transparency of financial information. The application allows creation of different widgets for data analysis and allows to interact, filter, navigate, save, preview, and print resulting dashboards (figure nr. 3).

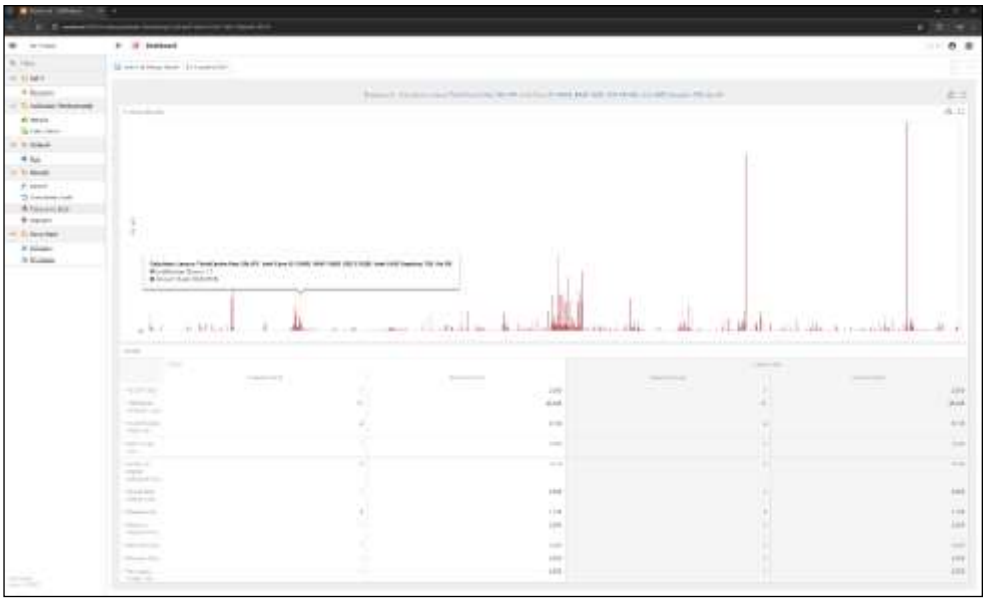


Figure 3. Preview resulting dashboard for sales data source
Source: author

Conclusions

The article highlights one of the key aspects of the digitization process implemented by ANAF consists in simplifying and automating tax processes. If in the past economic operators had to manually complete and submit fiscal documents, now all these steps can be carried out electronically, through the IT systems provided by ANAF like the SAF-T standard.

The *SAF-T Analyzer Application* is designed to maximize the benefits of SAF-T reporting by leveraging advanced technologies to streamline and optimize the handling of accounting data. The paper explores the main features that make this software a pivotal innovation in financial reporting and data management, such as: Automated Data Analysis, Easy Data Extraction and Integration, Machine Learning and Artificial Intelligence, Custom Report Generation and Visualization, Data Recovery and Robustness, Scalability and Flexibility, Security and Data Protection, Mobility and Cloud Accessibility.

Streamlining Romanian fiscal declarations through the software application for financial management have an important impact not only for modernization and optimization of administrative processes, but brings with it a number of significant advantages, among which are increased efficiency, reduced risks and improved fiscal supervision.

References

1. Alles, M.G. (2015). Drivers of the use and facilitators and obstacles of the evolution of big data by the audit profession. Accounting Horizons, 29(2), 439–449.
2. Bolcu, D. L., (2014). Digitalizarea contabilității prin utilizarea sistemelor ERP - condiție a evoluției profesiei contabile, Teza de doctorat
3. Duong, D.C.T., Fledsberg, K., (2019). Digitalization of the Accounting Industry: The Influence Of Digitalization on the Accountants' Role and Their Self-Understanding.
4. Fettry, S, Anindita, T, Wikansari, R., Sunaryo, K. (2018). The future of accountancy profession in the digital era. *Proceedings of the First Economics and Business Competitiveness International Conference* (EBCICON 2018).
5. Gartner Glossary, (2022). accessed Novembre 2003, available online: https://www.gartner.com/en/information-technology/glossary/digitalization
6. Granlund, M. (2011) Extending AIS Research to Management Accounting and Control Issues: A Research Note. *International Journal of Accounting Information Systems*, 12, 3-19.
7. Hassan, T. A., Hollander, S., van Lent, L., & Tahoun, A. (2019). Firm-Level Political Risk: Measurement and Effects. *The Quarterly Journal of Economics*, 134(4), 2135-2202.
8. Johansson, B. and Sudzina, F. (2008) ERP Systems and Open Source: An Initial Review and Some Implications for SMEs. *Journal of Enterprise Information Management*, 21, 649-658.
9. Nowak, A., Lukowicz, P., Horodecki, P. (2018). Assessing artificial intelligence for humanity will AI be our biggest ever advance–or the biggest threat? *IEEE Technology and Society Magazine*, 37(4), 26–34.
10. Rane, N. L. (2023). Role and Challenges of ChatGPT and Similar Generative Artificial Intelligence in Finance and Accounting.
11. Strategia Agentiei Nationale de Administrare Fiscala, (2020). accesat la 1.09.2024 https://static.anaf.ro/static/33/Anaf/20210316192634_strategia_anaf_2021-2024.pdf
12. Tekbas, I., Nonwoven, K., (2018). The Profession of the digital age: Accounting Engineering. International Federation of Accountants, available online: https://www.ifac.org/knowledge-gateway/preparing-future-ready-professionals/discussion/profession-digital-ageaccounting-engineering
13. APIC project, (2023). accesat la data de 1.09.2024 https://mfinante.gov.ro/documents/35673/10057324/csac679083_28032023.docx
14. SAF-T Guide, (2021). accesat la data 1.09.2024 https://static.anaf.ro/static/10/Anaf/Informatii_R/SAF_T_Ghidul_D406_1712021.pdf

DATA SECURITY IN ACCOUNTING: CHALLENGES AND SOLUTIONS IN THE DIGITAL AGE

Gore Beatrice -Elena[1]
Schitz Cornelia-Ana[2]
Neagu (Ion) Ana-Rebeca[3]
Radu Florin[4]

Abstract:
Rapid technological evolution and the adoption of digital solutions in accounting (Abrahams et al.,2024) have brought benefits in data efficiency and accessibility, but also new challenges related to the security of financial information. In a world where cyber-attacks and insider risks are growing exponentially, protecting accounting data is becoming a key priority for entities. This study examines the nature and extent of current threats, including unauthorized access, malware and ransomware attacks, as well as accidental exposure of data through the use of non-compliant systems and processes. Financial data security is essential to maintain the integrity and confidentiality of sensitive information. The research proposes an integrated approach to security measures, emphasizing the importance of using modern protection technologies (Thakur, 2024), such as advanced data encryption, multi-factor authentication and strict role-based access controls. Companies need to implement not only technologies, but also clear policies and rigorous security procedures. Ongoing staff training and fostering an organizational culture geared towards data security are equally essential to reduce vulnerabilities. We used a methodology based on literature review and case studies to highlight practical examples of implementing security measures in accounting firms. Advanced encryption, multi-factor authentication and role-based access management are the most effective solutions identified.

Keywords: *accounting, technologies, security, information*

JEL Classification: G32, F65, F36

1. Introduction

With the digital transformation of accounting, data protection becomes essential (Anyanwu et al., 2024) ensuring both the security of financial information and compliance with legal regulations. Risks such as cyber-attacks (Aslan et al., 2023), data theft and unauthorized access to accounting systems arise. Among the methods used by cyber attackers to gain access to sensitive information are malware and phishing, and the evolution of these techniques requires accounting firms to be proactive and creative.

At the same time, digital security measures have become essential to protect financial data. The deployment of artificial intelligence (Jejeniwa et al.,2024) contributes significantly to the detection and prevention of security threats by quickly identifying attacks and tracking suspicious activity in real time. At the same time, digital security measures have become essential to protect financial data. The deployment of artificial intelligence (AI) contributes significantly to the detection and prevention of security threats by quickly identifying attacks and tracking suspicious activity in real time

Ongoing training in recognizing risks and the correct use of security systems is crucial to maintain a safe working environment and prevent incidents caused by carelessness or insufficient information

Effective measures for accounting data security require an integrated approach, combining the use of advanced technologies such as artificial intelligence with the promotion of a protective organizational culture. Overcoming these challenges is essential for firms to

[1] Ph.D. Student, "Valahia" University of Târgoviște, E-mail: gorebeatrice32@yahoo.com
[2] Student, "Valahia" University of Târgoviște
[3] Ph.D. Student, "Valahia" University of Târgoviște, E-mail: rebecaneagu@yahoo.com
[4] Ph.D. Professor, "Valahia" University of Târgoviște, E-mail: florin.radu@valahia.ro

remain competitive, inspire customer confidence and meet compliance requirements in today's digital environment.

2. Literature review

The digitization of entities has brought with it the need to protect them, i.e. it has shaped the concept of cybersecurity (Rodrigues et al., 2019). Rajput talks in his paper (2020) about cybercrime manifested increasingly in the accounting field.

Khizhnyak (2018) defines the financial security of an entity as a quantitative as well as a qualitative barometer with which to measure confidence in it in terms of its financial potency.

Given the fact that the accounting department of an entity is the main generator of information needed to make important business decisions, most cyber-attacks target financial-accounting data (Zadorozhnhnyi et al., 2021). Moroz et al. (2017) draw attention to the fact that financial-accounting information is vital to any entity , therefore they propose that it should be prioritized to be protected from both internal and external threats to the entity.

Shitova identified some of the economic benefits targeted by attackers, including: espionage, unfair competition, theft of personal data and information, attacks on intellectual property, cryptography, misrepresentation of information to make erroneous managerial decisions, etc. (2019).

Using blockchain (Georgiou et al., 2024) to track transactions and artificial intelligence to identify anomalies can provide increased protection against fraud and cyber-attacks. SMEs can opt for secure cloud-based (Sandesh Achar, 2018) platforms and automated security tools that are more cost-effective and easy to deploy (Rehan, 2024).

Authors such as Saia & Carta (2019) state that machine learning on which digital utensils rely jeopardizes the security of data, which can thus be easily copied and spread.

In order to combat fraud and aiming to protect financial data against cyber attacks, various solutions have been proposed. Among them is the Blockchain-based GBDT-APBT model with Gradient Boosting Decision Tree (Y. Ren et al., 2023). This model involves online learning, not requiring access to the centralized database.

Another proposed solution is the creation of a single national system that aims to ensure cybersecurity of entities (Horbachenko, 2020).

Despite the efforts to study the issue of ensuring the security of financial-accounting data against cyber-attacks, the challenges we face in the context of excessive digitization show that it has not been sufficiently studied (Varnalii, 2022).

3. Case study

Case Study: Accounting Data Security in an SME – ABC Contab SRL

Company Background

ABC Contab SRL is a small enterprise providing accounting services to local and regional clients. The company manages a significant volume of sensitive financial data, and the digitalization of processes has highlighted increased risks related to cybersecurity.

Identified Challenges

Following an internal audit, the following major issues were identified:

1. Unauthorized Access – The use of simple passwords and the lack of multi-factor authentication (MFA) allowed uncontrolled access to sensitive data.

2. Lack of Data Encryption – Financial data transmitted via email or stored on local servers was not adequately protected.

3. Phishing and Malware Attacks – Employees fell victim to phishing emails, which led to the installation of malicious software.

4. Absence of Active Monitoring – The company lacked a real-time monitoring system to detect and prevent cyberattacks.

Implemented Solutions

To address these risks, the company adopted the following measures:

1. Multi-Factor Authentication (MFA) – Introduced two-step authentication for accessing accounting platforms, utilizing complex passwords and biometric authentication.
2. Data Encryption – All financial data was encrypted both in storage and during transmission, using SSL/TLS protocols.
3. Employee Education – Staff were trained to recognize phishing attempts and to properly use the implemented security systems.
4. Monitoring and Prevention Systems – The company installed an advanced firewall and AI-based anti-malware software to monitor and prevent attacks in real-time.

Results and Conclusions

After implementing these measures:

Security incidents decreased by 80% within the first six months.

Client trust in the company's services increased, leading to a 15% rise in client retention.The company achieved compliance with GDPR regulations, avoiding potential fines.This integrated approach demonstrates that SMEs, even with limited resources, can adopt effective cybersecurity measures to protect accounting data.

4. Analysis and results

In the digital age, accounting data has become an important element and its protection has become a priority for businesses in all sectors. In general, accounting faces risks related to data theft, cyber attacks and financial fraud. In this regard, companies need to adopt security measures that protect sensitive information and ensure compliance with legal regulations (e.g. GDPR). Advanced technologies, including artificial intelligence (AI), are being used to improve the security of accounting data.

The purpose of implementing digital solutions and artificial intelligence in accounting is:

• Detect and prevent cyber attacks, malware and financial fraud;

• Create an automated system to monitor and protect financial transactions in real time;

• Eliminate risks associated with manual intervention in data security processes;

• Enabling full verification and traceability of accounting documents and transactions.

Implementing security measures using AI (Jejeniwa et al., 2024) and digital solutions is a complex process, which can create various challenges. Many accounting professionals have been reluctant to embrace new technologies, and integrating AI into data protection processes has required a learning and adaptation process.

Deployment costs are high, so accounting professionals may face reluctance to new technologies, and integrating AI into data protection processes required a learning and adaptation process. Integrating AI (Yang, 2024) solutions with existing infrastructure is challenging, especially for companies that do not have advanced IT systems.

The following solutions can be implemented to ensure the protection of accounting data and to address the challenges faced.

Using artificial intelligence algorithms for anomaly detection: AI can be used to analyze accounting transactions in real time and identify abnormal behavior, fraud signatures or other suspicious activity. Algorithms can learn from historical data and detect patterns of fraudulent behavior (Odeyemi et al., 2024), thereby reducing the risks associated with cyber-attacks.

Data encryption solutions: stored or transmitted accounting data is encrypted using advanced encryption technologies, preventing unauthorized access to sensitive information.

Implementation of automated systems to monitor and protect financial data flows, including firewall solutions, anti-virus and anti-malware software, which operate on the basis of machine-learning algorithms.

A good protection measure is also multi-factor authentication, implementing authentication by several methods, e.g. an SMS code or biometrics, to protect access to accounting platforms and financial documents.

By implementing these solutions, positive results are achieved. Incidents of cyber-attacks and malware are reduced thanks to real-time monitoring systems and fraud detection algorithms (Bello et al., 2024). Customers become more confident in the processing and protection of their financial data due to the implementation of advanced security measures.

Many data protection processes can be automated, saving companies time and resources and minimizing human error. Implementing security measures helps organizations stay compliant with regulations such as GDPR and other tax regulations.

Deploying these solutions also brings risks to consider. Zero-day attacks (exploiting previously unknown vulnerabilities) can affect AI systems, and full protection cannot always be guaranteed. The cost of deployment can be costly, as it requires technical expertise in cybersecurity as well as AI maintenance.

Another risk is data collection and leakage. Some AI solutions can collect and process personal data, which raises privacy and GDPR compliance concerns.

Recommendations for improving the security of accounting data are:

• Ongoing employee training in cybersecurity and the use of AI systems is essential to prevent errors and attacks (Jejeniwa et al., 2024);

• Continuous monitoring and periodic performance evaluation of security solutions deployed will ensure continued data protection;

• Firms can explore new technologies such as blockchain to ensure transparency and integrity of accounting data.

5. Conclusions and suggestions

Constant employee training and the development of strong organizational ethics are essential to prevent vulnerabilities caused by human error. Accounting firms should work with cybersecurity professionals to develop and implement customized data protection strategies.

Creating detailed business continuity and cyber-attack response plans can minimize the financial and reputational impact of these incidents. Adapting to new technologies and complying with the ever-changing legal framework will ensure the competitiveness and compliance of accounting firms.

In conclusion, protecting accounting data in the digital age is a complex process that requires the integration of advanced technologies and a comprehensive approach to cybersecurity. Artificial intelligence, data encryption, multi-factor authentication and real-time monitoring solutions are just some of the essential tools that can help companies address data security challenges.

However, their success also depends on involving the human factor through continuous education and training of employees. Adapting quickly to emerging technologies and investing in digital infrastructure are key to maintaining a secure and compliant environment, while ensuring transparency and protection of sensitive data.

6. Bibliography

1. Abrahams, T. O., Ewuga, S. K., Kaggwa, S., Uwaoma, P. U., Hassan, A. O., & Dawodu, S. O. - Mastering compliance: A comprehensive review of regulatory frameworks in accounting and cybersecurity, 2024;

2. Abrahams, T. O., Ewuga, S. K., Kaggwa, S., Uwaoma, P. U., Hassan, A. O., & Dawodu, S. O. - Review of strategic alignment: Accounting and cybersecurity for data confidentiality and financial security, 2023;
3. Achar, S. - Security of accounting data in cloud computing: A conceptual review, 2018;
4. Anyanwu, A., Olorunsogo, T., Abrahams, T. O., Akindote, O. J., & Reis, O - Data confidentiality and integrity: A review of accounting and cybersecurity controls in superannuation organizations, 2024;
5. Aslan, Ö., Aktug, S. S., Ozkan-Okay, M., Yilmaz, A. A., & Akin, E. - A comprehensive review of cyber security vulnerabilities, threats, attacks, and solutions, 2023;
6. Bello, O. A., & Olufemi, K. - Artificial intelligence in fraud prevention: Exploring techniques and applications, challenges, and opportunities, 2024;
7. Bitdefender. (n.d.). What is zero-day vulnerability? Retrieved from https://www.bitdefender.com/ro-ro/business/infozone/what-is-zero-day-vulnerability
8. Camacho, N. G. - The role of AI in cybersecurity: Addressing threats in the digital age, 2024;
9. Georgiou, I., Sapuric, S., Lois, P., & Thrassou, A. - Blockchain for accounting and auditing - Accounting and auditing for cryptocurrencies: A systematic literature review and future research directions, 2024;
10. Horbachenko, S. - Cyber security as a component of economic security of Ukraine. Galician economic journal, 2020, 66(5), 180-186;
11. Jejeniwa, T. O., Mhlongo, N. Z., & Jejeniwa, T. O. - A comprehensive review of the impact of artificial intelligence on modern accounting practices and financial reporting, 2024;
12. Jejeniwa, T. O., Mhlongo, N. Z., & Jejeniwa, T. O. - Social impact of automated accounting systems: A review - Analyzing the societal and employment implications of the rapid digitization in the accounting industry, 2024;
13. Khizhnyak, Y. - Methodical approach to assessing the level of financial security of the enterprise. Market Infrastructure, 2018, 23, 305–312. http://www.marketinfr.od.ua/journals/2018/23_2018_ukr/55.pdf;
14. Moroz, Y. Y., Tsal-Tsalko, Y. S. - Accounting policy of the enterprise and its cybersecurity. Accounting, analysis and control in the context of modern concepts of managing the economic potential and market value of the enterprise. ZhNAEU, 2017, 4(1), 8–11;
15. Odeyemi, O., Ibeh, C. V., Mhlongo, N. Z., Asuzu, O. F., Olatoye, F. O., & Awonuga, K. F. - Forensic accounting and fraud detection: A review of techniques in the digital age, 2024;
16. Rajput, B. - Exploring the Phenomenon of Cyber Economic Crime. Cyber Economic Crime in India, 2020, 53-78;
17. Ramírez, J. G. C. - Natural language processing advancements: Breaking barriers in human-computer interaction, 2024;
18. Rehan, H. - AI-driven cloud security: The future of safeguarding sensitive data in the digital age, 2024;
19. Ren, Y., Ren, Y., Tian, H., Song, W.,Yang, Y. - Improving transaction safety via anti-fraud protection based on blockchain, Connection Science, 2023, 35:1, 2163983, DOI: 10.1080/09540091.2022.2163983;
20. Rodrigues, B., Franco, M., Parangi, G., Stiller, B. - SEConomy: a framework for the economic assessment of cybersecurity. In International Conference on the Economics of Grids, Clouds, Systems, and Services, 2019, 154-166;
21. Saia, R., Carta, S. - Evaluating the benefits of using proactive transformed-domain based techniques in fraud detection tasks. Future Generation Computer Systems, 2019, 93(4), 18–32.https://doi.org/10.1016/j.future.2018.10.016;
22. Shitova, Y. Y., Shitov, Y. A. - Contemporary Trends in Economic Cybersecurity. The world of new economy, 2019, 13(4), 22-30;
23. Thakur, M. - Cyber security threats and countermeasures in the digital age, 2024;

24. Varnalii, Z., Mekhed, A. – Business entities fianncial security under digital economy, Financial and credit activity: Problems of theory and practice, 2022, 4(45), DOI: 10.55643/fcaptp.4.45.2022.3813;
25. Yang, X. - Development and impact of artificial intelligence technology in the accounting industry, 2024;
26. Zadorozhnyi, Z.-M., Muravskyi, V., Shevchuk, O., & Bryk, M. - Innovative Accounting Methodology of Ensuring the Interaction of Economic and Cybersecurity of Enterprises. Marketing and Management of Innovations, 2021, 4, 36-46. http://doi.org/10.21272/mmi.2021.4-03.

THE IMPACT OF ARTIFICIAL INTELLIGENCE IN THE ACCOUNTING PROFESSION

Ruxandra Grigorescu[1]
Petronela Alice Grigorescu[2]

Abstract:
The present article aims to shed more light on the concept of artificial intelligence and on the impact of artificial intelligence on the accounting profession. We will highlight the advantages, disadvantages and what could be brought as a plus to the accounting profession, with the help of artificial intelligence. Also, there are risks, these being the fears of accounting professionals that are often discussed. The subject is quite controversial, because those in the field of artificial intelligence who want to make their mark at the highest level and make their presence felt in all fields, implicitly in that of accounting. Artificial intelligence has pluses and minuses on which one must stop and pay more attention to prevent possible errors.

Keywords*: accounting profession, the digital age, artificial intelligence, the importance of ethics*

JEL Classification: G00, M41

Introduction

Generative artificial intelligence is a notion still in development, often encountered in social or corporate discussions. The innovative way in which it creates new texts, images, systems, audio/video recordings using automation methods that overshadow human creation is a means by which the attention and vision of internet users are absorbed. Thus, AI manages to capture billions of dollars of investment from tech giants for domestication and research.

What is artificial intelligence ?

AI is the ability of systems or machines to interpret the human intellectual capital in the most real way so as to achieve top goals and easily solve problems. The computer receives the multitude of data, usually in an extremely large volume (already prepared or collected through its own sensors, such as a video camera), processes it and reacts. AI systems have the mobility to shape, to a certain extent, their behavior, following the effects of previous actions and operating autonomously.

Why is AI important ?

AI technologies, compared to the time of their appearance, approximately 50 years ago, are much more important nowadays and more developed, the increase in computing power, the availability of huge volumes of data (big data) and new algorithms outlining major advances in terms of the notion of artificial intelligence in recent years.

Artificial intelligence is perceived as the main pawn of the digital transformation of society, becoming a priority for the EU.

Assumptions are made that the following applications will build enormous and radical transformations, although AI makes its presence felt in our everyday existence.

Types of AI (EC definition)

- Software: virtual assistants, image analysis software, search engines, voice and facial recognition systems
- Embedded AI: robots, self-driving cars, drones, the Internet of Things

IA in everyday life

We will present some of the functions that we use without always realizing that they are elements of AI:

[1] Ec-Contabil Dr, Univ. Valahia Targoviste, gruxandra11@yahoo.ro
[2] Ec, Univ. Valahia Targoviste, grigorescu_petronela@yahoo.com

Online shopping and advertising

Artificial intelligence is used by the entire society and generates personalized recommendations for all users of social platforms or simply of the Internet, based on their access or purchases made in the past, for example, or other types of online behavior. AI represents an important component in the economy, for product improvement, inventory planning, logistics, etc.

Internet search

Search engines run from data entered by users in a huge number (big data) so as to generate valid and useful results.

Personal digital assistants

Smart phones use digital intelligence to design innovative, personalized and up-to-date products for those who want them. Virtual assistants, becoming more and more present, who answer questions, offer recommendations and solutions necessary for a much more efficient organization of activities.

Automatic translation

Translation softwares, written or oral, use artificial intelligence to create and improve translations.

Smart homes, cities and infrastructures

Smart thermostats have also adapted to human abilities to save energy. Likewise, smart city developers hope to soon manipulate traffic in order to improve connectivity and reduce traffic jams.

The automobiles

Although self-driving cars are not yet the norm, vehicles are already using AI-powered automated safety features. The EU contributed, for example, to the financing of VI-DAS, automatic sensors that signal and detect possible dangerous situations and accidents.

Navigation is heavily based on AI.

Cyber security

AI technologies help recognize and eliminate cyber attacks and other cyber threats based on continuous data input, identifying patterns and outlining attacks.

Artificial intelligence against Covid-19

In the context of the Covid-19 epidemic, AI has been used in thermal imaging in airports and elsewhere. In medicine, AI can help identify infections by making a computer tomography of the lungs. At the same time, in order to prevent the spread of the disease, it was used to collect data.

Combating disinformation

A series of AI applications, through digitized mechanisms for extracting false information existing on social networks, more precisely through methods of searching for certain words and identifying online sources considered official, can identify distorted news and lack of real information.

The advantages and riscks of AI

AI can contribute to increasing performance, efficiency and effectiveness in many fields of activity, such as: medicine (by diagnosing and treating diseases faster), education (personalizing the way of learning), industry (improving work processes), agriculture (reducing waste) etc.

AI can support and assist humans in performing various difficult, dangerous or highly repetitive tasks such as space exploration, saving lives, manufacturing goods, etc. For example, AI can help drive space vehicles, identify and eliminate disasters, automate and improve manufacturing quality, etc.

AI uses a large volume of data, which can be used for the purpose of extracting information, knowledge and solutions, in different problems and domains. For example, AI can help analyze and interpret data, identify new patterns and trends, build broad and efficient hypotheses, etc.

AI can be used as an innovative tool for companies by thinking and designing new products, services, models, aimed at bringing something creative. For example, AI shapes new devices, applications, games, content through intelligent systems and design.

AI can contribute to the improvement of scientific, technological, economic-social evolution, but also of humanity, by solving global problems, such as climate change, poverty, health, etc.

The disadvantages of AI

An unpleasant aspect of AI is that, due to the lack of a backup (copy) for safety and protection, there is the possibility of data loss, which can damage information and knowledge. For example, AI may be prone to cyber-attacks, bugs, glitches, etc.

Intelligent systems can attract the loss of jobs, the lack of equity between social and economic, market instability, as the new technologies proposed by AI replace the human part in many fields and activities (AI can reduce the need for companies to hire new people, increase competition, affect income and rights, etc.).

AI can lead to the automation of weapons, used for war, violence or terrorism, which can cause damage and casualties, digitization can contribute to the development and implementation of the use of drones, robots, nuclear weapons, etc.

AI can become an enemy for society because in the hypothesis that automation takes over human control entirely, it diminishes values, beliefs and human rights.

AI can affect the personality, values and emotions emanated by people if intelligent systems will succeed in imitating human abilities more and more, more so trying to surpass them through the use of technology.

Artificial intelligence represents a notion with foundations in technology, with an immense capacity, but also with major risks. In order to use AI responsibly and ethically, proper communication and regulation is needed, which brings positive points and removes unpleasant aspects. Also, a continuous awareness and education is necessary, which will support the learning process and understanding of the need for AI in the society in which we live.

Personally, I look at the whole artificial intelligence process on an optimistic note, and I think that it presents a huge potential for development and alignment towards a high-performance society. For example, AI helped me to learn simply and effectively, by adapting the content to my own personality and the feedback. However, I foresee the possible risks that AI entails, such as loss of data, jobs, privacy, or control. Therefore, I suggest the need for a collaboration and regulation of legislative norms to an adequate extent, which will contribute to the realization of the benefits and the elimination of the disadvantages of digitization. At the same time, I notice that, an awareness and education carried out constantly, helps us to understand and implement AI in a considerable proportion in our lives.

AI in accounting

Artificial intelligence (AI) intervenes in the accounting profession, taking over routine tasks that used to take a long time to complete and that were prone to errors, thus making them simpler, easier to use and faster. Accountants have access to methods for automatically extracting data from financial documents such as invoices or receipts, advanced predictive analytics, and comprehensive data management. The tools are also easy for the audit profession, reducing to just a few days the processes that previously took several months.

A plus that comes with the alignment of accounting processes with intelligent systems is determined by the increase in the level of satisfaction at work. Accounts have a variety of responsibilities, most of which are repetitive and time-consuming. Accountants' time is

extended, so that they can focus their attention on more complex, stimulating job activities, thus becoming more satisfied at work.

Artificial intelligence, however, will never be able to take over the experience and professional reasoning of qualified accountants, communications and accounting meetings touching on personal information about the current state and future objectives of the client's business, discussions held at round tables not being able to be taken over by AI systems.

The 7 tools for accountants are presented in the following:

1. **Transkriptor:** Transcription software for documenting professional accounting meetings with information such as annual client reviews, sales meetings, and meetings with prospective clients.
2. **DEXT:** Automated accounting solution requiring three separate programs for data, mining, predictive analytics and digital sales management.
3. **Zoho Books:** Accounting software included in Zoho's business suite, which promises to give a specific experience through its support for several types of sales and purchases, as well as customizable reports.
4. **BotKeeper:** Specialized accounting software that combines human reasoning and practice with digitization to help users who seek to develop their business.
5. **MindBridge:** Intelligent audit platform that automatically captures high-risk transactions and decision-making efficiency with powerful pattern recognition.
6. **Xero:** Accounting software that allows teams in different cities to use a multi-user, as well as a dashboard that consolidates all information about the client's financial situation in one place.
7. **SMACC:** Intelligent accounting software that uses AI to facilitate customers' access to real-time financial data, constantly monitor payments and respond promptly to invoices.

1. Transkriptor

Transcriptor is an online transcription software that uses cutting edge artificial intelligence systems to quickly transcribe a range of audio and video files. Accounting professions use Transcriptor in particular to transcribe their meetings. Accounting meetings include most elements of an informational nature, the transcription of these meetings helping to accurately document interactions with clients and giving accountants the opportunity to efficiently identify specific information.

Accountants are required to take part in many types of meetings, such as annual client reviews, advising clients on selling their product or service, and meetings with potential clients, during which Meetingtor can record them and users can retrieve transcripts of these meetings with one click. Accountants juggle complex information about clients, both financial and individual, this aspect being paramount in the existence of a concrete and detailed record discussed during meetings.Clients are encouraged to mention the personal changes that intervened and that pulled down their business during the accounting meetings, these highlight more about their business than the numbers, being necessary transcripts of these discussions.

.

2. DEXT

DEXT describes an automated accounting system that uses artificial intelligence to ensure accuracy, efficiency and productivity of a company. The DEXT software package includes three separate programs (DEXT Prepare, DEXT Precision, DEXT Commerce) that perform data extraction, analysis and management operations for accountants.

The jobs are designed by asking users to upload a photo of the receipt, invoice or bank statement they want to digitize and automatically duplicating the data that is sent to the user's preferred accounting software. DEXT Precision analyzes financial data uploaded by

accountants, generating proactive insights into company sales, average time to pay for services, duplicate transactions and missing data.

DEXT Commerce manages digital sales data, consolidating information from multiple retailers, marketplaces and e-commerce platforms about company finances into a digitized, easy-to-export format.

3. Zoho Books

Zoho Books is one of the software included in Zoho's business suite, so it's a good way for accountants who already use one or more of their applications. Zoho Books is a program with various functions, although it is aimed mainly at small companies, offering several types of sales and purchases, reports adapted to their specifics, but also automatic calculations of payroll taxes.

Zoho Books users are satisfied with the "clean" interface of the application, presenting a collection of customizable elements, which gives them the opportunity to adjust the performance of the application to their financial needs with minimal effort and to streamline the accounting process. Zoho Books is a comprehensive and flexible accounting system that uses powerful digitized techniques, on the desktop version and on the mobile application.

4. BotKeeper

BotKeeper is a specialized accounting software for professionals that combines reasoning/critical thinking and artificial intelligence to outline powerful insights in real-time while reducing their workflow. BotKeeper uses automation to provide an ideal level of scalability that would only be a dream through manual data entry, providing a personalized team of accountants for each of their clients astfek to support the ongoing use of the software.

BotKeeper uses intelligent techniques to automate accounting tasks that used to take a long time to complete, gathering the necessary elements in one place, which contributes to reducing accountants' precious time, giving them perspectives to channel their attention on maintaining personalized customer experiences, new customer onboarding and major customer follow-up.

5. MindBridge

MindBridge differentiates itself from other auditing platforms by leveraging artificial intelligence to analyze an impressive volume of data, automatically highlighting what are known as "high-risk" transactions involving large sums of money.

MindBridge audit software uses artificial intelligence to accelerate the months-long audit process to just days and minimize the possibility of human error associated with classical (traditional) data analysis. MindBridge provides deep insight into financial data and powerful pattern identification to streamline decision-making, using minimal time, effort and resources.

MindBridge, at the forefront of AI in finance, welcomes Stephen DeWitt as a pioneering CEO driving innovation.

6. Xero

Xero successful accounting software in 2024 that allows remote access, multi-user access and data visualization, making it a suitable choice for teams in different cities. The Xero dashboard consolidates essential financial data into one convenient location. Displays up-to-date details of customer account balances and the status of bills and invoices. Xero software summarizes total income and expenses, along with expense claims. This centralization assumes an efficiency of the financial processes, creating a clear and transparent perspective on the financial situation of the company.

Xero defines itself as an adaptable accounting tool that appeals to a wide range of users, from independent freelancers aiming to pay client invoices to large enterprises monitoring cash flow. Its use supports different financial activities, making it a great asset for various accounting needs.

7. SMACC

SMACC represents a revolutionary and innovative approach in the field of accounting and financial management, which highlights the influence of artificial intelligence to make complex processes more efficient. As an advanced AI-based platform, SMACC offers a comprehensive palette of tools implemented to increase the efficiency and accuracy of financial operations. It targets businesses of all sizes, addressing functionality needs spanning enterprise resource planning (ERP), financial management, business reporting and customer relationship management (CRM).

SMACC represents a revolutionary and innovative approach in the field of accounting and financial management, which highlights the influence of artificial intelligence to make complex processes more efficient. As an advanced AI-based platform, SMACC offers a comprehensive palette of tools implemented to increase the efficiency and accuracy of financial operations. It targets businesses of all sizes, addressing functionality needs spanning enterprise resource planning (ERP), financial management, business reporting and customer relationship management (CRM).

The role of AI in accounting tools

Artificial intelligence is paramount in shaping the future of accounting by eliminating repetitive tasks such as manual data entry, enabling accountants to process large volumes of data with high accuracy. The systems generated with the help of AI support in the sense of predicting financial trends, ensuring a consistent and efficient level from a decision-making point of view.

The main 3 roles that AI plays in accounting are presented in the following:

Automation of routine tasks and accounting

Intelligent tools change the picture of routine accounting activities, by taking over tasks, which are clearly time-consuming and error-prone elements. Accountants are able to guarantee punctual payments and reliable financial reporting with the help of new technologies proposed by AI by automatically extracting data from financial documents.

Accounting platforms use automation to free accountants from the repetitiveness of certain tasks, such as transaction classification and expense reports, so they can focus on more complex, strategic and stimulating activities. Automating routine tasks eases activities by increasing efficiency and by providing a standardized process within teams.

Reducing errors in accounting

Manual data implementation and calculation are more often error-prone than accounting processes automated by AI systems. Humans can make more mathematical errors than artificial intelligence. The use of methods promoted by artificial intelligence systems ensures a high degree of precision compared to that which a qualified accountant can achieve over a longer period of time and with greater effort.

The purpose of implementing artificial intelligence to minimize mistakes in accounting is twofold. They support advanced analytics and automate routine tasks. On the one hand, digitization offers the possibility to analyze the huge volume of financial data, to forecast financial trends, to evaluate potential risks and to generate predictions. On the other hand, artificial intelligence automates repetitive activities such as data entry, transaction classification and expense reports.

Customization of customer service and reporting

Accountants, who work independently or within a firm, can better perceive the needs of their clients and adapt their recommendations to these needs by implementing artificial intelligence in their work mode. Artificial intelligence builds a way for accountants to track the entire unique financial history of their clients and make specific recommendations for each of them for budgeting, tax planning and investment strategies based on the information identified.

Accounting professions use artificial intelligence systems to identify patterns in their clients' income, expenses, investments and past transactions, which gives them an opinion about how the client behaves in certain financial situations. Accountants show good adaptability in using AI systems to review the client's historical spending patterns and start making a successful investment plan.

What should you consider while choosing AI tools for accounting?

When choosing AI-based accounting tools, it is necessary to implement informed decisions based on several key elements. Here are some aspects that users should consider when choosing smart systems.

1. **Size and complexity of the business:** Identifying a tool that scales with the size and complexity of business operations. Larger companies may require more robust solutions with advanced functionality, while smaller firms may benefit from simpler, more streamlined tools.
2. **Specific accounting needs:** Establishing specific activities to be automated or streamlined, such as invoicing, payroll or financial reporting.
3. **Integration capabilities:** Making it clear that the tool can be quickly implemented with existing accounting software and other business systems, this ensures a smoother workflow and data consistency across platforms.
4. **Return:** Identifying the tool's pricing structure, including initial setup fees, monthly subscriptions, and additional costs for updates or support. Also, the potential return on investment must be considered by balancing efficiency gains against costs.
5. **User experience and learning curve:** Choosing tools with an interface that is easy for readers to understand and a rapacious learning perspective to facilitate the fastest possible accommodation of the work team.
6. **Scalability:** Selecting tools that can scale with the business, providing the flexibility to accommodate growth in transaction volume, users and functionality.
7. **Regulatory Compliance and Data Security:** Identifying the aspects of the instrument related to the degree of compliance with the standards and regulations in the field of activity.
8. **Customer and Community Support:** Monitoring the quality and efficiency of customer support, including response times.
9. **AI capabilities and continuous improvement:** Constantly evaluating the defining elements of AI for their ability to clearly automate activities, provide insights, and quickly align to new data.
10. **Reviews and Testimonials:** Tracking user feedback and statements to verify the effectiveness and reliability of the tool.

References

1. *Advanced Research in Computer and Communication Engineering, 2(6), 2446–2451*
2. *Alles, M. G. (2015). Drivers of the use and facilitators and obstacles of the evolutionof big data by the*
3. *Boomer, J. (2013). The Benefits and Challenges of Cloud Accounting of CPA Practice Advisor.*
4. Bosch, Marc (coordonator), *Le management interculturel*, Nathan Publishing House, 1993

5. *Ceran, M.B., Güngör, S., Konya, S. (2016). The Role of Accounting Information Systems in Preventing*
6. *challenges-ofcloud-accounting*
7. Chombart de Lauwe, *La culture et le pouvoir*, Stock Publishing House, 1975 Paul-Henry
8. Clyde Kluckhohn, Wayne Untereiner, A. L. Kroeber, *Culture: A Critical Review of Concepts and Definitions,* 1952
9. *Constantiou, I. D., Kallinikos, J. (2015). New games, new rules: Big data and the changing context of*
10. Daniel Katz et Kenneth Braly*, La psychologie des préjugé, 1933*
11. Demorgon, Jacques, *Complexité des cultures et de l'interculturel*, Anthropos Publishing House, Paris, 1996
12. Gordon Willard Allport, *The Nature of Prejudice*, 1954
13. Hofstede, Geert, *Managementul culturilor multiculturale*, Economics Publishing House, 1996
14. Ionescu, Gh. Gh. *Cultural dimensions of management,* Economics Publishing House, 1996
15. Max Weber, *L'Éthique protestante et l'esprit du capitalisme*, (1904-1905).
16. *Palade, Prodan, D., Tanasă, F.E. (2016). Impactul tehnologiilor informaționale asupra sistemelor*
17. *Prichici C., Ionescu, B. (2015). Cloud Accounting- A new paradigm of accounting policies. SEA -*
18. *Radu, F.(n.d.). Abordarea contabilităţii în contextul noilor tehnologii informaţionale. Accesat în 20*
19. *Syed, A., Gillela, K., Venugopal, C. (2013). The future revolution on big data. International Journal of*
20. *Ţugui, A., Gheorghe, A-M. (2016). Identificarea dificultăţilor întâmpinate de profesia contabilă în*
21. *Vasilescu, R. (2008). Sisteme informatice de contabilitate. Editura Eurostampa, Timişoara, România*

ACCOUNTING – THE MAIN SOURCE OF DATA AND INFORMATION IN THE MANAGEMENT OF MULTINATIONAL COMPANIES

Guni Claudia Nicoleta[1]

Abstract

This paper presents the importance of accounting for management, efficient management requires knowledge. Efficient management requires the knowledge, administration and control of the business, attributes that can only be achieved with the help of accounting. For this reason, the central point, the control panel of the economic information system is accounting, representing its basic component, providing users with specific financial accounting information regarding the movement of values as a result of the respective business.

Key words*: accounting information system, information circuit, information flow, informational procedures*

JEL Classification: G3; G32; G34

1. Introduction

It is recognized that due to the scope of the business, the managers of a multinational company cannot make correct decisions without having complete and authentic information, which allows them to firstly know the realities of the company and secondly to be able to formulate answers and take the appropriate and pertinent measures for the efficiency and profitability of the business.

Successful management requires the knowledge, administration and control of the business, attributes that can only be achieved with the help of accounting.

For this reason, the central point, the control panel of the economic information system, is accounting, representing its basic component, which provides users with specific, financial accounting information regarding the movement of values as a result of the respective business.

In addition to managers, users of economic information, who contribute directly or indirectly to the development of the company and must be correctly informed, are internal beneficiaries (shareholders, employees) and external beneficiaries (potential investors, creditors, state authorities, competition, other users).

Synthetically, from the point of view of interest, the users of the accounting information of multinational companies can be divided into 3 categories:

- the management of the parent company and the subsidiaries, who have the direct responsibility of meeting the objectives at the assigned level of competence. Management can be carried out directly (parent company manager for the parent company, subsidiary managers for subsidiaries) or indirectly (parent company manager for subsidiaries). Managers are a broader category, but the important ones are top managers in multinationals: (CEO) Chief Executive Officer, CFO (Chief Financial Officer), CIO (Chief Investment Officer), CMO (Chief Marketing Officer), and the list goes on;
- individuals with direct financial interest: shareholders, investors, creditors, customers, suppliers, etc., who are interested in the performance of the multinational company, expressed through the periodic reports issued, which results in the achievement of the objectives by the management;
- individuals with indirect financial interest, this category includes tax bodies, other state bodies, trade unions, etc.

Within the information system of a multinational company, the accounting information system, accounting, viewed as a subsystem, holds the central place because it has the ability to quantify and aggregate transactions and can provide a homogeneous representation of the

[1] Lecturer PhD, Spiru Haret University, borsanclaudia@yahoo.com

operations, facts, actions, events and aspects of the business offered by the accepted standard, the monetary one which assumes expression in monetary units specific to the area of activity.

2. The accounting information system - data bank and information provider for multinational companies

Knowing the reality of the company and making the best decisions is generally based on the possession of data and financial accounting information made available methodically, in the form of an informational chain that involves their identification, collection, registration and processing based on regulated standards, the transmission and interpretation of data, using relevant methods and means permitted by law.

For managers of multinationals and the aforementioned beneficiaries, the main source of information - accounting, is variously defined as an information system or an accounting system of an economic entity.

The first system has the role of quantifying, coagulating and communicating the information and the second one consists of methods used to collect, process, store and distribute the information to interested users, shareholders or third parties.

The foundation of management on the accounting system of multinational companies is a consequence of its professionalization, by organizing and coordinating accounting by specialists in the accounting field, and the interpretation, verification and auditing by equally or better trained professionals, experts, consultants, auditors.

The achievement of accounting financial management is considered successful when it correctly reflects the performance, which implies an entire information system (SIC): date, information, information circuit, information procedures, information processing means.

Data represents the basic constituent of SIC being a literary description of economic phenomena, patrimonial operations that reflect the company's activity. The very performance of the company is reflected by establishing results expressed by certain data. In the case of multinational companies, the data will be expressed numerically in several monetary units, depending on the head office and the number of branches, from lei for Romanian companies to the most important currencies, euros, dollars, pounds, etc.

Information is the central point, the raw material and the basic core of the organization of information, the form in which communication is presented regarding facts, operations, and transactions on which certain decisions are based.

Accounting information as a result of processes in the company (operational, financial, commercial, human resources, etc.), becomes essential for the survival of a multinational company.

The information circuit represents the path through which data and information are transmitted from the sender to the recipient, creating the right conditions for its exploitation and use. All human activities are based on the transmission of information, in order to use it, contributing to the development of civilization. Progress is information, this being the essential element, the speed and amplitude of transmission influencing the pace of progress. According to international accounting standards, the information circuit of multinationals is established by specific accounting policies adapted to their needs.

The information flow is composed of the baggage of data and information transmitted on the information circuit, on specific supports, within the limits of variable parameters (speed, cadence).

The information flow has the following specific characteristics:

- ✓ existence - defines accounting facts regarding registrations, processing, transmission of information;
- ✓ existence - defines accounting facts with regard to records, changes, and informational communications;
- ✓ production centers - transmission, storage, reception, previously established.

✓ broadcast, generation and reception centers, formed by differentiated circuits, individual or for several information flows;

✓ the formulation according to the specifics of the activity of the information flow, meaning a hierarchy of clearly defined functional compartments, or the positions of the people (through files) who receive and transmit communications that have behind them movements of values created in society.

For effective management, the information flow must be rationally designed at all levels of patrimonial and organizational operations. Streamlining considers the quality of the data and the promptness of their transmission to be useful at the right time.

The informational procedures have their importance, being rules that establish the ways of collecting, presenting, registering, transmitting, capitalizing, processing, storing and archiving this information on the accounting flow and circuit.

They are defined by:

- supports used;
- the means used from the collection to the archiving of information;
- traceability of information and processing methods, norms, principles, methods, procedures and calculation formulas used.

In the case of multinationals, these information procedures are adapted to the specifics of each company in agreement with the jurisdiction of the parent company and the subsidiaries.

The means of processing information include all physical, technical elements used in the information circuit. All multinational companies use high-performance software. Since the resulting information is a basic management tool, it is necessary to constantly improve the means and techniques that involve the circulation of data.

Normally, information systems and programs do not fundamentally affect management (content and objectives), but incorrect operation can decisively influence the ways of expressing management through methodological changes.

For this reason, accounting professionals who provide financial accounting information to management must, in addition to having a very good mastery of the accounting reference, have solid knowledge and practice in using the means of processing, from recording the input of information to its output, in order to be confirmed, validated and presented to those interested.

2. Financial accounting information - the central point of managerial information organization

Financial-accounting information through its use and users, which in the case of multinationals can be from all over the world, acquires a triple dimension, as follows:

- individual, because it indisputably conditions the decision-making actions carried out by the managers of each company (parent company or subsidiary) and considerably the quality of the way of fulfilling the job description and responsibilities of the employees.
- organizational, being the necessary condition and cognitive support to be able to establish and fulfill the objective at the multinational level as well as the indicators imposed on the management;
- social, deriving from the role of reflection in the exercise of the rights and obligations of the employees of the parent company and its subsidiaries.

Accounting information, being accessed by users, who in the case of multinationals extract it from the stock market, having an extensive public character, has over time acquired the character of a mass good, its viability and interpretation depending on the competence of the professionals who present this information.

Through the lens of this interpretation, accounting information can be classified into four categories, each of them having a certain specific importance: operational; provided by financial accounting; provided by management accounting; accounting that follows some fiscal needs.

In contemporary society, the central information that holds the headlines is the economic, financial accounting that is the subject of accounting, viewed as an informational discipline. If from a theoretical point of view accounting has a formal role, from a practical point of view it represents the information engine of the development of any multinational company. Like any type of information, in multinational companies more types of financial accounting information can be identified.

Regardless of the category it belongs to, information is the concept that relates an event, a fact, a transaction with certain data, digitally expressed and rationally ordered.

Written information, documented in the multinational company must be accepted as a basic resource, similar to raw materials, energy, and equally necessary, or even more so, for the development of the company. Information represents the nerve-linking point between the management activity and the productive activity of the multinational company.

According to the contemporary evolution of the activity of multinationals, in the context of the amplification and expansion of the market economy, in order to be of real use for the efficient management of multinational companies, accounting information has been continuously improved having certain specific qualitative characteristics, which give it the status of a generator of performance.

As it appears from the current international economic climate, the society of the future is the information society, confirming the saying who controls information controls the world.

Regardless of which type it is, it consists of data that has been collected, processed and recorded in a useful form for the management of the multinational and that has real value for the managerial flow of planning, control and decision-making.

As today's statistics show, the quaternary sector (which is based on information, throughout the informational circuit), in the world economy, begins to occupy a share of over 50% of the workforce, well trained professionally with IT requirements, which also requires a very advanced and high-performing specific infrastructure, of which over 40% have to do with economic information and over 30% with accounting.

Within a subsidiary or the parent company of the multinational group, the databases that constitute the sources of financial-accounting information, considered as an information system, are financial accounting and management accounting, between which there is a functional interdependence.

Financial and managerial accounting are not different types of accounting, they are two component subsystems of the accounting information system. According to the normative framework and international accounting standards, financial accounting is formalized and standardized, it is mandatory both at the level of the parent company and at the level of the subsidiaries, according to the jurisdiction under which it operates, arising from the legal framework of both the parent company and the subsidiaries and it is addressed to external users while management accounting is organized according to the principles and policies of the parent company, it is optional in scope and presentation and it is addressed to internal users.

The two accounts are based on the same written accounting documents, less and less on paper but mandatory in electronic form, as a fast form of communication specific to multinationals, documents classified as follows:

- as propagation area: **published/unpublished;**
- as form: **written, graphic, audio-video**;
- as degree of processing: **primary, secondary, tertiary;**
- accountant as **supporting documents and accounting documents.**

Supporting documents – are those in which the economic operations are recorded, on the date they take place, and based on which they are registered in the accounting records.

The accounting ones - are documents, notes, worksheets, registers, etc., used for the transposition into accounting of the operations entered in the supporting ones, manually or with the help of computer technology, under the title of accounting records36.

The major advantage in the highly computerized environment of multinationals, in informing managers, resides in the much faster registration and control time, reducing the volume and implicitly labor costs, ensuring increased fidelity and reliability of the data provided, avoiding errors in copying and multiplication, the information being much more detailed.

The main disadvantage lies in the fact that in the computerized environment of multinationals, access to information is achieved under much different conditions compared to manual systems. In most cases, the manager must support his decision-making argumentation with information extracted from the company's accounting. The accounting information addressed to the manager is transmitted electronically and recorded/stored on the computer or technical media, and in the absence of a professional accountant, the manager is put in a position to translate the documents, identify momentary, individual solutions in reference cases. This shortcoming can be solved by implementing the Team Viewer software, which involves remote computer control and online discussions with accounting professionals. This software ensures permanent connection between managers, accountants, auditors, users, diminishing distances and communication possibilities.

An influence with a significant impact for the manager is given by the necessity, or rather the obligation for managers and accounting professionals, of knowing and mastering the accounting programs and the IT system in general, which implies serious documentation and thorough study.

In order to fulfill its tasks, the financial accounting manager in multinationals must consider that the information system, through the components and the previously specified gear, works without syncopation, does not alter the information, identifies in a timely manner the malfunctions, implicitly the causes, the financial accounting information constituting a source or object of multinational management.

The accounting information system offers the manager/managers the possibility of identifying, measuring, recording and presenting the patrimonial operations carried out within the multinational company (parent company and subsidiaries), with the aim of making relevant information available in the management process.

Accounting, as a source of information for users, has a first-rate role also in terms of discovering and combating weak points, legal or illegal fraud, manipulative, double, creative accounting that alters the normal functioning of SIC, forms that always lead to divergent situations taxpayer state. This is how the auditing of reports and financial statements is explained, the formulation of their opinions being necessary for the users of information in the company, conditioning the functional reciprocity of auditing and accounting, activities that always need to be improved, for the success of a performing management.

4. Accounting at the level of multinational companies

The historical evolution briefly presented in chapter 1 reveals the fact that multinationals represent a group of companies, with their own existence and diverse, specific connections, but common interests that require a concentration of individual information at a level that ensures the real performance desired by internal users (shareholders/associates, management, employees, etc.) and/or external (customers, suppliers, creditors, institutions, etc.).

The accounting of multinational companies includes two important branches: management accounting and financial accounting.

Management accounting, which generally has the following characteristics:

- it is not binding and has a fixed regulated standard, it is the subject of specialized literature that offers various methodologies, managers choosing the presentation format, on the

spot, which differs from one company to another, as a rule, the information from management accounting is not reported;

- it is addressed to the internal users of the branches (managers, directors, employees), out of which the managers are the most interested in the information because they base their management act on the flow of administrating, planning, decision, control, being alternatively called managerial accounting;
- the managers of the other multinational subsidiaries have only partial interest and to the extent that transactions are made in between them, for and depending on the method of determining the transfer price;
- managers at group level usually do not have an exclusive and excessive preoccupation with the internal kitchen of each subsidiary;
- as a range of action, the objective at subsidiary level is much narrower than in financial accounting because it is focused on certain activities, on departments, sections, cost centers, depending on the interest given to each one, for this reason alternatively called cost accounting;
- as time period that makes the object, it has a wider horizon on the time axis, past, present, future, having more to do with planning;
- the accounts used are off-balance sheet, they are not known to external users, the information being quantitative-value.

Financial accounting which generally has the following characteristics:

❖ has a mandatory character and clearly regulated standards that will be specified below. It is also the subject of specialized literature but within the limits and according to legal requirements, managers using the legal format of registration, presentation and reporting, which is the same for all companies that apply the same standards;

❖ it addresses the external users of the subsidiaries (shareholders, authorities, creditors, customers, etc.), out of which the first interested in information are the shareholders of the subsidiaries and the group;

❖ it is transparent and public accounting, reflecting the position and financial performance of the subsidiary and the group at certain times and for a certain period of time;

❖ the managers of the other multinational subsidiaries know and have an interest in terms of group performance;

❖ managers at the group level have an interest in the financial accounting information that must reflect as faithfully as possible the individual and centralized performances of the subsidiaries at the group level;

❖ as a scope, the objective of financial accounting is at the branch level and at the group level;

❖ as a period, the financial accounting is included in the reporting year, which can be a chronological year or any another 12-month period;

❖ the accounts used are balance sheets, reflected and reported in annual financial statements that are published and known to all internal and external users, the information being valuable, in monetary terms.

The parent company and the component subsidiaries of the multinational group, operating independently, as independent structures with their own legal personality, organize and keep their own accounting and prepare reports and financial statements according to the practices of the regulated national jurisdiction, presented below in this chapter.

However, not always, the individual performance reflected by the accounting of each company in the group, reflects the overall performance of the group. As a result, the patrimony, the results, the financial situation of each subsidiary must be consolidated, collected according to clear, transparent and uniform principles and rules, objective that can only be achieved with the help of consolidated accounting specific to multinationals whose final product are the consolidated financial statements. This consolidated accounting is used for reporting purposes

at the level of companies that have sole control, joint control or significant influence over the component companies.

5. Consolidated accounting - the premise of correct recognition and measurement of performance in multinational companies

As I have previously presented, the individual performance reflected by the accounting of each company in the multinational group does not always reflect the overall performance of the group. As a result, the patrimony, the results, the financial situation of each one must be consolidated, collected according to clear, transparent and uniform principles and rules, an objective that can only be achieved with the help of consolidated accounting specific to multinationals, which have the characteristic of a group, whose final product are consolidated financial statements.

According to the diversified typology of multinational companies and their group structure, consolidated accounting also has a specific typology and characteristics. From a performance point of view, through consolidated accounting, group managers obtain homogeneous information, suitable and translated into the same accounting language, on the management of the multinational group and its component structures, regardless of the type of activity, the country where it operates and the regulations of the incident jurisdiction.

Consolidated accounting creates an information circuit, the product of which are consolidated financial statements, which allow group managers to set the most relevant objectives at the individual and group level, to evaluate and compare unitary performances and to compare them, to take the necessary measures and adjust the objectives to the actual concrete situation of each component of the multinational group.

Reflecting the performance of the consolidated companies and implicitly of the multinational group, which is actually the process of drawing up the consolidated financial statements of this group, is done through specific methods and indicators depending on the methods, techniques and manner of carrying out the consolidation.

The implementation algorithm of the consolidation involves two **practical implementation methods**: based on flows; based on summarizing accounts.

The first method, based on flows, refers only to the current year and does not require the consolidation of previous years, the summarized stages being the following: taking over initial balances; recording balance sheet and P&L value flows (assets, equity and liabilities, expenses and income); recording operations specific to consolidation (adjustments, reconciliations, eliminations, restatements); preparation of consolidated statements.

The second method, summing up the balances, requires the consolidation of previous years and involves the use of the individual accounts drawn up by each company in the group at the end of the year, the summarized stages being the following:

- establishing the consolidation method;
- preparatory, pre-consolidation operations: homogenization of the information presented and evaluated using the same methods; accounting for deferred taxes; conversion of foreign accounts.
- actual consolidation: summarization of individual accounts; elimination of mutual accounts, internal and unrealized results, dividends.
- preparation of consolidated statements: financial position (balance sheet); overall result;
- cash flows; changes in equity; explanatory notes.

As **consolidation techniques**, in the specialized literature we have identified:

♣ **direct**: the parent company performs this operation for all companies in the group, regardless of direct or indirect ownership. It is an easier technique and provides performance information directly to the group management, both overall and on the individual contribution of group companies. Time, workload and costs are relatively lower. The

disadvantage is that it does not provide detailed information within the group, on the component elements (zones, subzones, subgroup, etc.).

♣ in **stages**: each company is consolidated by the company that holds its titles (shareholder/associate). There are stepwise, successive operations starting with the company at the lower end and ending with the parent company. It is a more complex technique, sometimes very difficult to achieve. The time, workload and costs are relatively higher.

As a theoretical algorithmizing, after establishing the ways and techniques of consolidation, there follows the establishment of the way of organizing the consolidation, which is of two kinds: centralized, according to which the parent company assumes all the operations regarding the consolidation; decentralized, according to which each component company restates its individual situations evaluated and presented based on the rules established by the group management, which only performs the actual consolidation.

Seen from this perspective, consolidated accounting contributes to the evaluation of the real performance of multinational companies, based on a generally valid perspective at all levels of the group, mitigating by standardizing the differences between the various accounting references for recording and reporting the activities of the component companies.

7. Conclusions

→ Successful management requires knowledge, management and control of the business, attributes that can only be achieved with the help of accounting. For this reason**, the central point, the control panel of the economic information system is accounting**, which represents its basic component, providing users with specific, particular, financial accounting information regarding the movement of values as a result of the respective business.

→ This requires a **well-developed accounting information system**, to implement efficient management tools that detect in time, describe and solve weaknesses or gaps in the company's management. The value of an information is given first of all by its impact on future decisions, and secondly by its usefulness for its user in substantiating those decisions that bring an optimal level of the expected results.

→ **The accounting information system is the main data bank and information provider for multinational companies.** For this reason, **accounting must be adapted to the requirements of information users,** users who contribute directly or indirectly to the development and performance of the company and must be correctly informed, in the case of multinational companies they can be divided into 3 categories:

❖ the management of the parent company and the subsidiaries, who have direct responsibility for meeting the objectives at the level of competence assigned. Management can be carried out directly (parent company manager for the parent company, subsidiary managers for subsidiaries) or indirectly (parent company manager for subsidiaries). Managers are a broader category, but important are the top managers in multinationals: (CEO) Chief Executive Officer, CFO (Chief Financial Officer), CIO (Chief Investment Officer), CMO (Chief Marketing Officer), and the list goes on;

❖ individuals with direct financial interest: shareholders, investors, creditors, customers suppliers, etc. who are interested in the performance of the multinational company expressed through the periodic reports from which results the achievement of the objectives by the management;

❖ individuals with indirect financial interest, this category includes fiscal bodies, other state bodies, trade unions, etc.

→ Basing user requirements on the accounting system of multinational companies, is a consequence of its professionalization, through the organization and coordination of accounting by specialists in the accounting field, and the interpretation, verification and auditing being carried out by specialists of at least the same professional caliber, experts, consultants, auditors.

Bibliography:

1. Budugan D., Berheci I., Georgescu I., Beţianu L., (2017), *Contabilitate de Gestiune*, Editura CECCAR, Bucureşti;

2. Cristea H., (2017), *Contabilitatea şi calculaţiile în conducerea întreprinderii*, Ediţia a II-a, Editura CECCAR, Bucureşti;

3. Feleaga, N; Ionașcu, I (1998), *Tratat de contabilitate financiara*, vol.I, Editura Economică, București;

4. Horomnea Emil (2019), Normalizare și armonizare în contabilitatea românească, Editura Secom Libris Iași;

5. Lepădatu Gh, Jalbă L., (2024), Contabilitate financiară, Editura ProUniversitaria, Bucuresti

6. Mihai I., (2016), *Analiza situației financiare a agenților economici*, Editura Mirton, Timișoara;

7. Pătrașcu L., (2018), *Situațiile financiare suport informational în decizia managerială*, Editura Tehnopress, Iași;

THE NEED FOR INFORMATION – THE SOURCES OF FINANCIAL ACCOUNTING INFORMATION

Guni Claudia Nicoleta[1]

Abstract

This paper presents the importance of the quality of financial-accounting reports emphasized by their users, accounting professionals and standardizing bodies alike. The latter have issued regulations that dedicate special sections to the qualitative benchmarks specific to financial-accounting information, in order to satisfy the superior interest of users. Compared to information released from other sources, financial and accounting information is characterized by advantages in that it presents a high level of credibility, as it is based on relatively homogeneous rules, norms and principles, involves a lower cost than other sources of information and reveals elements of great interest for a heterogeneous group of users. Furthermore, we admit the reality that at the microeconomic level, accounting is the main source of information.

Keywords: *non-financial information, integrated reporting system, external users, accounting lifting*

JEL Classification: G3; G32; G34

1. Introduction

In a narrow sense, information is a representation of reality, the reflection or projection of human intellect, which makes use of symbols accessible to human senses and reason. Having an abstract and immaterial character, this is an essential element in the process of knowledge, which presents a certain meaning obtained as a result of the processing of some data, consisting of facts, findings, observations, records and statistics, which isolated, on their own, have no meaning.

The value of information is given, first of all, by its influence on future decisions, and secondly by its usefulness for its user in the processes of substantiating those decisions that bring the expected results. This utility is maximized when the information is properly analyzed and interpreted accordingly.

The particularities imprinted by the characteristics of the current economic environment and by the interested parties, but also by the macroeconomic context in which they operate, generate continuous challenges and pressure on the conventional financial reporting system. In this framework, information has the central role of prospective development, as the only unlimited resource, which shapes the potential for growth and profitability of entities and markets.

Performance valences are currently extended beyond the limits of the financial universe, driving the emergence and adaptation of new reporting models, which develop an exhaustive approach to the entity's activity and its exogenously manifested implications. Consequently, it emerges and strengthens, the need for coherent communication regarding non-financial topics, which enhances the intrinsic value of financial reports. We admit that reports that assimilate financial and non-financial requirements simultaneously generate and feed real expectations regarding superior operational performance and enhanced quality of all processes specific to an entity.

2. Financial-accounting information versus non-financial information – an approach from a European perspective

For the thorough and coherent development of this topic, we must proceed to the conceptual delimitation of the previously mentioned terminology. Information primarily denotes the communication or relationship that updates someone regarding a subject, considered a public good with social utility.

Finding its origin in accounting operations, the financial-accounting information is the main source for quantifying the performance coordinates of the entities, simultaneously with

[1] Lecturer PhD , Spiru Haret University, borsanclaudia@yahoo.com

the assessment of the competences and legitimacy of their management. At the same time, it has a primary role in assisting interested parties in decision-making processes of an economic nature, regardless of the field in which the entities operate. Moreover, the financial universe has developed and expanded in such a way that some researchers identify in the current period a great concentration of interests towards the sciences of business management and an increased inclination towards studies and research aimed at satisfying this interest.

The non-financial information does not substitute but it is complementary to the financial-accounting information and develops aspects from the sphere of externalities, of the impact that the entity exogenously imprints, of responsibility towards the environment, personnel, human rights, security and health, anti-corruption initiatives and commitments or governmental issues.

The depth and complexity of the theme of the valences of responsibility in business, reduced to the phrase sustainable growth, have enriched the vocabulary of specialized literature with phrases such as sustainability reporting and integrated reporting. First of all, sustainability reporting is a comprehensive concept that aims to assist entities in formulating objectives and assessing performance, at the same time bringing a real contribution to the desired sustainable economy. Despite this fact, it has often been used as a marketing tool or justification for some political affinities or actions, but we consider that these attempts to favorably retouch the image of an entity are to be expected, since in the business environment financial interests clearly take precedence, not ethics and its valences.

A concept subject to recent debates, Integrated Reporting aims to incorporate the principles of sustainable reporting, in an effort to strengthen the resilience and results of reporting entities. GRI (Global Reporting Initiative, International Organization for Standardization) carried out the most intensive effort to operationalize sustainable development reporting, which began in 2000, reaching the fourth version of instructions, formalized under the name G4 Sustainability Reporting Guidelines, which describe the principles of content and quality specific to integrated reporting, in agreement with those described by the OECD and the UN.

Therefore, the academic environment and specialists in the field encourage the adoption of an **integrated reporting system**, predicting favorable implications regarding the entity's positioning towards investors and competitors, constituting an instrument of sustainability, income diversification, accountability, risk anticipation and mitigation, but also strategy design. However, this approach is perceived to be motivated by criteria such as expansion, profitability, avoiding local sanctions, improving the reputation and customer loyalty, not much by altruism.

In order to draw up an integrated report, a sequence of five complementary stages must be completed:

- identifying the appropriate reporting model for the specifics of the entity and the budget allocated to the entire process;
- establishing the team entrusted with this process and all related responsibilities and tasks;
- the opening of the consultation dialogue between the entity's departments and the parties interested in its activity;
- collecting data, processing data, validating the information and drawing up the integrated report;
- dissemination of the integrated report, acquisition and fruition of feedback elements to optimize subsequent reporting cycles.

Considering the tendency to emphasize the desired transparency superimposed on the requirements for disclosure of aspects regarding the ramifications of the entities' activity on the environment and local communities, the regulatory bodies have reacted accordingly by developing a normative framework applicable to sustainable reporting, aiming at rebalancing powers, facilitating the exercise of control and at the same time overcoming legal-economic limits specific to a conventional representation of the mechanisms of the entity.

Non-financial reporting must comply with a model agreed by the national, European or international regulatory framework, while for the presentation of the non-financial statement it is not mandatory to comply with a specific model, only the dissemination of the predetermined informative categories, in individual or consolidated form, within 6 months from the publication of financial reports.

3. Users of financial-accounting information - balancing their information requirements

Inseparably linked to economic development, in the last decades the interest for complete information regarding the operational activity, profitability and feasibility of a business has grown significantly, imposing an appropriate dynamism and regularity in the financial-accounting type of communication.

The domestic regulatory framework refers to **the users of financial-accounting information** through OMFP 1.802/2014, but omits their enumeration or description, not even at a general level. This is the reason why, in order to understand the categories of users and their information needs, we must resort to the international referential of the IASB.

Thus, under the tasks of governments and the accounting profession, the outline of the legal and theoretical framework of the accounting profession is circumscribed by the elaboration of specific laws, norms, standards and principles. Although investors are the largest and most important category of beneficiaries, in Romania, since the state is the main user of accounting information, the requirements for financial and accounting information are reduced.

However, the IASB considers that the main users of general-purpose financial reports are existing and potential investors, lenders and other creditors and, at the same time, emphasizes the need to analyze related information regarding the economic, industrial outlook and the political-economic context in which the entity activates. Precisely in this sense, entities are encouraged to, in addition to presenting common informational requirements, publish additional information that serves different categories of users along with explanatory materials regarding forecasts and business strategies.

The users of financial reports developed and published by economic entities are divided into two main categories: external users and internal users, each of them being governed by specific interests. The first category, that of **external users** of financial reports, is delimited in the following directions:

❖ financiers of the entity:

→ *current and potential investors* for whom the information related to the growth of the entity's value, profitability and risk associated with the investment, managers' remuneration, earnings per share, dividend policy (dividend distribution), share quotations, the favorable trend of their evolution and the ability of the entity to achieve future earnings, located at a satisfactory level correlated with the implicit risk of the investment, but it also analyzes information related to the sector in which the entity operates, the place it occupies, the degree of indebtedness and the self-financing capacity;

→ *short-term creditors* are interested in the liquidity of the entity correlated with its financial balance (characterized by indicators such as working capital associated with the working capital requirement), while long-term creditors pay attention to solvency and profitability, debt level, ability to self-financing and debt repayment; at the same time, both categories analyze the entity's financial structure, which reflects the degree of risk through the financial leverage (determined by relating liabilities to equity):

◦ *stock exchange* creditors (or bond lenders) are interested in the bond quotation, the entity's liquidity, its debt level, the yield and the risk associated with bonds, along with the possibility of converting bonds into shares;

◦ *bank* creditors direct their attention to the ability to repay loans, the entity's profitability and liquidity, its financial structure, the guarantees that the entity can submit, the method of financing fixed assets;

→ suppliers and other commercial creditors consider the ability of the entity to fulfill its contractual obligations when due (solvency) and within the terms agreed in contracts or commercial conventions, to be of primary importance;

→ the state can have the capacity of financier of the entity by granting operating or investment subsidies, an approach for which the financial-accounting information is of increased importance in the process of assessing the evaluation criteria;

→ the lessor, in the framework of a leasing contract (regardless of whether it is of an operational or financial nature) or location, is predominantly oriented towards the same centers of interest as bank creditors;

❖ customers follow with interest the continuity of the economic activity of the entity, the policy of guarantee, prices and services, but also the risk of bankruptcy, which conditions the ongoing or perspective contracts;

❖ employees and their representative groups, also known as social partners, want to be informed about the stability and profitability of the employer, the level of profit and its distribution method, future investments, sectoral performance, the continuation of the activity in order to preserve jobs, professional opportunities, wage policy, working conditions, along with aspects regarding the remuneration of managers;

❖ state institutions and other authorities need information in order to establish the basis for calculating fiscal obligations with the aim of imposing them on economic agents, being interested in the appropriate allocation, they request information in order to fulfill the regulatory role and establish macroeconomic policies, but also in order to determine statistical indicators such as national income;

❖ from the category of other users, we mention regulatory bodies, the public, local communities, consumer protection organizations, environmental organizations, competition, legal courts, competitors, analysts, consultants and the general public.

From the perspective of the interest expressed towards the reporting economic entity, in the category of external users we identify the following dichotomy:

- **users with a direct interest**, including current and potential investors, current and potential creditors, mandatory or bank lenders;

- **users with indirect interest** such as customers, social partners, authorities and regulatory bodies.

The internal users of the financial statements are represented by the entity's managers, who can analyze the financial-accounting information related to the exploitation, investment and financing policy in order to substantiate appropriate decisions. At the same time, managers have complete and immediate access to confidential information, results of management accounting and managerial accounting.

The information requirements of the users have evolved synchronously with the new economic and financial paradigms that have shaped their vision of the economic entity.

Over time, the central objective of the entity's operations was initially considered the maximization of profit, then it moved to the maximization of cash flow, and currently it is considered the persistence of business success by maximizing the wealth of the owners, deliberately conditioned by the difficult mission of balancing the divergent interests of the stakeholders.

4. The qualitative characteristics of financial-accounting information

Economic science is going through a period of "redefinition: it must not only re-evaluate its foundations and theoretical models (which have become more and more distant from reality),

but also recover the moral dimension of the human being". This is the current context in which the importance and the emphasis placed on the definition of the quality concept and the criteria that conditions it is amplified, a relative and intangible category of appreciation of the objects analyzed, regardless of their nature.

Specialized literature superimposes the quality of the concept of utility or conditions the enhancement of utility through the relevant gathering of a set of qualitative characteristics. Our understanding of the issue of quality in the accounting field is that usefulness appreciates the suitability of information for its final purpose, while quality conditions the entire process, from production, dissemination and appropriate use of information. The quality of the financial-accounting information conditions its usefulness, which is therefore subordinated to it.

In the vision of the latest version of the IASB's general conceptual framework for financial reporting (IFRS, 2013a), two categories of qualitative attributes of financial information are distinguished, briefly defined as follows:

- ***fundamental qualitative features:***

⇨ **the relevance** that involves the potential of financial information to influence the adoption of decisions, having predictive, confirmatory value or both; the predictive value of information makes it possible to be used in assessing future results, while the confirmatory value resides in the fact that it iterates or modifies previous assessments;

○ a special place in the outline of this concept is occupied by the **threshold of significance**, which constitutes a valence of relevance, with a specific nature of an entity, generated by the nature or size of the elements described within the set of financial reports; we admit that the information is significant if its exclusion or erroneous presentation is likely to influence the decisions adopted by users based on the financial-accounting information disseminated by the reporting entity;

⇨ **accurate representation** refers to the fact that the information must accurately reproduce the phenomena-object of the representation, and in order to fulfill this objective, a description must be **neutral, complete and free of errors**; the full description implies the presentation of additional explanations regarding significant events in terms of the nature, quality and context of the generating elements, while neutrality in the choice and presentation of information refers to the elimination of manipulation and changes made in order to outline a favorable image;

- ***enhancing quality features:***

⇨ **comparability** facilitates the steps to recognize and understand the similarities and differences between the elements; we verify the premise that a comparison requires at least two elements; comparison must be possible both in time (from one financial period to the next) and in space (with other economic entities);

◦ **consistency** helps achieve the desired comparability and implies the use of the same set of methods for the same categories of elements in the succession of financial exercises or for distinct entities within the same period;

⇨ **verifiability** implies the possibility of reaching a consensus between independent, distinguished and knowledgeable observers regarding the attribute of accurate representation associated with a specific description;

◦ **direct verifiability**, approach involving verification by direct observation;

◦ **indirect verification**, an approach that involves recalculating the results by applying the same calculation methodology and checking the input data;

⇨ **opportunity** implies the availability of information to be used by decision-makers in a timely manner to impact their decisions, thus the information must be appropriate to the situation and conveniently provided;

⇨ **intelligibility** refers to the clear and concise presentation of all relevant economic phenomena and events; in order to fulfill this attribute, the completeness of the information

must not be sacrificed by omitting complex phenomena from the presentation, but there must be found a way to present completely, clearly and concisely all the economic events and phenomena that are likely to influence the decisions of users of accounting information.

The basic accounting principles that must be respected by financial-accounting information providers are:

♣ the principle of the economic entity (business entity concept) implies the delimitation of the economic entity by the owner;

♣ the principle of consistency assumes the uniformity of the treatment of events and economic transactions of a similar nature;

♣ the principle of correlation (the matching concept) of revenues with expenses;

♣ the principle of monetary quantification (the money measurement concept);

♣ the historical cost principle (historical cost concept) according to which the value of an asset is based on its original cost.

These basic principles are supported by the fundamental principles provided by the general conceptual framework for financial reporting developed by the IASB:

♦ the principle of accruals accounting (the accruals assumption) – events and transactions must be recognized and recorded in the accounting records at the time they occur and not at the time they are collected or paid;

♦ the principle of business continuity (the going concern assumption) – it is assumed that there is no intention to close the business and that the activity will continue.

It is unanimously accepted that making a correct decision, consistent with reality, depends directly on the quality and quantity of financial-accounting information. At the same time, we admit that the vast majority of information circulated within an economy is of an accounting nature, which creates the possibility of achieving, with a high degree of certainty, of viable representations regarding the events, phenomena and processes of an economic nature, corroborated with the characterization of the size and value of the cash flows generated by the economic mechanisms located at the micro, respectively macroeconomic level.

5. The utility of financial-accounting information for substantiating investment decisions

Current markets fuel an increasingly competitive economic environment, and trust in financial-accounting communication tools is an increasingly prominent element in the process of substantiating investment or managerial decisions. "The only obstacle to the achievement of future things is present doubt." Starting from this insufficiency of the evolution in the context of uncertainty, correlated with an adequate and coherent analysis of the information transmitted through the financial reports, investors can choose to take "a step forward, towards evolution, or a step back, towards safety". These aspects can be reduced to the level of capital allocation mechanisms in the economy, through decisions to accept or refuse financing facilities, to invest or disinvest in certain fields, businesses or actions, the initiation or termination of commercial collaboration or employment relationships.

Beyond the distinct final goal, which is specific and intrinsic to the typology of the user, *accounting theory signals the premise to be respected from the very first stage, that of producing accounting information, namely that in order to be useful, the information must respect a set of interconnected qualitative characteristics, which reinforce each other.*

Starting from the premise that information is provocative, not just ascertaining, in the sense that it builds a reality and determines changes in the behavior of interested parties, we appreciate that accounting information constitutes the foundation on which economic decisions are built.

Therefore, accounting is considered the *main decision-making tool and the fundamental core of the economic information system,* summing up a number of arguments:

➢ the appropriate use of accounting information facilitates *the optimization* of effect-effort relationships, established between uses and resources or income and expenses;

- accounting practices *record* the uses and resources engaged in the activity of the entity, in a coherent, integrated, analytical manner, considering the criteria of structure, size, position and destination, at the same time dynamically presenting the objective parameters pursued by the interested parties (such as costs, turnover, result);
- the *vast majority* of the entity's endogenous economic information is of an accounting nature; we mention that they would not be produced if they did not generate real practical utility;
- *accounting representations* make it possible to assess the competence and legitimacy of management.

Certainly, the importance of accounting communication is amplified if we admit that the causative factor of crises and economic declines is reduced to faulty, inaccurate, manipulated, altered, insufficient, irrelevant or uncontrolled information. The financial-accounting information and the specifics of the practical side of the accounting language make it possible to achieve and optimize the resolutions regarding measures to assess the position and performance of an entity, the structure and level of its costs or the degree of legitimacy of the management. Furthermore, expression in monetary standard expands the scope of the universe of applicability of accounting science, at the same time increasing its adherence to the business environment.

The particularities that reinforce the primacy of financial accounting information in assisting decision-making processes:

- possess a higher level of relevance and certainty compared to the information generated from other information sources;
- facilitate making relevant comparisons (in time and space);
- it is the basis of the entity's perspective strategies, starting from the currently or previously realized parameters;
- mediate, through specific means and procedures, global and analytical knowledge of the studied or analyzed economic object;
- allow the determination of production cost, income, expenses and results, using complex specific calculations;
- highlight, by means of double representation, discrete relations established between means and resources, between the material side of the entity's wealth and its origin;
- constitute a measure of verification, aggregation and correlation of the representations provided, starting from the fundamental accounting equation (the level of assets equals that of liabilities).

At the same time, we appreciate that the ubiquity of accounting is the result of its informative dimension and its real utility in meeting modern business or investment decision-making requirements.

Financial decisions and in particular investment decisions are based on the diagnostic analysis of the entity, based on information provided by the financial reports and appropriate to the objective of maximizing returns of the investments made by the investors.

According to the theories of the capital market, the investor is essentially the holder of funds he intends to use by engaging them in operations involving financial instruments. Since investors assume risk, the remuneration of their contributions being dependent on the evolution of the entity's financial results, they seek to maximize their reward in correlation with the assumed risk. In the case of securities listed on the stock exchanges, the risk can be assessed based on the evolutionary trend of the stock market price of the shares.

This risk of listed shares has two sub-components, with a cumulative nature:

- market risk, called systemic risk in specialized literature, affects the entity as a whole and it is conditioned by the evolution of the macroeconomic environment;
- specific risk, at the microeconomic level, is determined by the binomial of financing policies (which impregnate a financial or bankruptcy risk) and investments (which impose an exploitation risk) adopted by the entity.

User expectations regarding profitability depend on the individual perception conditioned by judgments they make regarding the value, occurrence and anticipated prospects of net cash inflows for the entity. Consequently, users need information that describes the entity's resources, their use by the board of directors and by the entity's management, but also the existing claims against the entity.

Consequently, the rate of return expected by the investor in securities is composed of the risk-free rate of return, considered to be the one related to government bonds, to which are added the premiums related to perceived operational, financial and bankruptcy risks.

One of the major objectives of the IASB's mission is for financial reporting to evolve towards enhancing its own utility. In this sense, according to the IASB, general purpose financial reports must provide information on a set of economic phenomena:

- *the economic resources and the claims against the reporting entity*, based on which the liquidity, solvency, need for financing, distribution of future cash flows to those who have claims on the entity will be determined and through which the strengths and weaknesses of the entity can be identified;
- *changes in economic resources and claims against the entity* generated by its financial performance and events or transactions such as the issuance of equity or debt instruments;
- *financial performance reflected by accrual accounting*, useful in assessing past and future performance as well as in assessing the entity's past and future ability to generate net cash inflows;
- *the financial performance reflected by previous cash flows*, useful in evaluating the entity's future ability to generate net cash inflows, which is a tool for assessing the economic, investment and financing activities that characterize the entity, liquidity and solvency;
- *changes in economic resources and claims that do not result from financial performance* characterize their generative reasons, as well as their consequences on the future performance of the entity.

Certainly, the financial reports and the analysis based on them have an essential role in the management of economic activities, in the substantiation of decisions of an economic nature, the control of their implementation, and constitute a major source of information closely analyzed by the participants in the capital market. However, although the financial-accounting information facilitates the elaboration of diagnostic analyses, the perspective provided is of a static and retroactive nature, as the synthesis situations render the punctual image, from a certain moment, of the entity's activity.

6. Limits of financial-accounting information - obstacles, constraints and their implications

Accounting is a representation of economic reality, built on the basis of specific norms, conventions and professional reasoning. This is not a goal in itself, but a system that, by collecting and processing data, fulfills its mission of communicating information on the characterization of the activity of an economic entity, useful for decision-makers. Furthermore, considering that any socio-economic phenomenon can be quantified in a monetary form, the specialized literature admits the omnipresence and necessity of accounting.

We must admit that there are also obstacles to the correct use of the information provided by accounting, among which the most frequently mentioned are: the form and level of transparency of financial reports, complicated terminology, the capacity and dynamics of user requirements.

The most frequently invoked constraint on the information in the financial reports is represented by the cost. Cost is a characteristic of the process of producing and disseminating financial information. Taking into account this fact, in order to be justified, cost must contribute to the generation of benefits from the publication of the respective information. Therefore, the benefits brought by the production and dissemination of financial-accounting information must exceed the level of the costs involved in this process.

First of all, providers of financial-accounting information focus their activity on collecting, processing, verifying and disseminating information, which can generate cost by reducing profitability for information users. Secondly, users have to cover costs related to the analysis and interpretation of information, but there are also additional costs in the event that the necessary information is not being published.

Looking in detail at the topic of this section, we find that the limits of accounting information are often presented in the form of the following problematic aspects:

- **the subjectivity** of the producers of accounting information, who have the power to manipulate the economic reality presented in the reports in order to influence the users;
- **the reluctance** of report preparers to apply new technologies or regulations;
- **postponing** the dissemination of accounting information;
- **excessive bureaucracy, frequent legislative changes, corruption and tax evasion**, limits perceived to be intrinsically connected;
- the existence and exploitation of the **imperfections of the regulatory framework**;
- the possibility to choose between different treatment **options** and accounting policies allowed and **the abuse** of this flexibility;
- the limits or **non-correlation of the applied accounting principles**;
- **deviating**, with or without intention, from the qualitative strictures of financial-accounting information;
- **the intentionally distorted presentation** of the entity's financial position and performance;
- **accounting lifting** or manipulation of adequate, correct, accurate and real information, to render something other than the "original and natural".

These manipulations or embellishments should be condemned from a moral point of view, as they alter the honesty towards users, implying an unfair exercise of power that weakens the authority of regulatory bodies in the financial-accounting field.

Producers of financial-accounting information issue reasonings regarding their relevance, but they also resort to rules and principles from a need to reduce uncertainty and uniformity. If the producers of financial reports crystallize management arguments, auditors coagulate arguments regarding compliance with applicable accounting rules, principles and standards.

Considering the fact that distortion of any nature, intentional or unintentional, has a major impact on the behavior of users of financial-accounting information, we must admit that the harmful practices of creative accounting constitute a substantial factor of degradation of trust in the accounting model and of undermining of the functionality of the economy at global level.

Obtaining and maintaining high quality standards in relation to those of competitors, for all facets of the activity, is a fundamental condition for the survival of an entity. The same basic principle should also be applied in the financial-accounting sphere, by focusing on the information needs of the users, complying with the quality requirements in this field and redefining the strategic role that the financial-accounting activity holds within the entities.

7. Conclusions

Positions the information of a financial-accounting nature within the current economic realities, significantly shaped by globalization, international accounting convergence and the amplification of the role of accounting in establishing and maintaining economic relations (investment, commercial, labor), coagulated mainly by the quality criteria of the disseminated information, which calibrates the process of effective financial communication. In order to correctly outline the qualitative dimension corroborated with the usefulness of financial-accounting information in assisting investment processes, the fundamental approach of the first chapter clarifies, from a critical perspective, the main aspects of the issue, identifying the connections and dissensions between them, in the context of current debates and realities.

The heterogeneity of the group of users of financial-accounting information considerably diversifies the information requirements, the diverging interests and the context in which this type of information must prove useful from a decision-making point of view.

Comparatively analyzing the characteristics and interests of the major categories of interested parties, we concluded that since the financial-accounting information is challenging, not just ascertaining, generating decision-making reactions on their part, we note a real strategic function that accounting holds and a major responsibility regarding the preservation of public interest, underlining in this framework the important role of adequate regulation of the field combined with the coherent placement of professional arguments on the axis of ethics and objectivity.

Bibliography:

1. Costuleanu C. L., (2019), *Situațiile financiare ale întreprinderii*, Editura TipoMoldova, Iași;

2. Deaconu A., (2016), *Diagnosticul și evaluarea întreprinderii*, Editura Intelcredo, Deva;

3. Dragotă V., Ciobanu A., Obreja L., Dragotă M.,(2013), *Management financiar vol.1: Analiza financiară și gestiunea financiară operațională,* Editura Economică, București

4. Jianu I, (2015), *Evaluarea, prezentarea și analiza performanței întreprinderii: o abordare prin prisma Standardelor Internaționale de Raportare Financiară*, Editura CECCAR, București;

5. Popa A.F.,(2018), *Contabilitatea și fiscalitatea rezultatului întreprinderii*, Editura CECCAR, București

ROMANIA'S STRATEGIES AND POLICIES FOR SUSTAINABLE DEVELOPMENT OF THE ECONOMY IN THE CONTEXT OF A CHANGING EUROPEAN FUTURE

Adriana Horaicu[1]
Marilena - Roxana Zuca[2]
Aura - Oana Mustățea[3]
Laura - Andreea Florea[4]
Victor Munteanu[5]

Abstract:

In the current context, Romania needs the development of a new economic development model by reorienting future technologies and moving towards an economy with lower greenhouse gas emissions. This will require abandoning the sympathies of the political class, looking for solutions from the past and realigning national economic priorities based on the use of clean energy sources, the development of energy infrastructure and the attraction of value chains in order to support green technologies and research and innovation capacities that will create places of well-paid work and will face the challenges of the coming decades. The accelerated economic development of Romania since the 2000s represents a true miracle. Today, Romania's economy is eight times larger compared to the first year after the fall of communism. Along with other Eastern European countries, Romania's economy remains among the most industrialized in Europe, in terms of the weight of the industrial sector in the added value of the entire economy and the number of employees. In the midst of the global relaunch of the interventionist industrial policy, Romania has the prerequisites for economic development to become a true regional engine of growth. Having limited financial and fiscal resources available, they must be carefully distributed to the new green technologies based on the identification of the country's competitive advantages, without falling into the trap of over-subsidizing some inefficient industries. But this can only be achieved through a fundamental change in national objectives. The aim of the authors in the present scientific endeavor is to present a series of strategies and policies suitable for the development of a sustainable economy for the coming years and an empirical analysis of the last years of the Romanian economy vs. the economic prospects of Romania in the future through the development of new industries adapted to current needs generating added value.

Keywords: sustainable development, strategies, policies, sustainable economy, analysis, added value.

Jel codes: F36, M 41, M 48.

1. Introduction

The contemporary world is characterized by an unprecedented dynamic caused, on the one hand, by technological progress, the introduction of digitization (the process of transforming information into a digital format), in almost all areas of human activity, and on the other hand, by the increasingly clear opening of national markets to international competition. Dynamism, flexibility and adaptability are the characteristics of any modern society. For all this, Romania needs the consolidation of economic performance and the diversification of the industrial base creating new value chains, which requires clear priorities in terms of government strategies and policies for the sustainable development of a strong and future industry (Păduraru (Horaicu) A ., & Bostan R-I., 2018). Manufacturing is the backbone

[1] Doctor of economics, accounting specialization - Correspondent, research activity Valahia University of Targoviste, 130004 Targoviste, Romania; adriana_păduraru@yahoo.ro, (A.H.);
[2] University lecturer, "Accounting" field Faculty of National and International Banking and Financial Relations, Romano-Americana University, 012101 Bucharest, Romania; marilena_zuca@yahoo.com (M-R. Z.).
[3]Doctoral student Doctoral School of Economics, Valahia University of Targoviste, 130004 Targoviste, Romania; auramustatea@yahoo.com (A-O.M.).
[4] Doctoral student Doctoral School of Economics, Valahia University of Targoviste, 130004 Targoviste, Romania; andreea.laura09@yahoo.com (L-A.F.). Correspondence: adriana_paduraru@yahoo.ro; Tel.: +40-752-998-288.
[5] Professor Economic Doctoral School, Valahia University of Targoviste, 130004 Targoviste, Romania; a2c_vm@yahoo.com (V.M.)

of a country's economy. Romania must apply strategies and policies appropriate to industrial production whose objectives are to interfere with the agenda of the European Union (European Parliament). For this we need to prioritize innovation. Romania, which is part of the category of emerging innovators (European Innovation Scoreboard, 2023), has set out to become a moderate innovator (National Research Strategy, 2022-2027). Currently, Romania spends 17.6 euros per capita on research and development, which means 0.12% of GDP, occupying the last place in the EU (Bechir, 2023).

Romania has an increased rate, above the EU average, of entities that do not innovate and do not have innovation intentions, but have modest performance in terms of employment in knowledge-intensive economic activities or in innovative entities (National Research Strategy, 2022-2027), which will contribute to the development of a manufacturing industry adapted to the requirements of the third millennium. However, the transformation and economic development of the countries of Central and Eastern Europe (CEE), of which Romania is also a part, have not ended, but represent an ongoing process. If we consider only the last decade, we can observe the multiple events in the region that have brought various economic, social, political and institutional changes. The pace of economic growth and the recovery of the transition economy during this period were deeper as reforms were implemented more quickly. The main CEE countries in which the economic reforms carried out most closely resembled those in Western Europe were those where the reforms were shorter under communist influence and those that were more economically advanced at the fall of communism or at the beginning of the transition.

Also, the possibility of joining the EU was a factor that contributed to the acceleration of the reform process (Fischer & Sahay, 2000). After the 1995–2007 transition period of the EEC, the countries experienced annual growth rates, on average, between 2.5% and 6.8% and managed to catch up with developed countries in terms of real GDP per capita per inhabitant (Dombi, 2013). The topic of the present scientific approach regarding "Romania's strategies and policies for the sustainable development of the economy in the context of a constantly changing European future", is a subject of great interest with reference to Romania's economic prospects through the development of new industries adapted to current needs generating added value (through reindustrialization). In this sense, the relationship between external influencing factors and economic development is expected to be positive and significant, despite the fact that there are studies that show a series of inconclusive results (Silajdzic & Mehic 2018). The negative effect is related to market imperfections, technology differences compared to the rest of Europe, and insufficient financing, which are specific to CEE countries.

However, democracy and their recent development did not allow them to reach the standards of developed economies, a context in which (Hagemejer & Mućk, 2019) and (Hagemejer & Mućk 2018) analyzed exports from the area and found that in most of the period of transition and integration with the EU, they played a predominant role in shaping economic growth. Foreign direct investment (FDI) is also a topic of interest, (Hlavacek & Bal-Domańska 2016) finding a significant relationship between the two indicators. The fact that energy is the source of economic development both for the economy and for the well-being of the population, the approach to sustainability and the development of new industries adapted to the current needs generating added value, characterizes the interest of the elaboration of recent scientific studies regarding the objective pursued by the new authors.

Others, (Destek, 2020); (Destek, Balli & Manga, 2016) analyzed the influence of economic growth, as part of economic globalization, on pollution and found a positive influence, which was expected. An in-depth analysis regarding the essential objective of this scientific approach on which we focused, was also found in other authors (Armeanu, Gherghina & Pasmangiu, 2019), who considered that both renewable and non-renewable materials represent energy sources that can contribute to the development of new industries (to

reindustrialization) and satisfy most of the current needs generating added economic value. Another author (Caporale & al., 2014) discusses the relationship between financial - sustainable development and economic growth, given the fact that, since the 90s, foreign banks have become an intrinsic part of the development of former communist countries. Considering the concern of political decision-makers for increasing competitiveness, the adoption of the Industrial Strategy of Romania for the period 2024-2030 (ISR, 2024-2030), regarding economic development and growth, as well as the existing literature on the group of CEE countries, our scientific approach integrates with the concerns of identifying sustainable development strategies and policies that can influence Romania's economic growth in the context of current requirements and needs. Romania has an industrial tradition and strong industrial poles, a fact for which it wants a decarbonated European economy, respecting some principles throughout the value chain.

In addition to internal capital, the influence of external capital on economic growth must also be taken into account, considering the models provided by some authors (Balasubramanyam, Salisu & Sapsford, 1996); (Iamsiraroj, 2016). Considering the influence on economic growth of capital inputs (Iamsiraroj, 2016), we used the model proposed by (Balasubramanyam, Salisu & Sapsford, 1996) to evaluate the influence of economic growth factors and foreign direct investments, considered as an important impetus for sustainable economic growth and development, especially for developing countries, but also for countries in economic transition. Based on the empirical analysis of the last years of the Romanian economy vs. the economic prospects of Romania in the future through the development of new industries adapted to the current needs generating added value, were the data made public by the National Institute of Statistics regarding the economic growth of Romania and the Global Competitiveness Report of the World Economic Forum (WEF, 2024 edition). The choice of the present scientific approach and the basis on the analysis of the period 2021-2030, in accordance with other studies, is explained by the fact that in this period there were and are many indications of experiencing the effects of globalization through the examination of economic growth (Destek, 2020); (Hagemejer & Mućk, 2019); (Caporale & colab., 2014), after the pandemic that generated many difficulties, leading to a major economic crisis.

The study makes two possible contributions to the existing literature: on the one hand, the fact that strategies and policies are taken into account, concrete actions to support investments regarding the sustainable development of the Romanian industry and economy, which can influence economic growth at the internal and external level and trade openness, and on the other hand, complements the existing literature on the factors that are of interest when explaining the different evolution of CEE countries. It is the situation of the need for sufficient investments and bilateral agreements with certain countries that can provide us with the necessary raw materials, in order to reduce Romania's dependence on massive imports. All these represent components that must not be missing from a reindustrialization plan that needs to be put into practice as soon as possible. To this end, our scientific approach is structured in four parts. The first part is devoted to the review of the scientific literature considering the factors that influence economic growth, while the second part is focused on the external and internal factors that have been shown to influence the development of CEE countries. The third part is dedicated to the research methodology, proposed methods and collected data, and the fourth part includes the obtained results and discussions.

2. Specialized literature

Why focus on the sustainable development of the economy through reindustrialization? We, the authors, believe that there is a need to focus on the development of extremely important industries, such as: agricultural, food, pharmaceutical, energy, metallurgical, defense, construction, electrical equipment, automotive, chemical through strategic investments in the development of

Romania, which can lead to the recovery of the economic development gaps between Romania and the EU and to increase the competitiveness of the Romanian economy. Only by producing in the country, we will be able to export regionally and get rid of the burden of a consuming country based on huge imports, which led the long-term external debt to reach 138,823 billion euros on September 30, 2024 (74.6% of the total external debt), increasing by 13.7% compared to December 31, 2023, and short-term external debt, at September 30, 2024, of 47.358 billion euros (25.4% of the total external debt), increasing by 2.4 percent compared to December 31, 2023 (BNR., 2024). A review of the literature on economic growth is a priority for both developed and developing countries. The objective and assurance of sustainable economic growth is conditioned by a number of factors, which influence positively or negatively, including foreign direct investment (FDI), capital, trade, labor, domestic investment, population and institutions. For all economies, one of the most influential factors of economic growth is FDI, because it directly stimulates economic development, but also, indirectly, other aspects of the economic environment, through significant propagation in the field/region (Almfraji & Almsafir, 2014); (Li & Liu 2005); (Ruane & Ugur 2005). Other authors (Blomstrom, Lipsey & Zejan, 1992) argued that FDI stimulates economic growth when the country in question already has a high level of population income. For developing economies, most studies and articles demonstrate a significant relationship between FDI, GDP and their growth rates (Hansen & Rand, 2006); (Ghazali, 2010; (Lean & Tan, 2011); (Nair-Reichert & Weinhold, 2001).

For Romania, FDI has an extremely important role in terms of revitalizing the business environment, stimulating capital flows, trade and employment, and also has the role of helping to modernize economic sectors, institutions and industry adaptation productive (reindustrialization) and the sustainable development of economies to international standards (Aevoae, Dicu & Mardiros, 2018); (Nwaogu & Ryan 2015); (Upreti, 2015); (Makki & Somwaru 2004). For lower-income developing countries, labor force, participation rates, and education are important factors influencing growth rates. On the other hand, within the United Nations Conference on Trade and Development (UNCTAD, 1999) it was found that the impact of FDI is either positive or negative, depending on the variables considered. For its test, UNCTAD used initial GDP per capita, domestic investment, financial development, trade, political instability, education level, and black market premium. At the same time, one of the authors (De Mello, 1999) suggested that the positive aspect of the impact of FDI on economic growth depends on the degree of substitution and complementarity between domestic investments and FDI, by comparing countries with the Organization for Economic Cooperation and Development (OECD) and non-OECD. Others, (Bengoa & Sanchez-Robles ,2003) considered that FDI has a positive impact on economic growth if the host country has economic stability, human capital and liberalized markets/developed economies. At the same time, FDI stimulates economic growth when the host country has developed financial markets or a developed financial system (Hermes & Lensink, 2003); (Dicu & al., 2019). For some (Balasubramanyam, Salisu & Sapsford, 1996), FDI stimulates economic growth depending on the level of trade openness and trade policy, so that a higher growth rate is recorded in export-promoting countries than in import-substitute countries.

Unfortunately, the impact of FDI on economic growth is not always positive or depends on other characteristics. However, there are also authors, (Durham, 2004) who did not identify direct positive effects of FDI and foreign stock portfolio investments on economic growth, although they used data from 80 countries. Another author, Kentor (1998) suggested that countries recorded slower economic growth when they recorded a high level of dependence on foreign capital. Although there is a link between FDI and economic growth, FDI inflows are not able to stimulate economic growth as (Darrat & Sarkar (2009) has shown for Turkey. As can be seen from the previous reports, the level of economic growth is influenced not only by FDI, but also by domestic investment, financial development, trade, human capital and the labor force participation rate. At the same time, one author (Adams, 2009) found that FDI has a negative impact on domestic

investment, but the effects become positive in the long run. At the same time others (Tang, Selvanathan & Selvanathan, 2008) suggested that FDI stimulates economic growth by complementing domestic investment. Using a multivariate Value and Risk (VAR) system, they also found a bidirectional causality system between domestic investment and economic growth. At the same time, another author (Ghazali, 2010) found the same bidirectional causality between the two and argued that mostly domestic investment stimulates economic growth. The same relationship between domestic investment and economic growth was found by some authors (Mohamed, Jit Singh & Liew, 2017) in the long run in the case of Malaysia.

For the same country, (Lean & Tan, 2011) demonstrated that foreign investment negatively affects long-term economic growth, for the primary sector and inconclusively for the service sector, positively for the manufacturing sector, and domestic investment is an important factor in attracting FDI on short term and, together with FDI, can stimulate the development of the country's industry, playing a crucial role in increasing productivity. On the other hand, one of the authors (Choe, 2003) found, based on a panel analysis on a sample of 80 countries, that only FDI causes economic growth, although gross domestic investments do not promote economic growth. At the same time, another author (Bakari, 2017a) demonstrated that there is no relationship between investment and economic growth in the short term, but some positive effects appear in the long term, when economic growth is positively influenced by domestic investment, exports and work . Similar results were achieved by other authors (Makki & Somwaru, 2004), who reveal that FDI, domestic investments, trade and human capital are sources of economic growth for the development of a country. In this sense, they join the last author (Tah & al., 2021), showing that not only FDI contributes, but also trade has a strong positive influence on economic growth. However, a number of authors (Rodriguez & Rodrik, 1999); (Ulasan, 2015) demonstrated that open trade, strategies and policies related to lower tariff and non-tariff barriers to trade are not significantly associated with economic growth considering a cross-sectional analysis.

Also, one of the authors (Bakar, 2017b) found two types of trade effects on economic growth. In the long run, exports and domestic investment negatively influence economic growth, while imports have a positive impact in both the long and short run. At the same time, some authors (Menyah, Nazlioglu & Wolde-Rufael, 2014) suggested that neither trade nor financial development helps economic growth in certain countries, such as African ones. As for human capital, it is also among the most important economic factors for increasing productivity, especially if the professionalism/quality of the workforce or the labor force participation rate are taken into account, to achieve the level of performance and sustainable development. Analyzing the relationships between economic growth, FDI inflows, human capital, and economic openness, other authors (Li & Liu, 2005) showed that human capital together with FDI has a strong positive impact on economic growth, especially for developing countries of development, which aim at the sustainable development of the economy, based on a productive industry of the future.

Analyzing developing countries, a number of authors (Borensztein, De Gregorio & Lee, 1998); (Hanushek, 2013); (Teixeira & Queiros, 2016) found that a high level of capital induces higher economic growth given the amount of FDI. Another author, (Solomon, 2011) argued that the positive relationship between FDI and economic growth depends on human capital, the level of economic development, as well as the quality and environmental policies of the host country, while in terms of quality economic and financial environment, the development of has an insignificant impact. In addition to all this, collaboration between nations is the key in a world as full of uncertainties and prone to shocks. However, international cooperation is on the wane. Instead of collaboration, we see increasing fragmentation: a process that begins with the imposition of barriers to trade and investment and, in its extreme form, ends with countries splitting into rival economic groups, an outcome that risks reversing all the transformative gains that global economic integration

has produced (Georgieva, Kristalina, 2023). Also, there is an ambiguous relationship between the labor force participation rate and economic growth, while most studies focus on the impact of the largely female labor force (Chapman 2015); (Khaliq & al. 2017).

Another group of authors (Blomstrom, Lipsey & Zejan, 1992) suggested that labor force participation rates and education have an important influence on growth rates for lower-income developing countries. But some authors (Dogan and Akyuz, 2017) found that there is a relationship between economic growth and women's participation in the labor force and suggested that increasing the employment rate for women as well as for men is an incentive for economic development. In contrast, other authors (Shahid, 2014); (Pakistan & Yakubu; Akanegbu & Jelilov, 2020), showed that labor force participation has a negative but significant impact on economic growth in both the short and long term. The internal and external factors of economic growth in CEE countries from the collapse of communism to the present, as shown in numerous researches, have been the subject of numerous debates regarding the economic development and post-socialist transformations of these countries. The context of CEE countries is another interesting one for researchers and offers multiple opportunities for theoretical approach and empirical testing. This interest of researchers from CEE countries has brought important contributions in the field of economic development, trade, industrial production, FDI, the organization of entities on diversified activity sectors and the labor market.

3. Research methodology

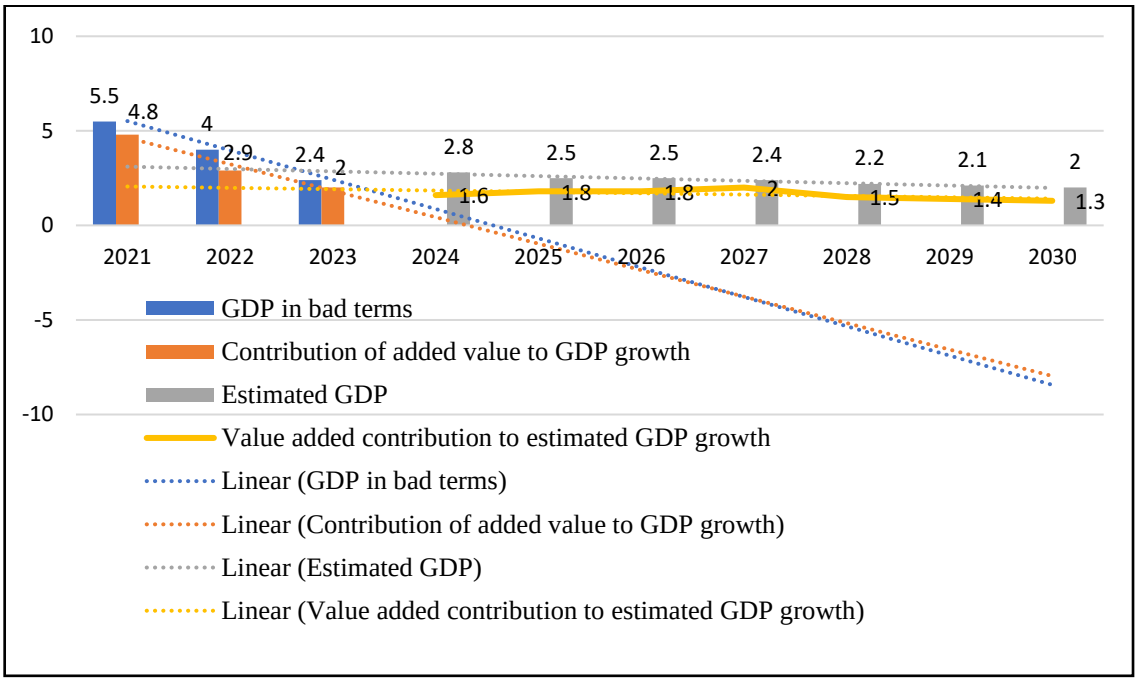
The methodology adopted within the present scientific approach is aligned with the research methodology used in the field of economic sciences, by combining theoretical research with empirical research. The present research was based on the study of the specialized literature, as well as on the practical experience of the authors. To achieve the research objectives of the study, a positivist approach is followed (Smith, M., 2003), which is a logical type model (Caldwell, B., 2003), using the statistical regression method to identify and quantify the link between the variables in view in the analysis and interpretation of the results of the present scientific endeavor. Starting from the problems shown in the specialized literature and from the data made public by the National Institute of Statistics, as well as by the National Bank of Romania, regarding the development of a sustainable economy for the coming years interfered with an analysis of the last years of the Romanian economy vs. the economic perspectives of Romania in the future through the development of new industries adapted to the current needs generating added value, a series of studies are proposed on: economic growth indicators, the contribution of added value to GDP growth, as well as on FDI/GDP flows and total resident population of Romania.

We considered the usefulness of information on economic-financial indicators to highlight the fact that at this moment Romania does not have a manufacturing industry that generates high added value and in the given conditions we need: government strategies and policies, a good plan set up for reindustrialisation and sustainable development in the context of a constantly changing European future, and not least foreign direct investment (FDI) leading to GDP growth, as well as a relevant value contribution added to GDP growth. Based on the mentioned economic-financial indicators, for the period 2021-2030, presented and analyzed in graphs no. 1 and 2, indicators that include elements that are the basis of the sustainable development of the industry in Romania, we want to test the general hypothesis about the strategies and policies of reindustrialization, as well as concrete actions to support investments that can generate a competitive economy based on increasing productivity, stimulating exports, sustainability from the point of view of environment, macroeconomic stability and equity.

4. Analysis and Discussion

The empirical analysis of the last years of the Romanian economy vs. the economic prospects of Romania in the future through the development of new industries adapted to current needs generating added value based on new strategies and policies adapted to current requirements pursues macroeconomic sustainability through the prism of gross domestic product and the contribution of added value to GDP growth. But for both GDP and value added growth, we need major investments. The economy is in decline, industry is underperforming and trade is not adding value. Last year's gross domestic product data showed the old problems of the Romanian economy, namely, a structure that does not include high added value and a slowdown in growth. From this point of view, this year did not start well. In order to better highlight the economic reality facing Romania, we propose to present the GDP and the contribution of value added to GDP growth for the period 2021-2030 (***Graph no. 1).***

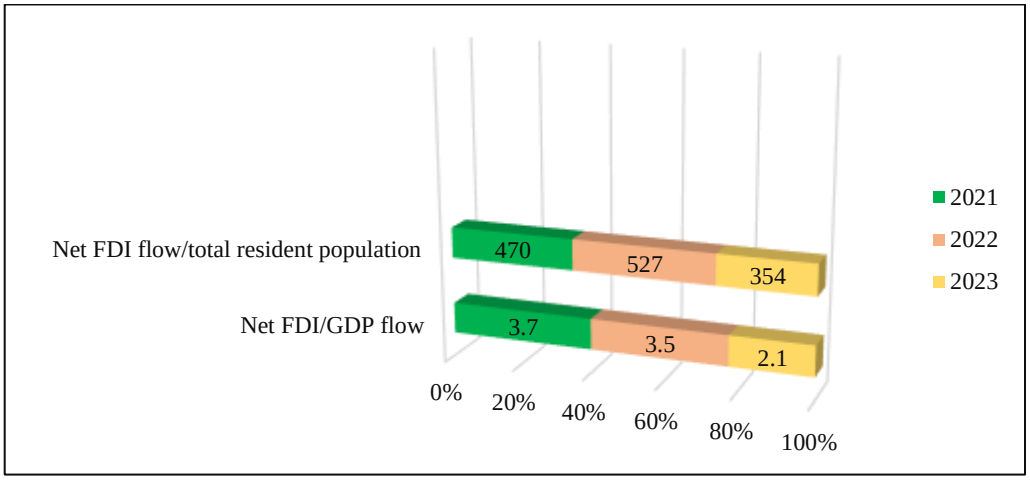
Graph no. 1: Romania's economic growth indicators for the period 2021-2030.



Source: data processing, based on INS data on Romania's economic growth.

The indicators presented in *Graph no. 1* show us that during the period under analysis, Romania's economic situation is in a situation of linear regression, decreasing GDP, as well as the contribution of value added to GDP growth until the year 2023, recording in 2024 a slight estimated increase compared to 2023 of 0.4%, but also a decrease in the contribution of added value to the increase GDP of 0.4%. At the same time, as can be seen in Figure no. 1, starting from 2024 we are faced with a moderate economic growth until 2029 and with a downward trend starting from the same year 2024, from a value of 2.8%, up to a value of 2.2 in 2028, after which economic growth flattens out in the period 2029-2030, reaching an average level of economic growth of 2% by 2030, supported mainly by private consumption and investments financed by European funds. In conclusion, it is all due to the fact that we do not have a manufacturing industry that generates high added value. In these conditions, we need strategies and policies, a well-designed plan for reindustrialization and sustainable development in the context of a constantly changing European future. Both GDP growth and the value of value added contribution to GDP growth is given by the level of foreign direct investment (FDI), which the development of industry is in dire need of.

Graph no. 2: FDI/GDP flows and total resident population in Romania.



Source: authors' own processing, based on BNR and INS Romania data.

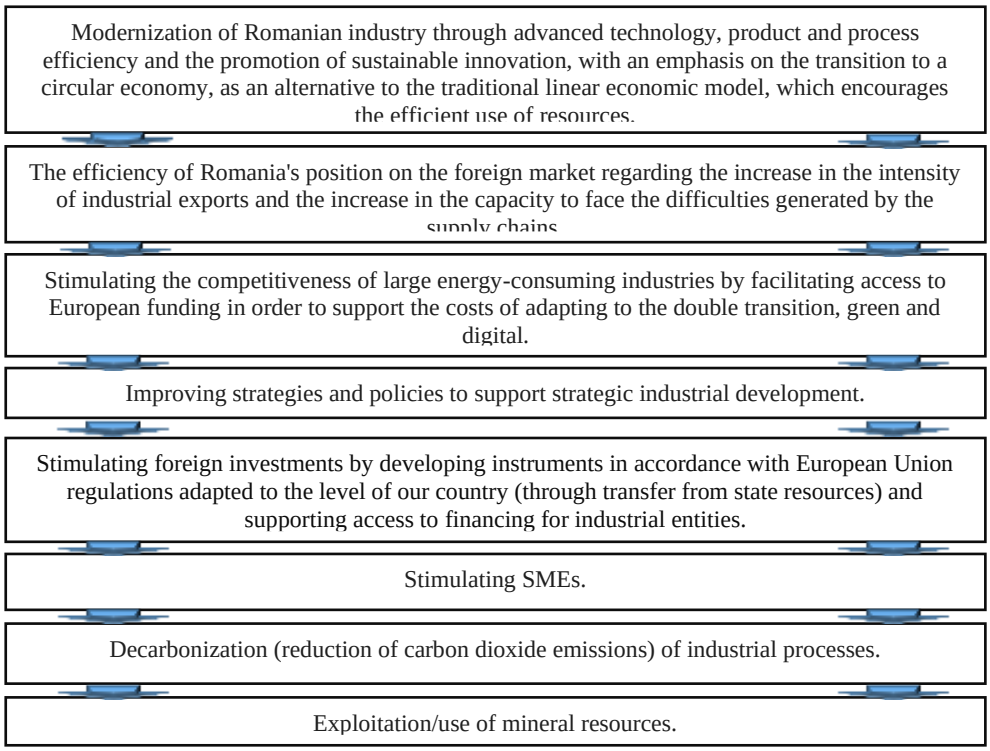
In ***Graph no. 2,*** the exponential increase in the net flow of FDI for the period 2021-2023 is observed, which positively or negatively influenced the evolution of the indicators that express the weight of the net flow of FDI in the gross domestic product, respectively in the total resident population. These indicators have the role of making international comparisons regarding the globalization of the resident economy through foreign direct investments. Consequently, we can observe that the FDI/GDP net flow ratio recorded the value of 3.7%, compared to 1.4% in 2020, registering an increase of 2.6%, and relative to the total resident population, the net flow of FDI recorded the value of 470 euros/inhabitant, three times higher than in 2020. In 2022 we have an FDI flow with a value of 527 euro/inhabitant, indicating an increase of 12.2% compared to 2021, and in terms of the FDI/GDP flow ratio, we have a value of 3.5%, down 0.2% compared to 2021, on the background GDP growth expressed in euros at a more sustained pace than the net flow of FDI.

Continuing the analysis, we note that in 2023 the FDI flow recorded the value of 354 euros/inhabitant, marking a decrease of 36.3%, compared to 2022. At the same time, the FDI flow/GDP ratio decreased to 2.1%, in sharp decline from 3.5% in 2022. These negative developments are due to the sharp decrease in the net flow of FDI, which exerted a pronounced impact on the two indicators, but also on the recorded advance of nominal GDP expressed in euros, by +14.2%.

Analyzing the forecasted data for the year 2024, we found that foreign direct investments in Romania are decreasing by 21.3%, in the first half of the year, compared to the year 2022, considered a record, when their value was ten billion euros, which indicates that we need to ensure a functional and stable competitive environment, as well as the propagation of positive effects generated by the correct implementation of competition rules on the economic environment and on consumers.

In other words, we really need a strong industry, a sustainable economic development and a future based on three components that must not be missing from a reindustrialization plan that needs to be put into practice as urgently as possible: plan investment strategy for the reindustrialization of Romania, based on innovative and well-founded actions, the coupling of the energy strategy with the industrial strategy and the complete added value chains.

Figure no. 1: Concrete actions to support investments.

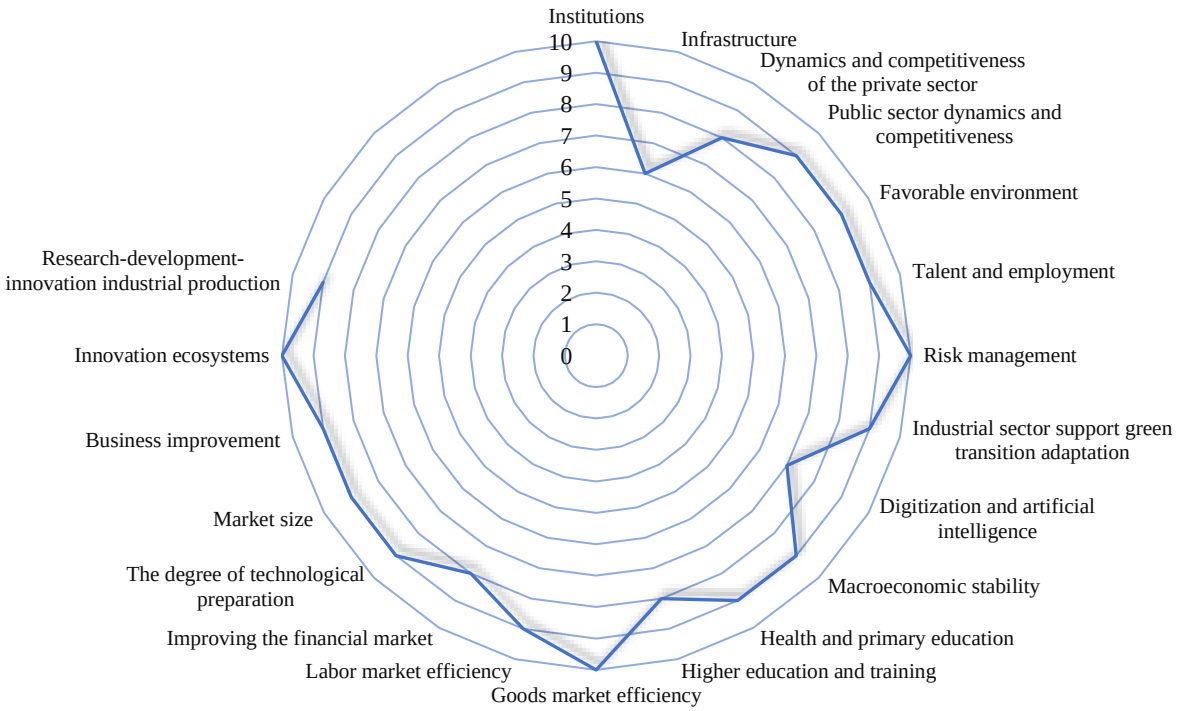


Source: authors' own processing, adapted from the Industrial Strategy of the EU interfered with the Industrial Strategy of Romania.

The purpose of the actions presented in ***Figure no.1***, is to improve the competitiveness and adaptability of the Romanian industrial sector to global technological requirements and developments, by accelerating the adoption of Industry 4.0 and supporting technological innovation. At this point, the power of governments to direct industrial activity often manifests itself in two ways: the granting of grants/financial support to industry bodies to support their activities, the necessary legislative regulation, and the strict guidance of industrial sectors. The process of reindustrialization is today very difficult and difficult to put into practice, but extremely necessary, which requires a high degree of involvement, concrete and as quickly as possible from the government. In these conditions, we need sustainable development strategies and policies in the context of a constantly changing European future.

The implementation of Romania's industrial strategies and policies must aim to modernize the industry and increase its level of competitiveness, aligned with the needs of the future, considering the double transition, green and digital. Recently, the government adopted by Government Decision the Industrial Strategy of Romania, for the period 2024-2030 (Industrial Strategy of Romania), which has a double purpose. First of all, the definition of the national vision on the industrial policy by reference to the European and international context. Secondly, the proposal and substantiation of support interventions for the industrial sector as a result of its adaptation process to the double transition, digital and green (***Figure no. 2.***).

Figure no. 2.: Reindustrialization strategies and policies for a competitive economy.



Source: authors' own processing according to the Global Competitiveness Report, of the World Economic Forum 2024 edition.

According to the Global Competitiveness Report, these presented policies and strategies reveal the data necessary for the annual assessment of the economic environment and a state's ability to achieve sustained economic growth, based on the most prosperous, resilient progress and with a high level of visibility due to the development its flagship reports, based on statistical analyzes mixed with financial and sustainability ones, made available to interested parties (especially investors). This provides sustainable insight into the engines of economic growth, revival and transformation. Economic entities are capable of developing Romanian industry and could become regional champions, but they need the government's help to grow and perform.

For the reindustrialization of Romania, one of the directions is investment in petrochemicals, in order to eliminate the trade deficit in goods and thus allow Romanian entities to export to the region. It is necessary to create facilities in the field of petrochemicals in order to be able to massively reduce an import that currently amounts to 3 billion euros. Through an appropriate investment and through the creation of bilateral agreements with certain countries that could provide us with the necessary raw material, we could reduce Romania's dependence on fertilizers and we could produce in the country and export regionally. We cannot develop sustainability projects, a sustainable economy or a single European market without production. Romania wants a decarbonated European economy, by respecting some principles throughout the value chain. Romania has this industrial tradition, it has strong industrial poles, but they need support.

At the same time, we can talk a lot about automation, but we need the basis. We need steel, aluminum, copper, electric cables, batteries, semiconductors, but to ensure this base we need consistent support from the state. Economic entities are capable of developing Romanian industry and can even become regional champions, but they need government help to grow and

prosper. One of the trends of Romania's reindustrialization are investments in the petrochemical industry, thus eliminating the trade deficit of goods and allowing Romanian entities to export to the region. In addition to all this, we, the authors, believe that for reindustrialization and economic development, in the context of a constantly changing European future, we need technological training, education and the development of industrial production research-development-innovation centers, in sectors of activity that inevitably they will generate that sustainable competitiveness based on increased productivity, environmental sustainability, macroeconomic stability and equity.

5. Conclusions

The transition process towards the sustainable development of the Romanian economy in the context of a constantly changing European future involves the practice of an economy based on strategies, policies and investments that make the connection between industrial/economic development, adapted to the double transition, digital and green, higher education and training and the well-being of the population in the medium and long term. The basis of this economy must be innovative and well-grounded actions, the coupling of the energy strategy with the industrial strategy and the complete chains of added value. These practices must be correlated with each other in order to achieve sustainable development, considered the basis of continued economic evolution at the global level (Păduraru (Horaicu) A., & Comândaru (Andrei) A-M., 2019). The present research makes the subject of this article reach the following relevant conclusions regarding the sustainable development of the reindustrialization of Romania, which has this industrial tradition, has strong industrial poles, but needs government support, more than ever.

The first finding is that sustainability is worthwhile, and those who achieve it are rewarded, if it is included throughout society. The second conclusion refers to the fact that Romania will succeed in achieving the necessary transformations to develop a sustainable and future industry, if it designs and practices strategies and policies that are focused on permanently increasing the degree of sustainable development. The third conclusion refers to the attraction of massive investments for the fastest possible development of the industrial sector that can offer a sustainable perspective on the engines of economic growth, revival and transformation, targeting all industrial branches that can generate added economic value. Investments are an important driver of GDP growth, of the contribution of added value to GDP growth, and over time they can have an effect of stimulating net exports, together acting complementary to balance the contribution of consumption to economic growth, thus ensuring a more robust structure of the economy, which will no longer allow Romania to face a budget deficit.

At the same time, for emerging economies, it is essential to focus on infrastructure investments, which will increase the attractiveness for investors and the competitiveness of entities. However, the increase in productivity must be in close connection with competitiveness, the entities today being in a great difficulty, but which can be achieved through a combination of legislative measures, financing, support for research and innovation, and by developing internal entrepreneurial capacities. This process is not simple and always requires perseverance and balance. So, a fourth conclusion that is clear enough, but negative, is that, theoretically, at the moment, Romania no longer has any field of industry in which it is specialized and on the basis of which it can participate in the major projects, which will initiate the European Union. From this point of view, efforts are required to make investments in this area as well, but rather to ensure the attraction of foreign direct investments, to use the non-reimbursable European currency funds and to try to save some small areas , which remained on the territory of our country.

Reviewing all the aspects recorded in the present scientific approach which was based on a vast, international and national specialized literature, on the analysis of the data made public by the National Institute of Statistics, the BNR, the World Economic Forum, the Industrial

Strategy of EU interfered with Romania's Industrial Strategy, we could find that the competitiveness component is recorded at the level of the first dimension evaluated (basic elements), where Romania records the lowest performance in comparison with the EU average. The main problems are represented by poor access to basic education, followed by a poor health system and a low quality of infrastructure. A relatively similar level of competitiveness that is recorded for the third dimension is education in terms of research-development-innovation of industrial production, in all sectors of activity as a result of low levels of technological training and development and of business maturity, in line with current requirements.

Improving productivity by increasing innovation and investment must be a priority. Infrastructure development has an important role and contributes, indirectly, to increasing productivity and competitiveness, but we must not neglect investments directly related to the production process. To paraphrase Paul Krugman, Nobel laureate and professor of economics at Princeton University, productivity is not everything, but in the long run it is almost all that matters when it comes to a country's ability to improve the standard of living of its people. the population. Here, then, is the final conclusion, although the Romanian industry is based on national resources and the possibilities of the processing and exploitation industry, it does not achieve results consistent with these assets.

As a final conclusion, which emerges from what has been shown, is that between an impossible autarky (completely self-sufficient economic system) that is based only on its own resources and is independent of the international market and a hazardous free trade, the imperative of economic sovereignty boils down to the realization of some strategic production activities. In the case of Romania, for reasons that we do not discuss here, the means available to the authorities to achieve this goal regarding reindustrialization are very few. They do exist, however, and consist mainly of attracting foreign capital and absorbing European funds.

Reference

1. Adams, S. 2009. "Foreign Direct Investment, domestic Investment and Economic Growth in Sub-Saharan Africa." Journal of Policy Modeling 31 (6): 939–49. doi:10.1016/j.jpolmod.2009.03.003. Web of Science ® Google Scholar.
2. Aevoae, G. M., R. M. Dicu, and D. N. Mardiros. 2018. "How Do the Foreign Direct Investments Flow? The Case of the cross-border M&As in the European Union." Journal of Accounting and Management Information Systems 17 (4): 641–62. doi:10.24818/jamis.2018.04007. Web of Science ® Google Scholar.
3. Almfraji, M. A., and M. K. Almsafir. 2014. "Foreign Direct Investment and Economic Growth Literature Review from 1994 to 2012." Procedia-Social and Behavioral Sciences 129:206–13. doi: 10.1016/j.sbspro.2014.03.668. Web of Science ® Google Scholar.
4. Armeanu, D. Ş., Ş. C. Gherghina, and G. Pasmangiu. 2019. "Exploring the Causal Nexus between Energy Consumption, Environmental Pollution and Economic Growth: Empirical Evidence from Central and Eastern Europe." Energies 12 (19): 3704. doi:10.3390/en12193704. Web of Science ® Google Scholar.
5. Bakari, S. 2017b. "The Relationship between Export, Import, Domestic Investment and Economic Growth in Egypt: Empirical Analysis." EuroEconomica 36 (2): 34–43.
6. Balasubramanyam, V., M. Salisu, and D. Sapsford. 1996. "Foreign Direct Investment and Growth in EP and IS Countries." The Economic Journal 106 (434): 92–105. doi:10.2307/2234933. Web of Science ® Google Scholar.
7. Banca Națională a României, Balanța de plăți și datoria externă – septembrie 2024, informație publică, dată la 13.11.2024.
8. Bechir, Mariana. „De unde competitivitate?" (08.10.2023), Curs de guvernare, https://cursdeguvernare.ro/romania-sume-alocate-cercetarii-176-euro-media-ue-2627-euro.html (02.11.2023).

9. Bengoa, M., and B. Sanchez-Robles. 2003. “Foreign Direct Investment, economic Freedom and Growth: New Evidence from Latin America.” European Journal of Political Economy 19 (19): 529–45. doi:10.1016/S0176-2680(03)00011-9.
10. Blomstrom, M., R. Lipsey, and M. Zejan. 1992. “What explains developing country growth?” Accessed March 1, 2022. https://www.nber.org/papers/w4132 .
11. Borensztein, E., J. De Gregorio, and J. W. Lee. 1998. “How Does Foreign Direct Investment Affect Economic Growth?” Journal of International Economics 45 (1): 115–35. doi:10.1016/S0022- 1996(97)00033-0.
12. Caldwell, B., Beyond positivism. Economic Methodology in the Twentieth Century, revised edition, Routledge, London, 2003.
13. Caporale, G. M., C. Rault, A. D. Sova, and R. Sova. 2014. “Financial Development and Economic Growth: Evidence from 10 New European Union.” Members.”International Journal of Finance & Economics 20 (1): 48–60.
14. Chapman, K. 2015. “Economic Development and Female Labor Force Participation in the Middle East and North Africa: A Test of the U-Shape Hypothesis.” Gettysburg Economic Review 8:5–22.
15. Choe, J. 2003. “Do Foreign Direct Investment and Gross Domestic Investment Promote Economic Growth?” Review of Development Economics 7 (1): 44–57. doi:10.1111/1467-9361.00174. Web of Science ® Google Scholar.
16. Darrat, A., and J. Sarkar. 2009. “Growth Consequences of Foreign Direct Investment: Some Results for Turkey.” Journal of Economic Development 34 (2): 85–96. doi:10.35866/caujed. 2009.34.2.004. Web of Science ® Google Scholar.
17. De Mello, L. 1999. “Foreign Direct Investment-Led Growth: Evidence from Time Series and Panel Data.” Oxford Economic Papers 51 (1): 133–51. doi:10.1093/oep/51.1.133. Web of Science ® Google Scholar.
18. Destek, M. A. 2020. “Investigation on the Role of Economic, Social, and Political Globalization on Environment: Evidence from CEECs.” Environmental Science and Pollution Research 27 (27): 33601–14. doi:10.1007/s11356-019-04698-x Web of Science ® Google Scholar.
19. Destek, M. A., E. Balli, and M. Manga. 2016. “The Relationship between CO2 Emission, Energy Consumption, Urbanization and Trade Openness for Selected CEECs.” Research in World Economy 7 (1): 52–58. doi:10.5430/rwe.v7n1p52.
20. Dicu, R. M., C. Toma, G. M. Aevoae, and D. N. Mardiros. 2019. “The Influence of Deal Value’s Determinants in Mergers and Acquisitions with Community Dimension: Some Empirical Evidence from the European Union.” Transformations in Business & Economics 18 (2A): 42–59.
21. Dogan, B., and M. Akyuz. 2017. “Female labor Force Participation Rate and Economic Growth in the Framework of Kuznets Curve: Evidence from Turkey.” Review of Economics and Business Studies 10 (1): 33–54. doi:10.1515/rebs-2017-0047. Web of Science ® Google Scholar.
22. Dombi, A. 2013. “The Sources of Economic Growth and Relative Backwardness in the Central Eastern European Countries between 1995 and 2007.” Post-Communist Economies 25(open in a new window) (4(open in a new window)): 425–47. doi:10.1080/14631377.2013.844927. Web of Science ® Google Scholar.
23. Durham, J. 2004. “Absorptive Capacity and the Effects of Foreign Direct Investment and Equity Foreign Portfolio Investment on Economic Growth.” European Economic Review 48 (2): 285–306. doi:10.1016/S0014-2921(02)00264-7. Web of Science ® Google Scholar.
24. “European Innovation Scoreboard”, Comisia Europeană, Research and Innovation, European innovation scoreboard 2022 (europa.eu), (30.10.2023).

25. Fischer, S., and R. Sahay. 2000. “The Transition Economies after ten Years”. Accessed March 1, 2022. https://www.nber.org/papers/w7664 .
26. Georgieva, Kristalina. “The Price of Fragmentation. Why the Global Economy Isn’t Ready for the Shocks Ahead”, Foreign Affairs, septembrie/octombrie 2023, publicat online la data de 22 august 2023: https://www.foreignaffairs.com/world/price-fragmentation-global-economy-shock (29.08.2023).
27. Ghazali, A. 2010. “Analyzing the Relationship between Foreign Direct Investment, Domestic Investment and Economic Growth for Pakistan.” International Research Journal of Finance and Economics 47:123–31.
28. Hagemejer, J., and J. andMućk 2018. “Unraveling the economic performance of the CEEC countries. The role of exports and global value chains”. Accessed June 11, 2022. https://www.nbp.pl/pub likacje/materialy_i_studia/283_en.pdf.
29. Hagemejer, J., and J. andMućk. 2019. “Export Led Growth and Its Determinants: Evidence from Central and Eastern European Countries.” The World Economy 42 (7): 1994–2025. doi:10.1111/twec.12790. Web of Science ® Google Scholar.
30. Hansen, H., and J. Rand. 2006. “On the Causal Links between FDI and Growth in Developing Countries.” The World Economy 29 (1): 21–41.doi:10.1111/j.1467-9701.2006.00756.x. Web of Science ® Google Scholar.
31. Hanushek, E. 2013. “Economic Growth in Developing Countries: The Role of Human Capital.” Economics of Education Review 37:204–12. doi: 10.1016/j.econedurev.2013.04.005. Web of Science ® Google Scholar.
32. Hermes, N., and R. Lensink. 2003. “Foreign Direct Investment, financial Development and Economic Growth.” The Journal of Development Studies 40 (1): 142–63. doi:10.1080/00220380412331293707. Web of Science ® Google Scholar.
33. Hlavacek, P., and B. Bal-Domańska. 2016. “Impact of Foreign Direct Investment on Economic Growth in Central and Eastern European Countries.” InzinerineEkonomika-Engineering Economics 27 (3): 294–303.
34. Iamsiraroj, S. 2016. “The Foreign Direct investment-economic Growth Nexus.” International Review of Economics and Finance 42:116–33. doi: 10.1016/j.iref.2015.10.044. Web of Science ® Google Scholar.
35. Kentor, J. 1998. “The Long-term Effects of Foreign Investment Dependence on Economic Growth,1940-1990.” American Journal of Sociology 103 (4): 1024–46. doi:10.1086/231295. Web of Science ® Google Scholar.
36. Khaliq, A., D. Khan, S. Akbar, M. Hamayun, and B. Ullah. 2017. “FemaleLabor Market Participation and Economic Growth: The Case of Pakistan.” Journal of Social Science Studies 4 (2): 217–30. doi:10.5296/jsss.v4i2.11386. Web of Science ® Google Scholar.
37. Lean, H., and B. Tan. 2011. “Linkages between Foreign Direct Investment, Domestic Investment and Economic Growth in Malaysia.” Journal of Economic Cooperation and Development 32 (4): 75–96.
38. Li, X., and X. Liu. 2005. “Foreign Direct Investment and Economic Growth: An Increasingly Endogenous Relationship.” World Development 33 (3): 393–407. doi:10.1016/j.worlddev.2004.11.001. Web of Science ® Google Scholar.
39. Makki, S., and A. Somwaru. 2004. “Impact of Foreign Direct Investment and Trade on Economic Growth: Evidence from Developing Countries.” American Journal of Agricultural Economics 86 (3): 795–801. doi:10.1111/j.0002-9092.2004.00627.x. Web of Science ® Google Scholar.
40. Menyah, K., S. Nazlioglu, and Y. Wolde-Rufael. 2014. “Financial Development, trade Openness and Economic Growth in African Countries: New Insights from Panel Causality Approach.” Economic Modelling 37:386–94. doi: 10.1016/j.econmod.2013.11.044. Web of Science ® Google Scholar.

41. Mohamed, M., K. Jit Singh, and C. Liew. 2017. “Impact of Foreign Direct Investment & Domestic Investment on Economic Growth of Malaysia.” Malaysian Journal of Economic Studies 50 (1): 21–35.
42. Nair-Reichert, U., and D. Weinhold. 2001. “Causality Tests for cross-country Panels: A New Look at FDI and Economic Growth in Developing Countries.” Oxford Bulletin of Economics and Statistics 63 (2): 153–71. doi:10.1111/1468-0084.00214. Web of Science ® Google Scholar.
43. Nwaogu, U. G., and M. J. Ryan. 2015. “FDI, Foreign Aid, Remittance and Economic Growth in Developing Countries.” Review of Development Economics 19 (1): 100–15. doi:10.1111/rode.12130. Web of Science ® Google Scholar.
44. Păduraru (Horaicu) Adriana & Ana-Maria Comandaru (Andrei). Strategies and Sustainable Solutions for a Healthy Future Economy (two parts)- ARA 43rd Congress of American Romanian Academy of Arts and Sciences, Economic Sciences Section pg. 167, ARA Publisher, ISBN 978-1-935924-38-8, University of California at Los Angeles (UCLA), Los Angeles, USA, November 15-17, 2019, currently being published in AJ Science and Enginewering. http://main.ara-as.org/download/ara-43-abstracts-2019/Romania.
45. Păduraru (Horaicu) Adriana & Bostan Rebeca-Ioana, The Effect of Economic Policies Over the Romanian Business Environment –ARA 42nd Congress "Gheorghe Asachi" Technical University, Iasi, Romania, August 26-29, 2018, currently being published in AJ Science and Enginewering. (Award-winning article “Nicolae Stoica Award for Economic Sciences”). http://ara42congress.tuiasi.ro/assets/ara_abstracts_2018.pdf.
46. Raportul Competitivității Globale, al Forumului Economic Mondial ediția 2024.
47. Rodriguez, F., and D. Rodrik. 1999. “Trade Policy and Economic Growth: A Skeptic`s Guide to Cross-National Evidence.” Accessed March 12, 2022. https://www.nber.org/papers/w7081 .
48. Ruane, F., and A. Ugur. 2005. “Foreign Direct Investment and Productivity Spillovers in the Irish Manufacturing Industry: Evidence for Firm Level Panel Data.” International Journal of the Economics of Business 12 (1): 53–66. doi:10.1080/1357151042000323139. Web of Science ® Google Scholar.
49. Shahid, M. 2014. “Impact of Labour Force Participation on Economic Growth in Pakistan.” Journal of Economics and Sustainable Development 5 (1): 89–93.
50. Silajdzic, S., and E. andMehic. 2018. “Trade Openness and Economic Growth: Empirical Evidence from Transition Economies.” Trade and Global Market 2:9–23.
51. Smith, M. , Research methods in accounting, SAGE Publication, London,2003.
52. Solomon, E. M. 2011. “Foreign Direct Investment, Host Country Factors and Economic Growth.” EnsayosRevista de Economia 30 (1): 41–70.
53. „Strategia Națională pe Competitivitate 2021-2027”, Ministerul Economiei, Antreprenoriatului și Turismului, https://economie.gov.ro/proiect-de-hotarare-de-guvern-privind-aprobarea-strategiei-nationale-decompetitivitate-2021-2027-2/ (06.11.2023).
54. Strategia Industrială a României pentru perioada 2024-2030, adoptată în 21.11 2024 prin Hotărârea de Guvern, prevăzută în ANEXA NR.2 care face parte integrantă din Hotărârea Parlamentului nr. 22/2023, publicată în Monitorul Oficial al României, Partea I nr. 533 din 15 iunie 2023.
55. Strategia națională de cercetare, inovare și specializare inteligentă 2022-2027.
56. Tah, K., C. Czerniak, A. Levine, K. Wiggin, and I. Osondu. 2021. “Foreign Trade and Economic Growth in South Africa.” Asia-Pacific Journal of Accounting & Economics 28 (4): 472-481.
57. Tang, S., E. Selvanathan, and S. Selvanathan. 2008. “Foreign Direct Investment,Domestic Investment and Economic Growth in China: A Time Series Analysis.” The World

Economy 31 (10): 1292–309. doi:10.1111/j.1467-9701.2008.01129.x. Web of Science ® Google Scholar.
58. Teixeira, A., and A. Queiros. 2016. “Economic Growth, human Capital and Structural Change: A Dynamic Panel Data Analysis.” Research Policy 45 (8): 1636–48. doi:10.1016/j.respol.2016.04.006. Web of Science ® Google Scholar.
59. Ulasan, B. 2015. “Trade Openness and Economic Growth: Panel Evidence.” Applied Economics Letters 22 (2): 163–67. doi:10.1080/13504851.2014.931914.
60. Upreti, P. 2015. “Factors Affecting Economic Growth in Developing Countries.” Major Themes in Economics 17 (1): 37–54
61. Vezi Parteneriatul Made in Europe, la adresa: https://cloud.effra.eu/index.php/s/bRrlW4F79uVpeiv, pp. 13-16.
62. Yakubu, M., B. Akanegbu, and G. Jelilov. 2020. “Labour Force Participation and Economic Growth in Nigeria.” Advances in Management & Applied Economics 10 (1): 1–14.

CONSIDERATIONS REGARDING ESTIMATION OF UNIT COSTS PER CROPS IN AGRICULTURAL COMPANIES

Mieilă Mihai[1]
Necula Anda Ileana[2]
Mieilă Cristian[3]
Georgescu Roxana Antoaneta[4]
Pătrașcu Daniela[5]
Mihalache (Sorescu) Laura - Luminița[6]

Abstract:
The aim of this paper is to examine certain specific aspects regarding management accounting in agricultural companies, provided the national and continental regulatory framework, concerning the estimation of unit costs per field crops productions. For some cereal and technical crops, which represent an important share of the agricultural production in the temperate area (wheat, barley, and canola), besides the seeding in the fall and the harvesting in the next year, crops are formed both from principal (or, main) and secondary product, situation with important theoretical and practical implications. Following the presentation of historical evolution of the production costs and their conceptual bound, concrete examples of unit costs estimation are examined, including the introduction of shared costs, pointing out the value added of the accounting management information for strategic decisions. The conclusions express the objective need to integrate management accounting within the decisional process of the company, as the former, through the collected data and information, offers insights and manifests itself as a valuable management tool, to respond both to the requirements of economic efficiency and sustainable development.

Keywords: *management accounting, agriculture, field crops, unit cost estimation.*

JEL classification: Q12; M41.

1. Introduction

Accounting represents the main source of credible, correlated and verified information, rigorous in quantitative reflection of the economic and social phenomena. From this definition, results that accounting is an objective science that allows reliable measurement of the abovementioned aspects. Concerning the management accounting, the literature in the field reveals several evolutionary stages, each of them as a mixture of "old" and "new" i.e., an adaptation of "old" theories and practices to "new" or changing requirements and exigencies for economic entities, which need to meet the demands of both the markets and shareholders.

In the first phase, management accounting was considered as a technical activity, aimed at achieving mainly the economic and financial objectives of the company. The second phase corresponds to the view that accounting, in general, represents an integrative part of the management activity, designated to provide information for line decision-making, regarding management planning and control. Further, in the next two phases, management accounting has been considered as an integral part of the management process of an economic entity, providing real-time information for line and general management, thereby participating at value creation through innovation. The key features in the management accounting stages of evolution are the following:

a) full costing and financial control through the application of budgeting and full cost accounting techniques,

b) management planning and control via decision analysis and accountability accounting,

[1] Professor, Ph.D., "Valahia" University of Târgoviște, Romania
[2] Ph.D., Teacher, "Ion Ghica" Economic College, Târgoviște, Romania. Corresponding author: anda_ileana@yahoo.com
[3] Dipl. Eng., Ph.D., University Politehnica of Bucharest, Romania.
[4] Ph.D., Teacher, "Ion Ghica" Economic College, Târgoviște, Romania. Corresponding author: anda_ileana@yahoo.com
[5] Ph.D., Teacher, "Ion Ghica" Economic College, Târgoviște, Romania. Corresponding author: anda_ileana@yahoo.com
[6] Ph.D. Student, "Valahia" University of Târgoviște, Romania

c) analysis of cost management processes and techniques for efficient management of resources,
d) analysis of value indicators through organizational innovation,
e) analysis of production costs and the competitive position of the organization.

Management accounting is not regulated for tax purposes, but it is designed and put in place aimed at helping to evaluate the company's performance, in connection with the implied resources. In this respect, based on the accounting information, the company management permanently tries to optimize this interdependence, i.e., to maximize its' operational efficiency and in the long run, broadly considered as a ratio between the revenues/profits, on the one side, and the consumed resources, on the other side.

In fact, the role of management accounting is to collect, analyze and store financial and non-financial data and information, aimed at modeling the interdependence relationship between the resources used within the company and the results of activity. As modeling is at the service of management, the usage of *management accounting* term refers to an accounting system for managers although, in decision-making demarche, they also use the information provided by financial accounting. In fact, management accounting is defined as an accounting information system aimed at helping managers and influencing behaviors through modeling the relationships between the allocated resources and the pursued goals. By storage and analysis of information, with an extended external perspective, management accounting participates in evaluation of the competitive position of the business unit (Bouquin, 2010, pp. 174-182; Kaplan, 2020; Tabără, 2009, pp. 145-154).

Porter, however, emphasizes the connection with marketing practice and advocates the adoption of strategic cost analysis in three stages, namely: identifying the value chain, diagnosing its cost indices, and developing a sustained competitive advantage (Porter, 1985, pp. 11-15). An interesting perspective states that "management accounting in the service of the decision means its obligation to describe the conception of this decision" (Bouquin, 2010, p. 45). Simon et. al. (1954) consider that management accounting implies exertion of three fundamental functions, one at each stage of the management process: *i*) *score keeping* (to answer the question: *are things going well or in a wrong direction?*); *ii*) *attention directing* (*what are the problems that the company has to deal with?*), and *iii*) *problem solving* (*optimal solution for solving the problems that the company has to deal with*), latter transposed into his IMC (Intelligence – Modelling – Choice) decision model (Simon, 1987). In fact, the managers permanently exert these functions in various stages of the management process (Bouquin, 2010, p. 46; Eschenbach & Siller, 2014, pp. 34-36; Horvath & Partners, 2009, pp. 190-192). One can also evaluate management decisions through the specific stages in relation to the controlling areas (table 1).

Table 1. Management decision matrix

Management Decisions / **Management Process Stages**	**Controlling areas**		
	Execution	**Management**	**Strategy**
Completion stage	Partial costs		Full cost identification
Pilot stage	Comparison of forecasted costs		Full cost management
Post-evaluation stage	Period expenditures and income attachment		

Source: adapted upon Boquin (2010), p. 54.

From the perspective of execution and management control, the pilot stage involves the comparison between the forecasted and the actual costs and their optimization (Zamfir, 2017, pp. 184-207); in exchange, strategic pilot is focused on performance considered form the viewpoint of production.

In terms of management accounting, the post-valuation stage involves the identification and assessment of the expenses incurred to generate future income, the attachment of the expenditures and revenues related to the current period.

A manager is interested in the causal link between the elements of expenditure and the revenues of the entity. With respect to its applicability area, the management accounting can be considered international, as although each country has its own traditions and history, the basic rules of management accounting are universal and "the paradox is that they are almost always passed over in silence" (Bouquin, 2010, p. 35).

2. Specific aspects concerning the management accounting of production in agricultural companies

As stated in the previous section, keeping the books afferent to financial accounting is mandatory. Instead, preoccupied with ensuring good management of its resources, the companies are allowed to design and put in place a management accounting system, with the purpose of deploying the efficient management of resources and to control the production costs. The present study addresses specifically the agriculture companies that cultivate field cereal and oilseeds crops.

The national reference framework contains definitions of the production cost, as well as terms such as the fixed production rate and the variable production rate, conversion costs, and allocation of the fixed production rate on the conversion costs. (Minister of Public Finance, 2014, Order no. 1802, Section 1.2, para. 7)

A specific aspect, particularly important for agricultural companies whose object of activity is the field cultivation of cereals, leguminous plants and oilseed plants, classified under the NACE category 0111, is that the agricultural year is different from the financial year, i.e., the former begins in the autumn of the previous year (***N–1***) and ends in the autumn of the following year (***N***), while the regular financial year starts on January 1st and ends on December 31st of the same calendar year. Also, the companies that operate in another sector of activity but agriculture may opt for another financial year, under the obligation to declare accordingly in the financial statements.

The Common Agricultural Policy (CAP) is one of the first policies established in the EU and one of the most important; the financing of the objectives covered by the CAP is carried out through two funds, components of the general budget of the European Union: the European Agricultural Guarantee Fund (EAGF) and the European Agricultural Fund for Rural Development (EAFRD); these funds are implemented through shared management between the European Commission and the EU Member States on the basis of Art. 4 para. 1 and art. 5 of EU Regulation no. 1306/2013 (European Parliament and the Council, 2013)

Under the Common Agricultural Policy, the agricultural financial year begins on October 16th of the previous year (***N–1***) and ends on October 15 of the following year (***N***).

3. Brief presentation of the activities in the company under study

The agricultural company under investigation organizes and conducts accounting in accordance with the national framework, including management accounting of the agricultural production specific to cereal and oilseed crops in the field, on land leased from individuals and legal entities. The company is of limited liability, with legal personality, which does not currently apply organic production methods (organic farming) but only uses secondary production for organic fertilization of cultivated land. The main crops are cereal crops, mainly "winter wheat", "winter barley" and "autumn canola". The company management is carried out by the shareholders.

Specific to the accounting of the company consist mainly in incomes received from subsidies related to the net turnover and, respectively, from operating subsidies. The subsidies

related to the revenues afferent to the reporting period are presented separately in the "Informative data" form, with details regarding the types of subsidies: to stimulate employment, for energy from renewable sources, and respectively, for fossil fuels. The first two types of subsidies represent amounts allocated from the state budget to the agricultural company that are included, based on the legal provisions, as a beneficiary of these transfers. The latter comprises subsidies for offsetting the excise duty on diesel related to agricultural works depending on the cultivated agricultural area, according to the certifying documents.

On the expenditure side, specific to the agricultural holdings' accounting are the expenses with rentals paid to the lessors, based on the lease contracts during the financial year for agricultural land leased from individuals and/or legal entities for cereal cultivation activity, and the expenses related to calamities and other similar events (floods, drought, landslides), separately presented in the "Informative data" form.

4. Methods for estimation of unit cost in field crops – methodologic approach and case studies

In estimation of unit costs per product can be used various methods, as: the simple division, the residual costing (or leftover) value, the equivalence index, the quantitative equivalence of the secondary product with the main (principal) product, the supplementation, and the quantitative procedure. Considering the research topic specific, the mentioned procedures are applicable, depending on the crop type.

Thereby, the *simple division method* is applicable in the case of field crops, where all incurred expenditures concern a single crop, respectively a single type of production, without intercropped plants or any by-products.

The *leftover value or the residual costing method* is applicable both in the case of field crops and livestock, i.e., in cases when incurred expenditures concern two or more products, implying consideration of the "remainder theory" or the deduction of the by-product value. After calculating the value of the secondary product, the "remainder" serves to estimate the unit cost of the principal product, i.e., the unit cost of the latter results as the ratio between the remaining expenditures and the main production quantity.

The *equivalence index method* is applicable in the case of interspersed field crops; in this situation, the production expenditures are usually collected on the group of crops that represent object of calculation. Thereby, the total incurred expenses, minus the value of the secondary production, considered at the "net receivable amount", are distributed on the main products based on a chosen criterion.

The *quantitative equivalence method* of the secondary product with the main product is applicable in the case of so-called "coupled" products, e.g. cheese as the main product and other dairy as a by-product.

The *supplementation method* is applicable in the case of areas cultivated with different crops, such as cucumbers and tomatoes; in this respect, various approaches of the coefficients used can be considered: a single coefficient, different coefficients, or selective coefficients.

The *quantitative method* is applicable in the case of crops with losses, as result of the perishable feature of the production, i.e., the quantity of the harvested production is different from the quantity that subsequently enters the economic circuit, as in case of flower seedling crops or the finished product of seedlings, regardless of the type of flowers. The total expenditures collected, minus the value of the secondary production, at the "net estimated value" is distributed on the main products based on a chosen criterion.

4.1. Case study – application of the residual costing or the leftover value method

The research topic specific led to the following case study for estimate the production cost for "winter wheat", "winter barley" and "autumn canola" crops, applying the residual costing

method, which consists in diminution of the value afferent to the secondary product from the total costs, using the equivalence indices. In the case of all considered crops, the main products are: "wheat", "barley", and, respectively, "canola"; for all these, the secondary product is "straw".

The cultivated surfaces with the considered crops and the specific diesel consumptions (technological estimate) are (APIA, 2023, p. 16; Romanian Government, 2014):

a) *winter wheat*: 300.47 ha, with a diesel consumption estimated of 78 liters per hectare, resulting in: 78 l/ha × 300.47 ha = 23,436.66 l, for an average estimated production per hectare of 5 tons,

b) *winter barley*: 105.3 ha, with an estimated diesel consumption of 78 liters per hectare, resulting in: 78 l/ha × 105.3 ha = 8,213.4 l, for an average estimated production per hectare of 5 tons,

c) *autumn canola*: 351.67 ha, with a diesel consumption estimated of 78 liters per hectare, resulting in: 78 l/ha × 351.67 ha = 27,427.14 l, for an average estimated production per hectare of 3 tons.

Other expenditures for *winter wheat* crop, per hectare (see also, Crețu, 1974):

- mechanic works: 475.5 lei,
- direct raw materials and materials: 1,464 lei,
- salaries of employees working in agricultural machinery (direct expenditure): 2,000 lei.

Other expenditures for *winter barley* crop, per hectare:

- mechanical works: 438 lei,
- direct raw materials and materials: 1,300.5 lei,
- salaries of employees working on agricultural machinery (direct expenditure): 1,500 lei.

Other expenditures for *autumn canola* crop, per hectare:

- mechanic works: 415.5 lei,
- direct raw materials and materials: 1,614.6 lei,
- salaries of employees working in agricultural machinery (direct expenditure): 2,000 lei.

Value of the secondary production "straw", derived from the principal products "winter wheat" and "winter barley" is of 83,407.52 lei, of which 62,347.52 lei for wheat straw and 21,060 lei for barley straw, calculated according to technological estimates (Zaharia, 1982, p. 9):

- 2,500 kg wheat straw/ha × 300.47 ha = 751,175 kg = 751.175 to × 83 lei/to = 62,347.52 lei,
- 2,500 kg barley straw/ha × 105.3 ha = 263,250 kg = 263.25 to × 80 lei/to = 21,060 lei.

The value of secondary production "straw" afferent to the principal product "autumn canola" is estimated as follows:

1,500 kg canola straw (fodder)/ha × 351,67 ha = 527,505 kg= 527.505 to × 240 lei/to = = 126,601.2 lei.

The final step in applying the remainder theory or the theory of deducting the value of the by-product, to the examples of the three products considered, is presented below.

- for "*winter wheat*" (main product):

Cost of secondary production "winter wheat straw" = 62,347.52 lei.

Unit cost of main production "winter wheat" results from:

$$\frac{\text{Production expenditures}_{\text{winter wheat}} - \text{Cost}_{\text{secondary production (winter wheat straw)}}}{\text{"winter wheat"}_{\text{crop (main production quantity)}}} =$$

$$= \frac{1{,}183{,}701.56 - 62{,}347.52}{1{,}502.35} = 746.4 \text{ lei/tone.}$$

- main product "*winter barley*":

Cost of secondary production "winter barley straw" = 21,060 lei

Unit cost of main production "winter barley" results from:

$$\frac{\text{Production expenditures}_{\text{winter barley}} - \text{Cost}_{\text{secondary production (winter barley straw)}}}{\text{“winter barley”}_{\text{crop (main production quantity)}}} =$$

$$= \frac{341{,}014.05 - 21{,}060}{562.5} = 607.7 \text{ lei/tone.}$$

- “*autumn canola*” main product:

Cost of secondary production “autumn canola straw (fodder)” = 126,601.2 lei

Unit cost of main production “autumn canola” results from:

$$\frac{\text{Production expenditures}_{\text{autumn canola}} - \text{Cost}_{\text{secondary production (fodder)}}}{\text{“autumn canola”}_{\text{crop (main production quantity)}}} =$$

$$= \frac{1{,}417{,}265.26 - 126{,}621.12}{1{,}055.1} = 1{,}223.36 \text{ lei/tone.}$$

Using the residual costing or the leftover value method in unit cost calculation imply some advantages, as: *a*) considering the value of the secondary production in their effective usage, with implications in reducing waste and sustainable development of the sector; *b*) although the secondary products are usually cheaper, considering their value helps in diminution of production costs of the main (principal) products; *c*) from the methodological perspective, application of the procedure is flexible, it can be adapted to various types of production processes.

However, considering this approach in unit cost calculation, implies certain disadvantages: *a*) by-products may vary in quantity and quality, which leads to inconsistence in estimated costs; *b*) usually, tracking of leftover materials may prove a complex activity, which requires meticulosity, with according financial implications; therefore, in situations characterized by complexity, a cost-benefit analysis may prove useful; *c*) depending on the concerned situation, the secondary products might not always meet the quality standards required, potentially affecting the final product; *d*) also, the usage of the method is affected by the availability of leftover materials, which can be unpredictable.

Analyzing the enlisted backwards there may be observed that, for the considered case, the usage of the method does not affect or, it may affect to a very limited extent the cost estimation process.

4.2. Application of the equivalence index costing method

The determination of equivalence indices implies, first, the choice of the production considered as comparison basis. Secondly, the equivalence indices are calculated using one of the three calculation methods. The third step consists in the equivalence of actual production in conventional production units. The last step consists in estimation of the actual unit cost for an equivalent unit and for the actual unit, for each type of production (crop).

The calculation of the equivalence index can be performed upon one of the following methods:

- the direct proportional method: index is calculated as the ratio between the value of actual production (“*i*”), and the value of production considered as comparison basis:

$$EI_{DP} = \frac{\text{value of actual production “i”}}{\text{value of production considered as comparison basis}} \quad (1)$$

- the inversely proportional method: index is given by the ratio between the value of production considered as comparison basis, and the value of actual production (“*i*”).

$$EI_{IP} = \frac{\text{value of actual production “i”}}{\text{value of production considered as comparison basis}} \quad (2)$$

- combined method: index is calculated as the ratio between the product of the values of actual productions (as denoted by $\prod i_{(\overline{1,n})}$), and the value of production considered as comparison basis.

$$\mathrm{EI}_{\mathrm{CM}} = \frac{\prod i_{(\overline{1,n})}}{\text{value of production considered as comparison basis}} \quad (3)$$

The following application of the equivalence index method is under the assumptions: estimation is performed under the direct proportional method (Eq. 1) and the base crop for comparison is "winter wheat".

Therefore, the expenditure to be allocated to the main products and calculation of the equivalence indices are based on the previously presented data:

Expenditure to allocate = 2,941,980.88 lei – 210,008.72 lei = 2,731,972.16 lei.

$$\mathrm{EI}_{\mathrm{DP\,winter\,wheat}} = \frac{1{,}246{,}950.5}{1{,}246{,}950.5} = 1.$$

$$\mathrm{EI}_{\mathrm{DP\,winter\,barley}} = \frac{421{,}200}{1{,}246{,}950.5} = 0.3378\ .$$

$$\mathrm{EI}_{\mathrm{DP\,autumn\,canola}} = \frac{2{,}352{,}024}{1{,}246{,}950.5} = 2.0306\ .$$

Having the calculated indices, the quantity (Q) for each crop results as follows:

$Q_{(\text{winter wheat})} = 1{,}502.35$ tons.

$Q_{(\text{winter barley})} = 526.5 \text{ tons} \times 0.338 = 177.85 \text{ tons}.$

$Q_{(\text{autumn canola})} = 1{,}055.01 \text{ tons} \times 2.0306 = 2{,}142.3 \text{ tons}.$

The quantity (Q) for each crop is further used to calculate the overall average unit cost for the three crops analyzed:

$$\text{Average Cost} = \frac{2{,}731{,}972.16}{1{,}502.35 + 177.85 + 2{,}142.3} = \frac{2{,}731{,}972.16}{3{,}822.50} = 714.71 \text{ lei/tone}.$$

Based on the overall average cost, the actual costs for each crop are estimated:

- for winter wheat: $714.71 \times 1 = 714.71$ lei/tone .
- for winter barley: $714.71 \times 0.3378 = 241.43$ lei/tone .
- for autumn canola: $714.71 \times 2.0306 = 1{,}451.29$ lei/tone .

Another method usable for production unit cost calculation consists in allocation of the expenditures according to the weight of the estimated value for each crop, based on the receivable (or, if case, the contract) value, according to selling prices.

According to the technological estimates and the contractual clauses for sale the wheat, barley and canola crops, the receivable amount from the sold production is 4,200,174.50 lei, as follows:

- 1,246,950.5 lei for wheat, i.e., 29.68% of the total value of the production sold,
- 421,200 lei for barley, i.e., 10.02% of the total value of the production sold,
- 2,532,024 lei for canola, i.e., 60.28% of the total value of production sold.

According to the above shares, the expenditures allocation for the three crops:

- winter wheat: $2{,}731{,}972.16 \times 29.68\% = 811{,}069.65$ lei ,
- winter barley: $2{,}731{,}972.16 \times 10.02\% = 273{,}966.4$ lei ,
- autumn canola: $2{,}731{,}972.16 \times 60.28\% = 1{,}646{,}936.12$ lei .

Considering the estimated value of secondary productions, result the following values for the unit cost for the three considered cereal crops:

$$\text{Unit}_{\text{cost\_wheat}} = \frac{811{,}069.65 \text{ lei} - 62{,}347.52 \text{ lei}}{1{,}502.35 \text{ tons}} = \frac{748{,}722.13 \text{ lei}}{1{,}502.35 \text{ tons}} = 498.36 \text{ lei/tone}\ .$$

$$Unit_{cost\_barley} = \frac{273{,}966.4 \text{ lei} - 21.060 \text{ lei}}{526.5 \text{ tons}} = \frac{252{,}906.4\text{l ei}}{526.5 \text{ tons}} = 480.35 \text{ lei/tone} .$$

$$Unit_{cost\_canola} = \frac{1{,}646{,}936.\ 12 \text{ lei} - 126{,}601.2 \text{ lei}}{1{,}055.01 \text{ tons}} = \frac{1{,}520{,}334.\ 92 \text{ lei}}{1{,}055.01 \text{ tons}} = 1441.06 \text{ lei/tone} .$$

The advantages of using this method in unit cost estimation can be summarized as: *a*) *simplicity* in application, i.e., it simplifies the allocation process by using indices, which facilitates its' understanding and implementation; *b*) *flexibility*, i.e., the method can be adapted to different types of businesses and cost structures; *c*) the use of indices allows for the cost allocation process to increase in *transparency* and makes it easier to explain to stakeholders; *d*) the method provides *consistency* in costs allocation over time, which represents a valuable input in budgeting and forecasting.

However, using this method for unit cost calculation, implies some disadvantages, as: *a*) *complexity*, derived from the fact that, although the method itself is simple, creating and maintaining the indices can be complex and time-consuming; *b*) *questionable accuracy*, i.e., the accuracy of the cost allocation depends upon the relevance and accuracy of the indices considered and used; *c*) application of the equivalence index method *requires detailed and accurate data* on cost drivers, which may not always be available or can imply supplementary costs; *d*) not least, using of the method presents advanced *potential for bias*, i.e., there has to be granted attention to proper design of considered indices, otherwise they can induce bias into the cost allocation process.

5. Conclusions

The presented case studies highlight that, although there are various calculation procedures, the unit cost estimation highly depends on the considered method used for allocation of the expenditures; thereby, a careful examination should underly the option for a certain method. With respect to the results of the procedures applied in the examined case, there may be observed an important range of variation for the unit cost estimation, as follows:

- for winter wheat, from 498.36 lei/tone (according to weight of the estimated value for each product) to 714.71 lei/tone (direct proportional equivalence index), and 746.4 lei/tone (for residual costing method);
- for winter barley, from 241,43 lei/tone (for direct proportional equivalence index) to 480.35 lei/tone (according to weight of the estimated value for each product), and 607.7 lei/tone (in case of residual costing method);
- for autumn canola, from 1,223.36 lei/tone (for residual costing method) to 1,441.06 lei/tone (according to weight of the receivable value for each product), and 1,451.29 lei/tone (direct proportional equivalence index);

However, in using the weight of the estimated value and equivalence index, there has to be considered the above presented backwards, of which the potential for bias and the questionable accuracy (in our case, the limited link between the production costs and the receivable value) contribute to the limited applicability of the method, at least for the considered situation.

Thereby, for situations of the considered type, in cases of winter wheat and winter barley crops, the estimates based on the residual costing method are lower than the values resulted in case of equivalence index and according to weight of the estimated value. In other words, using the weight of the receivable value leads to a unit cost estimation biased towards the estimated value of the concerned production (in the analyzed case, crop), raising significant issues. Conversely, from the features of each method considered, there may be observed that the application of the residual costing method in the considered case (i.e., the usage of the by-product as a soil fertilizer), none of the enlisted backwards is met.

There are various suitable cost calculation procedures applicable in agricultural companies. The accountants and engineers must collaborate in design and refine the indices and

methods proposed to the managerial team, to ensure the enhancement in the fidelity of the results, depending on the specific objectives and activity deployed by each company, as input data aimed at improving the management decisions.

References

1. Agenţia de Plăţi și Intervenţie pentru Agricultură (APIA) – *Ghidul solicitantului privind acordarea ajutorului de stat pentru reducerea accizei la motorina utilizată în agricultură, ed. 1*, Decizia Directorului General nr. 1226/27.11.2023.

2. Bouquin, Henri – *Contabilitate de gestiune*. Editura Tipo Moldova, 2010.

3. Crețu, C. – *Îndrumătorul șefului de secție SMA*, Redacția revistelor Agricole, 1974.

4. European Parliament and the Council – *Regulation (EU) No 1306 on the financing, management and monitoring of the common agricultural policy and repealing Council Regulations (EEC) No 352/78, (EC) No 165/94, (EC) No 2799/98, (EC) No 814/2000, (EC) No 1290/2005 and (EC) No 485/2008*, 17 December 2013. Official Journal of the European Union (20.12.2013), L347/549-607.

5. Eschenbach, Rolf, Siller, Helmut – *Controlling profesional: concepte și instrumente*, Ed. a II-a, Editura Economică, 2014.

6. Horvath & Partners – *Controlling* (traducere din limba germană), Ed. a II-a, Editura C.H. Beck, 2009.

7. Kaplan Financial – *Introduction to strategic management accounting*, [on-line]: https://kfknowledgebank.kaplan.co.uk/acca/chapter-1-introduction-to-strategic-management-accounting, 2020.

8. Minister of Public Finance. *Order no. 1802/*2014*, for the approval of the Accounting Regulations regarding the individual annual financial statements and the consolidated financial statements*. Bucharest: Official Bulletin, no. 963 (30 December 2014), Part I, as subsequently amended and supplemented.

9. Porter, Michael E. – *Competitive Advantage*. The Free Press, 1985.

10. Romanian Government – *Decision on the establishment of a state aid scheme for the reduction of the excise duty on diesel used in agriculture*. No. 1174, 29 December 2014. Official Bulletin, no. 965 (30 December 2014), Part I, as subsequently amended and supplemented.

11. Rowe, Alan J., Mason, Richard O., Dickel, Karl E. – *Strategic Management: a methodological approach*, 4th Ed., Addison-Wesley, 1994.

12. Simon, Herbert A. – Making management decisions. The Academy of Management Executive, 1987 Volume: 1, Issue: 1, Page: 57 – 64, ISSN: 1558-9080, https://doi.org/10.5465/ame.1987.4275905.

13. Simon, Herbert A., Guetzkow, Harold, Kozmetsky, George, Tyndall, Gordon (1954) – *Centralization vs. decentralization in organizing the controller's department*, Controllership foundation, reed. Scholars Book Co., 1978.

14. Tabără, Neculai – *Contabilitate și control de gestiune*, Editura Tipo Moldova, 2009.

15. Zaharia, Mircea – *Unele probleme economice privind cultura grâului*, Ministerul Agriculturii și Industriei Alimentare, 1982.

16. Zamfir, Mariana – *Controlul de gestiune prin sistemul de bugete*, Editura Pro Universitaria, 2017.

THEORETICAL ASPECTS CONCERNING FISCAL BURDEN

Popa Florina[1]

Abstract

The paper goes through theoretical aspects related to the fiscal burden, highlighted in terms of theorists` opinion who focused on elements regarding: definition, determining factors, measurement. Thus, there were signalized studies that highlighted factors that exert their influence (positive or negative) on the fiscal burden; studies that analyzed the impact of the tax burden, on macroeconomic indicators or tested the causality relation between the analyzed indicators and tax burden. The present material also expounds a series of indicators of measurement the fiscal burden. The paper ends with conclusions that summarize the core of the ideas retained from the study carried out, regarding: fiscal burden, factors that influence it and indicators that underlies its measurement. The methodology used was the study of specialized literature, synthesizing and processing the retained ideas, in terms of author's own interpretation and the final conception of the entire material, based on the topic addressed.

Key words: taxation, fiscal burden, definition, factors, indicators.

Jel Classification: H20, H30; H70.

1. Introduction

Taxes, an important source of budget revenues are one of the key components of fiscal policy. (Celikay, 2019). The reason for applying taxes consist in the need for the government to collect resources for financing various activities and the exercise of functions. (Shome Parthasarathi, 1995., Macek, R., 2018, , OECD, 2000). An important element is given by the relevance of the information that the tax burden can provide,, at country level. As economic and social life participants, economic agents can notice that the tax burden beared by taxpayers is significant among various types of taxes, this providing them with information for decision making in market guidance. (András Giday – Tibor Tatay, 2020).

After the Second World War, most countries resorted to tax reforms to ensure a better applying the principles of fiscality (efficiency, equity, neutrality, feasibility) in their fiscal systems, for which these reforms also resulted in an increase in tax revenues relative to GDP (Parthasarathi, 1995)

The collection of tax revenues can influence the way in which the resources are allocated to society, as well as the distribution of income. It can also intervene in the regulation of some distortions of conjuncture. (Moșteanu T., Vuță M., Câmpeanu E., György A., Cataramă D., pag. 428-572, in Management Public Verboncu Ion (coordonator) et. al., Editura Universitară, Bucureşti, 2005) The tax revenus collection need high costs, so that, also the governments could have broad concerns regarding increasing revenues derived from taxes, undertaking tax reforms, to combat tax evasion and tax revenues diminishing, the focus of fiscal reforms must concern on the expenditure side, (Parthasarathi, 1995)

2. Some elements concerning theoretical review of fiscal burden

The specialized literature on the tax burden highlights a series of contributions made in the field, which have pursued aspects related to a number of elements: definition, measurement, determinant factors (with a positive or negative impact on it). There are many definitions given to fiscal burden, some of them being exemplified, in the following:

Celikay, (2019, p. 27,) defines the tax burden, as ”the ratio of the collected taxes in a particular period against the total product, is commonly used to determine the effect of fiscal and tax policies on the socioeconomic structure”[2].

---

[1]CS III, Dr.. Academia Română, Institutul de Economie Națională, București, România, . florinapopa289@gmail.com.

[2]*Ferdi Celikay (2020), p. 27, ”*Dimensions of tax burden: a review on OECD countries”, *Journal of Economics, Finance and Administrative Science Vol. 25 No. 49, 2020 pp. 27-43 Emerald Publishing Limited 2077-1886 DOI 10.1108/JEFAS-12-2018-0138, Emerald Publishing Limited;*

Institut Nationale de la statistique et des études économiques (2024), - "Total tax burden is represented by actual taxes and social contributions collected by public administration and European institutions […]"[1]

Economic Dictionary of countryeconomy.com - "Fiscal burden is the total amount of taxes collected by the public sector of a country in relation to GDP and is therefore expressed as % of GDP. Fiscal burden refers to all taxes, both direct and indirect, paid by both companies and individuals"[2]. (Economic Dictionary of Countryeconomy)

Some studies looked at assessing the tax burden and determinant factors that had a positive or negative impact on the tax burden. The results obtained in the research carried out show that there are various *factors* that can *positively* influence the tax burden, among which: socio-economic development, financial and organizational structure and globalization process, Gross Domestic Product per capita, size of the industrial sector, openness, employment capacity and unemployment rate. These results show that the tax burden is an important indicator of the size of the public sector. (Celikay, 2019).

Taking into account the capital whereby investments are achieved, for investors, it is significant the extent to which the specific state can obtain increased revenues from contributions of taxpayers. (András Giday – Tibor Tatay, 2020)

Some studies have focused on *factors* that exert their influence on the tax burden, and others analyzed *the impact* of the tax burden on macroeconomic indicators or tested the *causality relationship* between the analyzed indicators and the fiscal burden.

Adam and Kammas, 2007 ; Adam et al. 2015 ; Tanzi and Zee, 2000). (quoted by Celikay, 2019) observed that economic variables, such as the intensity of foreign trade transactions, can affect the real tax burden.

Moșteanu (2005) (quoted by Celikay, 2019), also finds influence of economic factors on tax burden.

Shin (1969) and Bahl (1971) (quoted by Celikay , 2019) revealed that indicators such as import and export capacity and per capita income have a *weaker* impact on the tax burden.

András Giday – Tibor Tatay (2020), study the level to which tax burden can be used in the comparison of different pension systems, by countries. This evaluation of burdens could conduct to new result in thinking the classification of countries, depending on competititveness.

Actions towards increase the tax rate or setting new taxes in order to combat inflation can lead to an increase in the tax burden (Brasoveanu et al. 2008 ; Feldstein, 1980a; Feldstein, 1980b; Lucinda and Arvate, 2007; Purohit, 2006). (quoted by Celikay 2019).

Stotsky, J. G. and Asegedech, W., (1997) (quoted by Celikay, 2019) found that variables such as export size and per capita income *positively* affect the tax burden, while the size of the agriculture and mining sectors *negatively* affects the tax burden. Eltony (2002) (quoted by Celikay 2019) concluded that GDP per capita and the size of the agriculture and mining sectors directly affect the tax burden in the analysis of panel data.

There were also, researches in the field that observed *the influence of the tax burden on some macroeconomic indicators*, as exemplified below (Celikay, 2019):

Barro (1989 1991), Engen and Skinner (1992) , Levine and Renelt (1992) , Leibfritz et al. (1997) , Folster and Henrekson (2001) (cited by Celikay, 2019) showed that an increase in the *tax burden* negatively influenced economic growth and, it will therefore have a negative impact on GDP. Smith (1776) (quoted by Celikay, 2019) notes that an unlimited increase in the fiscal burden will have negative consequences for economic activities and taxable income. Keynes

[1]Institut Nationale de la statistique et des études économiques (2024), Total Tax Burden, https://www.insee.fr/en/metadonnees/definition/c1571;

[2] Economic Dictionary of Countryeconomy.com, Tax Burden. Fiscal pressure, tax pressure or tax burden https://countryeconomfy.com/dictionary/tax-burden;

(1936) (quoted by Celikay, 2019) considers that the tax burden may have unfavourable effects on investments and savings.

Other studies carried out for different indicators tracked the degree of revenue centralization at the governmental level and the importance of the redistributive role of the state. These studies are relevant in the analysis of fiscal competitiveness, tax burden on labour income, beared by both employers and employees, but also to observe the net income that remains available to employees, after the payment of taxes. (András Giday – Tibor Tatay, 2020).

Karagianni et al. (2012) (quoted by Celikay, 2019) found that there is a causality relationship between fiscal burden and economic growth, in a study achieved with data from 1964-2007 for the USA.

From the above, it can be remembered that the tax burden is influenced by several factors and, in turn, can have an impact on them, in certain situations, creating an interaction between them. Notable are factors such as GDP per capita, economic, financial and corporate structures and the opening up of the economy.

2. Methods of measuring the tax burden

Various methods of assessing the tax burden have been developed for different entities (households, individual firms and business environment), which are to respond to policy makers. (OECD, 2000).

The calculation of the tax burden is a method used in the specialized literature to determine the effects of taxes, in economic and social terms. (Celikay, 2019)

Shortly, the tax burden is the share of expenditure in GDP, incurred by citizens of a region for the payment of taxes.

Therefore, the formula for the tax burden is the division of total tax revenue by GDP[1]. (Tax Burden, https://countryeconomy.com/dictionary/tax-burden)

TB= TR/PIB X 100

Where:

TB: Tax burden

TR: Tax collection = Tax revenue

The tax burden is measured by the *total amount of income* actually collected from taxes, except for the amounts that were not collected due to tax evasion.

At the country level, the tax burden increases along with the increase of taxes or the introduction of new taxes; there are also situations where an increase in the tax burden may be a consequence of the increase in inflation, under the conditions of GDP stagnation. In general, the most developed countries bear a higher tax burden[2]. (Economic Dictionary of Countryeconomy.com)

An element of measurement of the excess tax burden is "Harberger triangle" (Hines, 1999), which is refferred to "the amount by which economic behavior changes as a result of price distortions introduced by the tax, and the height of the Harberger triangle is the magnitude of the tax burden per unit of economic activity" (Hines James R. , 2017) [3]

[1] Economic Dictionary of Countryeconomy.com, Tax Burden. Fiscal pressure, tax pressure or tax burden https://countryeconomfy.com/dictionary/tax-burden;

[2] Economic Dictionary of Countryeconomy.com, Tax Burden Fiscal pressure, tax pressure or tax burden https://countryeconomfy.com/dictionary/tax-burden;

[3] James R. Hines Jr., 2017, p. 1, Excess Burden of Taxation Michigan Ross School of Busines, Product Number WP 2007-1 May 31, 2007 OTPR Office of Tax Policy Research, Leading in Thought and Action (prepared as an entry for The New Palgrave Dictionary of Economics, 2nd ed., edited by Lawrence E. Blume and Steven N. Durlauf) www. chrome-extension:Https: //efaidnbmnnnibpcajpcglclefindmkaj/https://www.bus.umich.edu/otpr/wp2007-1.pdf .;

Political analysts have developed a number of ways to assess tax burdens and the impact of taxes on economic activity. The OECD study, *Tax Burdens: Alternative Measures* (OECD, 2000) analyzes the most common indicators of tax burden measurement[1]:

a) **Nominal tax rates**

These are significant indicators for the form of measuring the tax burden. They partly determine the value of tax concessions[2] and are an important factor in decisions-making regarding new investments.

b) The share of taxes in GDP

It is another way of measuring the tax burden of households or the corporate sector of the economy. This is expressed by the share of total revenues from taxes paid by the sector in question, as a percentage of Gross Domestic Product (GDP).

The indicator ratios between the aggregated tax and GDP, in relation to the tax burden of households or enterprises are of limited information. It is noted that the corporate tax in relation to GDP is determined by the product of two reports:

Corporate income tax divided by *corporate profit before taxation*.. It is an average measure of corporate tax, which varies with changes in the nominal rate of corporate tax and with changes in the corporate tax base. The changes taking place in this report highlight, changes in fiscal policy, tax administration efficiency, compliance and tax planning – how corporations respond to existing legal provisions.

Corporate profit before taxation, as a share in GDP. The second ratio, corporate profits before taxation in GDP, vary depending on fluctuations in the share of corporate profits in the Aggregated Value Added in the economy.

c) Average tax rates;

The average tax rates (Average Tax Rate) include a third way to value the tax burden of households or society. An advantage added towards nominal tax rates is that they take into account taxes paid.

d) Effective Marginal Tax Rates

Another way of analyzing tax burdens is the tax "wedge" that taxes generate between before taxation and after taxation. The resulting Marginal Effective Tax Rates (METRs - Marginal Effective Tax Rate) can be calculated taking into account *a specific type of investments* (buildings, inventories), a specific *source of financing* (net earnings, debt) and *historical inflation rates*. In conclusion, the effective marginal tax rates are calculated, for a representative group of investors and firms, by deducting *the difference that taxation creates* between, *before taxation and after taxation* - Marginal Rates of Return. Theoretically, this indicator assesses the effect of taxation for the rates of return taken into account the incentives to investment at the marginal level.

Over time, different methods of assessing the tax burden have been formulated to meet the growing need from policy makers.

The OECD (2000) study concludes that all current measures reviewed have some limitations. Thus, the results based on these measures concerning tax burden should be interpreted taking into account of their limitations.

---

[1] OECD (2000), *Tax Burdens Alternative Measures*, OECD Tax Policy Studies No. 2,;

[2]Collins Dictionary defines ”tax concession or tax incentive - a reduction made by the government from the amount of taxes that a particular group of people or a particular type of organization must pay or a change in the tax system which those people benefit from” - Collins Dictionary Definition of 'tax concession', https://www.collinsdictionary.com/dictionary/english/tax-concession;

3. Conclusions

The results achieved in the conducted researches show that some authors have identified factors that can positively influence the tax burden in the sense of increasing it, among which: socio-economic development, financial and organizational structure and various macroeconomic indicators, and, on the other hand, other authors identify in their studies, factors that exert their negative influence on the tax burden,

Also, various authors also identify the influence of the tax burden on economic growth or on macroeconomic indicators.

The OECD (2000) study points out that the results obtained from methods of measuring the tax burden have certain limitations and should be interpreted taking them into account.

From the paper could be retained theoretical aspects regarding the tax burden, starting from its definition and the factors that influence it, as well as the impact of tax burden on some macroeconomic indicators and the mutual influence between them, through the results obtained by theorists in the field. The paper also concludes with issues related to the methods of measurement of the tax burden and indicators identified in a study achieved by OECD (2000), on this aspect.

*Acknowledgment: This article is a part of the research paper achieved in the year 2024, by a team of researchers of the Institute of National Economy, Romanian Academy – "*Fiscalitate și inegalitate: provocări pentru creștere economică robustă și incluziune socială pentru toți".

Reference

1. Adam, A. and Kammas, P. (2007), Tax policies in a globalized world: is it politics after all?, *Public Choice*, Vol. 133 Nos 3/4, pp. 321-341. Published By: Springer Nature, https://www.jstor.org/stable/27698190;

2. Adam, A., Kammas, P. and Lapatinas, A. (2015), Income Inequality and the Tax Structure: Evidence From Developed and Developing Countries, *Journal of Comparative Economics*, Vol. 4 3 Issue. 1, pp. 138-154, https://www.sciencedirect.com/science/article/abs/pii/S0147596714000572.

3. András Giday – Tibor Tatay (2020), New Indicator to Measure Tax Burden – Proposal, *Public Finance Quarterly* 2020/2 263, www. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://real.mtak.hu/111620/1/A_Giday-Tatay_2020_2.pdf ;

4. Arnold, Jenes M. (2008), *Do tax structures affect aggregate economic growth?: Empirical Evidence From a Panel of OECD Countries*, OECD Economics Department Working Papers, No. 643, OECD Publishing, Paris, https://doi.org/10.1787/18151973; https://www.oecd-ilibrary.org/docserver/236001777843.pdf?expires=1734086774&id=id&accname=guest&checksum=019480CE14B46DD6ABFDEE30B098ACE7;

5. Auerbach, Alan J. and Kotlikoff Laurence J. (1987), *Dynamic Fiscal Policy*. Cambridge University Press. ECO/WKP(2008)51, https://www.oecd-ilibrary.org/docserver/236001777843.pdf?expires=1734086774&id=id&accname=guest&checksum=019480CE14B46DD6ABFDEE30B098ACE7; https://kotlikoff.net/wp-content/uploads/2019/03/Dynamic-Fiscal-Policy_1.pdf

6. Bahl, Roy W. (1971), *A regression approach to Tax Effort and Tax Ratio Analysis, Staff Papers - International Monetary Fund*, Vol. 18 No. 3, pp. 570-612. IMF eLIBRARY, https://www.elibrary.imf.org/view/journals/024/1971/003/article-A004-en.xml;

7. Barro, Robert J. (1989), A cross-country study of growth, saving, and government, in B. Douglas Bernheim and John B. Shoven, (editors) *National Saving and Economic Performance* National Bureau of Economic Research, University of Chicago Press, Working Paper No, 2855, : http://www.nber.org/books/bern91-2; http://www.nber.org/chapters/c5994

8. Barro, Robert J. (1991), Economic Growth in a Cross-Section of Countries, The Quarterly *Journal of Economics*, Vol. 106 No. 2, pp. 407-443, Oxford University Press, https://www.jstor.org/stable/2937943;

9. Brasoveanu, Iulian,V., Brasoveanu, Laura O. and Paun, C. (2008), *Correlations between Fiscal Policy and Macroeconomic Indicators in Romania*, INTERNATIONAL CONFERENCE Financial and Monetary Policies in European Union; Asociatia Generala an Economistilor din Romania.

10. Celikay F. (2019), Dimensions of tax burden: a review on OECD countries, *Journal of Economics, Finance and Administrative Science* https://www.emerald.com/insight/content/doi/10.1108/jefas-12-2018-0138/full/html;

11. Collins Dictionary, Definition of 'Tax Concession', https://www.collinsdictionary.com/dictionary/english/tax-concession;

12. Engen, E. and Skinner, J. (1992), *Fiscal policy and economic growth*, NBER Working Paper, 4223, National Bureau of Economic Research, Cambridge, MA.

13. Eltony, M. Nagy (2002), *Measuring Tax Effort in Arab Countries*, Working Paper, 0229, Economic Research Forum, Cairo.

14. Feldstein, M. (1980a), Inflation and the Stock Market, *American Economic Review*, Vol. 70 No. 5, pp. 839-847.

15. Feldstein, M. (1980a), Inflation and the Stock Market, in Martin Feldstein (Editor) *Inflation, Tax Rules, and Capital Formation*, University of Chicago Press: http://www.nber.org/books/feld83-1;

16. Feldstein, M. (1980b), Inflation, tax rules and the stock market, Journal of Monetary Economics, Vol. 6 No. 3, pp. 309-331.

17. Fölster, S. and Henrekson, M. (2001), Growth Effects of Government Expenditure and Taxation in Rich Countries, *European Economic Review*,. Volume 45, Issue 8, August 2001, pages 1501-1520, https://www.sciencedirect.com/science/article/abs/pii/S0014292100000830;

18. Hines James R. Jr., (2017), *Excess Burden of Taxation*, Michigan Ross School of Busines, Product Number WP 2007-1 May 31, 2007 OTPR (Office of Tax Policy Research), LEADING IN THOUGHT AND ACTION (Prepared as an entry for The New Palgrave Dictionary of Economics, 2nd ed., edited by Lawrence E. Blume and Steven N. Durlauf) https://www.bus.umich.edu/otpr/wp2007-1.pdf;

19. Karagianni, S., Pempetzoglou, M. and Saraidaris, A. (2012), Average Tax Rates and Economic Growth: a Nonlinear Causality Investigation for the USA, *Frontiers in Finance and Economics*, Volume 12 No. 1, pp. 51-59, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2629248;

20. Keynes, J.M. (1936), *The General Theory of Employment, Interest and Money*, Macmillan and Co., London.

21. Levine, R. and Renelt, D.A. (1992), A Sensitivity Analysis of Cross-Country Growth Regressions, The *American Economic Review*, Vol. 82 No. 4, pp. 942-963, https://www.jstor.org/stable/2117352

22. Moșteanu Tatiana, Vuță Mariana, Câmpeanu Emilia, György Attila, Cataramă Delia, Modul V Finanțe Pubice pag. 428-572, în Verboncu Ion (coordonator) et. al *Management Public*., Editura Universitară, București, 2005;

23. Leibfritz, W., Thornton, J. and Bibbee, A. (1997), *Taxation and Economic Performance*, OECD (Organization for Economic Co-operation and Development), OECD Economics Department Working Papers No. 176,. OCDE/GD(97)107

24. Levine, R. and Renelt, D.A. (1992), Sensitivity Analysis of Cross-Country Growth Regressions, *The American Economic Review*, Volume 82 No. 4, pp. 942-963, https://www.researchgate.net/publication/4901181_A_Sensitivity_Analysis_of_Cross-Country_Growth_Regressions; https://www.aeaweb.org/journals

25. De Lucinda, Claudio R. and Arvate, Paulo R. (2007), *Ideological changes and tax structure: Latin American countries during the nineties*, EESP – Escola de Economia de São Paulo, Working Paper Series, 168, https://repositorio.fgv.br/server/api/core/bitstreams/d972a698-421b-4bb4-af40-bbd6a08aa810/content;

26. Macek, R. (2018), Labour Taxation and its Impact on Economic Growth – Complex Analysis, DANUBE: *Law, Economics and Social Issues Review*, 9 (1), 49–61, Review Provided in Cooperation with European Association Comenius (EACO), Brno, De Gruyter Open, De Gruyter, Warsaw, Volume 9, Issues 1, pp. 49-61, DOI: 10.2478/danb-2018-0004, https://www.econstor.eu/bitstream/10419/184539/1/danb-2018-0004.pdf https://doi.org/10.2478/danb-2018-0004

27. Moşteanu, T. (coord.) (2005), *Gestiunea Datoriei Publice*, Editura Universitara, Bucuresti.

28. Moșteanu T, Roman Constantin (2012), Finanțele Instituțiilor Publice, Editura Economică;

29. Parthasarathi Shome (1995), Editor: *Tax Policy Handbook*, DOI: https://doi.org/10.5089/9781557754905.071 ; https://www.elibrary.imf.org/display/book/9781557754905/9781557754905.xml

30. Purohit, Mahesh C. (2006), Tax Efforts and Taxable Capacity of Central and State Governments, *Economic and Political Weekly*, Vol. 41, No. 8 (Feb. 25 - Mar. 3, 2006), pp. 747-751+753-755, https://www.jstor.org/stable/4417879 https://www.jstor.org/stable/4417879

31. Ricardo, D. (1871), *The Principles of Political Economy and Taxation*, John Murray: London.

32. Shin, K. (1969), International difference in tax ratio, The Review o; *Economics and Statistics*, Vol. 51 No. 2, pp. 213-220. The MIT Press, https://doi.org/10.2307/1926733; https://www.jstor.org/stable/1926733;

33. Smith A. (2010),, The Wealth of Nations: *An Inquiry into the Nature and Causes of the Wealth of Nations*, Harriman House Limited, Petersfield, UK.

34. Smith, A. (1776), *The Wealth of Nations*, The Modern Library, New York, NY.

35. Stotsky, Janet G. and Asegedech, W. (1997), *Tax Effort in Sub-Saharan Africa*, International Monetary Fund IMF Working Paper, 107 (Authorized for distribution by Liam P. Ebrill), https://www.imf.org/external/pubs/ft/wp/wp97107.pdf;

36. Tanzi, V. and Zee, Howell H. (2000), Tax Policy for Emerging Markets: Developing Countries *National Tax Journal*, Vol. 53 No. 2, pp. 299-322.

37. Tanzi, V. and Zee, Howell H. (2000), *Tax Policy for Emerging Markets: Developing Countries*, International Monetary Fund, IMF Working Paper, https://www.imf.org/external/pubs/ft/wp/2000/wp0035.pdf;

38. Verboncu I. (coordonator), Deaconu A., Stoian M., Chivu I., Cataramă D., Moșteanu T., Vuță M., Popa I., Câmpeanu E., Popescu D., Profiroiu M., Profiroiu A., György A. (2005) . *Management Public* Editura Universitară, Bucureşti, 2005;

39. Economic Dictionary of Countryeconomy.com, Tax Burden, Fiscal pressure, tax pressure or tax burden https://countryeconomy.com/dictionary/tax-burden;

40. Institut Nationale de la statistique et des études économiques (2024), Total Tax Burden, https://www.insee.fr/en/metadonnees/definition/c1571;

41. OECD (2000), *Tax Burdens Alternative Measures*, OECD Tax Policy Studies No. 2, https://doi.org/10.1787/9789264181588-en; https://www.oecd-ilibrary.org/taxation/tax-burdens_9789264181588-en.

THE ROLE OF ACCOUNTING INFORMATION IN PUBLIC FINANCIAL CONTROL AND IN PROMOTING CORPORATE SOCIAL RESPONSIBILITY IN MULTINATIONAL COMPANIES

Ștefan-Alexandru, Preda[1]
Cristina-Gabriela, Vasciuc (Sandulescu)[2]
Florin, Radu[3]

Abstract

Accounting information is essential in achieving objectives and realizing the main goals of internal control in public institutions, having a significant impact on the transparency, responsibility, and efficiency of public fund management. The main objective of this article is to analyze the role of accounting information within public financial control and in promoting corporate social responsibility (CSR) in multinational companies. The research will aim to identify how accounting information supports financial control processes in the public sector and how it is used to promote CSR in multinational companies, considering its impact on transparency, accountability, and financial performance. The objectives of the article are: analyzing the importance of accounting information in financial control in public institutions and in managing public funds; investigating how accounting information supports CSR in multinational companies; evaluating the impact of accounting information on transparency and accountability in public institutions and multinational companies; identifying best practices in integrating CSR into the financial activities of multinationals through the use of accounting information. The research will be of an applied-descriptive nature, combining theoretical and practical analyses to gain a deeper understanding of the phenomenon being studied.

Keywords*: financial performance, accounting information, organization, efficiency*

Jel classification*: G3, G30, M41, M49*

Introduction

Accounting information is essential in the process of achieving objectives and in achieving the main purposes of internal control in public institutions, having a significant impact on the transparency, responsibility and efficiency of the management of public funds. They support decision-making and managers activities, facilitate regulatory compliance and accountability, prevent and detect financial problems, including fraud.

By providing relevant financial information, financial control represents a real support in the process of planning and adopting strategic and operational decisions, contributing to the development of budgets and financial plans by analyzing previous financial performance and estimating the resources needed for the future, but also the adjustments that need to be made for the success and financial well-being and stability of the institution.

By analyzing stakeholder perspectives, investor expectations, regulatory frameworks, employee expectations, community involvement, accounting practices, challenges, future directions, and the role of technology development and collaborative efforts, this research concludes that accounting information have a decisive role in promoting sustainable and responsible business practices. Key findings suggest that integrating diverse viewpoints, investor needs, a strong regulatory framework, meeting employee expectations, effective community engagement, prudent accounting practices, as well as the adoption of emerging technologies and collaborative efforts are key to driving sustainability and initiatives for promoting corporate social responsibility (CSR).

[1] Phd. Student, first author, IOSUD-SDSE Valahia University of Târgoviște, România, predastefanalexandru@yahoo.com
[2] Phd, student, author, IOSUD-SDSE Valahia University of Târgoviște, România,
[3] Pro rector, author, prof. univ. dr., IOSUD-SDSE Valahia University of Târgoviște, România

The main purpose of this article is to analyze the role of accounting information in public financial control and in promoting corporate social responsibility in multinational companies. The research will aim to identify how accounting information supports financial control processes in the public sector and how it is used to promote CSR in multinationals, given their impact on transparency, accountability and financial performance.

Research Methodology

An alternative research method is the inductive approach, which aims to build new theories from findings through observations (Saunders et al., 2009, p. 125). This approach is widely used in qualitative studies (Bryman & Bell, 2011, p. 13) and allows researchers to analyze detected patterns and contribute to already established theories (Saunders et al., 2009, p. 125). The findings are reintegrated into the field of research as "new theory" (Bryman & Bell, 2011, p. 11).

Empirical research on the impact of CSR spending on financial performance has been conducted by many experts around the world, according to the literature in this field. This implies that CSR spending on financial performance has been popular among researchers in recent decades.

To create this article, we used descriptive-applicative research, with the aim of deepening the understanding of the phenomenon related to the role of accounting information in the management of public financial control and the promotion of corporate social responsibility in multinational companies. It will combine theoretical analysis with practical case studies to assess their impact and effectiveness in the current economic context.

The objectives of the article are:

• analysis of the importance of accounting information in the financial control of public institutions and in the management of public funds;

• investigating how accounting information supports CSR in multinational companies;

• evaluating the impact of accounting information on transparency and accountability in public institutions and multinational companies;

• identifying best practices in the integration of CSR in the financial activities of multinationals by using accounting information.

To achieve the proposed objectives, the research used the documentary analysis method: theoretical works, specialized articles, financial reports, CSR strategies and relevant legislation were analyzed. Annual reports of multinational companies were also consulted to observe how this information is integrated into financial control and CSR strategies.

The research adopted an inductive approach, aiming to build new theories based on findings from observations and data analysis. This method allowed us to analyze emerging patterns from the collected data and contribute to the enrichment of existing theory about the use of accounting information in public financial control and the promotion of corporate social responsibility in multinational companies.

New emerging theories, derived from qualitative data analysis, will contribute to understanding the interaction between public financial control and corporate social responsibility.

The patterns observed in the financial and CSR behaviors of multinational companies will be able to be generalized to other corporate contexts, contributing to the development of a new theoretical approach.

Secondary sources were also used: annual reports, audited financial statements, sustainability reports and financial publications of multinational companies, making direct observations within the selected organizations to understand how accounting information and CSR policies are applied.

Review of the specialty literature

Accounting information plays a central role in achieving the objectives and achieving the main purposes of internal control in public institutions. They contribute significantly to ensuring transparency, responsibility and efficiency in the management of public funds, supporting decision-making processes and managerial activity. It also facilitates regulatory compliance, accountability and the prevention or detection of financial problems, including fraud.

By providing relevant financial data, financial control becomes an essential tool in planning and making strategic and operational decisions. He contributes to the development of budgets and financial plans by analyzing past financial performance, estimating the resources needed for the future and making the necessary adjustments to ensure the stability and financial well-being of the institution. (Bonnebouche, J., Grenier, C., Mazat, J.N., 2001).

A solid and transparent budgeting and accounting system is the foundation of effective governance in the public sector. The management of public resources must be based on continuous evaluations of the impact of implemented financial policies. Recent trends in reforming accounting practices, including the adoption of accrual accounting based on IPSAS (International Public Sector Accounting Standards), have been initiated to improve financial management in government institutions. These reforms promoted the harmonization of national accounting frameworks with international standards and the adjustment of the implementation of accrual accounting to comply with the requirements of government financial statistics.

Quality accounting and financial reporting are indispensable for making effective decisions, maintaining control and increasing transparency. Accurate, current and relevant information about public revenue and expenditure strengthens the government's ability to make informed decisions, monitor budget execution and ensure long-term fiscal sustainability. At the same time, an efficient public accounting system guarantees that government payments are made promptly and securely. (Lungu, C.M., 2007)

The accounting information system has the following purposes:

- developing strategic resources,
- developing long-term plans,
- planning and monitoring operations and activities,
- making decisions regarding resource allocation, product profitability analysis and other relevant decisions,
- evaluating and measuring performance, including comparing the results achieved with those planned,
- providing clear and relevant information for all organizational levels, so that the results of the activity and the financial situation of the economic entity can be understood.

Types of financial control:

Document control

This type of control involves checking documents, books and accounting records to ensure that resources are spent according to the allocated appropriations and in accordance with official records. It is carried out by accounting methods and can take place either before settlement or after transactions. The main purpose of this control is to guarantee the authenticity of the documents and the safety of the resource expenditure processes.

Performance control

This type of control is intended to measure actual performance against predefined objectives. It involves monitoring the results achieved and comparing them with the planned standards. Based on these comparisons, performance is adjusted to be consistent with established goals or standards, thus helping to improve processes and achieve the intended goals.

Quality accounting information significantly supports the process of analyzing public sector accounting data. The correct management of this data contributes to increasing the accuracy of audits and inspections, facilitating the identification and remedy of any discrepancies. Effective use of accounting information systems allows rigorous examination and verification of accounting records, ensuring their accuracy. In addition, a well-implemented financial control system contributes to an accurate analysis of the data in the registers, which leads to the detection of recorded errors and fraud. (Duțescu, A., 2000).

Accounting information is an essential pillar in promoting corporate social responsibility within multinational companies. These organizations have a responsibility to structure their operations in such a way as to support sustainable development and meet the expectations of the communities in which they operate. Transparent financial reporting aligned to international standards demonstrates the companies' commitment to ethics, environmental protection and social progress. (Negrescu, M.D., 2004)

For multinational companies, an effective accounting information system not only ensures compliance with tax regulations in multiple jurisdictions, but also strengthens relationships of trust with investors, employees and other stakeholders. Complete, accurate and accessible financial data is indispensable for evaluating economic performance as well as identifying opportunities to improve CSR practices.

By providing accurate and timely accounting information, multinational companies can not only meet their financial obligations, but also strengthen their reputation as responsible players in the global economy. In this context, accounting information becomes a powerful tool, supporting transparency, business sustainability and effective public financial control, while promoting greater corporate social responsibility.

In the last two decades, sustainability accounting and reporting (SAR) have become topics of major interest in the accounting field, reflecting the trend to include the sustainable impact of organizations on the environment and society in their performance evaluation (Tommasetti et al., 2020). SAR refers to the process of measuring and reporting an organization's sustainable performance, promoting accountability to internal and external stakeholders for social, environmental and financial outcomes.

Environmental sustainability involves protecting and conserving natural resources over the long term by implementing responsible policies and practices. This involves meeting the needs of the present without compromising the resources available to future generations. For example, organizations must manage energy and water consumption, greenhouse gas emissions and impacts on biodiversity.

Social sustainability is about improving the quality of life of people and communities, emphasizing equity, human rights, access to education and health services, and providing decent jobs. The main aim is to reduce inequalities, promote social inclusion and ensure sustainable well-being for all, maintaining social cohesion and justice, including through the organisation's relationships with employees, consumers and communities.

Economic sustainability focuses on conducting economic activities responsibly with the aim of supporting economic growth, resource efficiency, social equity and long-term financial stability. This includes practices such as responsible procurement or the organization's contributions to the development of local communities.

As global sustainability issues become more pressing, many organizations still do not pay enough attention to the impact of their activities on the planet, people and profit. Sustainability, in essence, involves carrying out activities that influence people, society, the economy and the environment, with a commitment to meeting the needs of the present without compromising the ability of future generations to meet their own needs (Chowdhury & Nahar, 2017).

According to Burritt and Schaltegger (2010), the origins of SAR derive from traditional accounting, which includes internal practices aimed at evaluating financial performance. However,

SAR extends these practices to include external reporting on sustainability issues, being associated with what is sometimes referred to as sustainability management (Gray et al., 2014).

In a report by the International Federation of Accountants (IFAC), Executive Director Fayez Choudhury emphasized the importance of the accountancy profession in its direct or indirect contribution to the achievement of sustainability goals. Through their skills, experience and competencies, accountants can provide diverse solutions to meet the challenges of sustainability reporting and management (SAR). In the sphere of leadership and management, they occupy positions such as general manager, financial director or director of operations, and in operations, they work as performance analysts or management accountants. Through these roles, accountants exert significant influence over decisions and activities designed to support the creation and maintenance of long-term business value (IFAC, 2015).

Also, accountants have the ability to develop models and provide relevant information to assess the degree of involvement and compliance of organizations with the principles of sustainability (Sorina-Geanina et al., 2018). This versatility allows them to effectively address the challenges associated with sustainable development (Association of Chartered Certified Accountants [ACCA], 2014). The expansion of accountants' roles in corporate sustainability management highlights the need to explore and fully exploit their potential within the managerial functions essential to the success of SAR, thus supporting decision-making processes and introducing accounting practices adapted to the requirements of sustainability.

Lawal et al. (2022) highlighted that the management accounting system is a fundamental component of the organizational control system, playing an essential role in providing information that helps managers coordinate their activities and reduce environmental uncertainties, thus contributing to the achievement of organizational objectives.

A central aspect of accountants' managerial roles is the interpersonal dimension, which includes authority and interactions between managers, employees and other organizational actors. According to the Basel Institute on Governance (2022), professional accountants play a significant interpersonal role, occupying key positions or acting as advisors. Accountants' expertise is not limited to technical skills. They use their interpersonal skills to motivate teams, general business knowledge to make informed decisions, and commitment to ethical standards to improve organizational performance (Jamshidinavid & Kamari, 2012).

According to Chowdhury and Nahar (2017), professional accountants play the role of intermediaries, communicating financial and social data to stakeholders. They support the development of mechanisms that form the infrastructure of sustainability, facilitating dialogue between the organization, shareholders and other stakeholders.

According to Pereira et al. (2021), disclosure of environmental sustainability information improves conservative accounting practices and contributes to increased transparency of financial reporting.

The study by Saraswati et al. (2021) show that accountants have a multifunctional role, acting as creators, providers, keepers and transmitters of value in the implementation of sustainability.

Involvement in sustainability reporting provides professional development opportunities for accountants, requiring a deep understanding of social, economic and environmental issues.

This complexity requires an integrated and multidisciplinary accounting approach that encourages collaboration with professionals from other fields, such as economists, social scientists and environmental experts (Astawa et al., 2018).

Decision-making roles focus on using the information obtained to shape organizational strategies and make informed decisions. Subcategories of these roles include the functions of entrepreneur, resource allocator, problem solver, and negotiator.

Accountants are trusted advisors who bring credibility to carbon accounting information, providing valuable insights and supporting the transition to a low-carbon economy. They contribute to the efficient allocation of resources, helping organizations build resilient structures for the future. Their role also includes interpreting the non-financial impact of the business, providing a comprehensive picture of organizational performance.

According to Ascani et al. (2021), management accountants contribute significantly to sustainability reporting, being strategic partners that support the management team in adopting decision-making processes focused on sustainability. By extending SAR into the organization, they facilitate the integration of sustainability principles into corporate strategy.

The role of accountants has evolved beyond traditional activities, becoming essential for the implementation and monitoring of sustainability strategies. Stănescu (2018) emphasizes the unique position of accountants at the intersection of all departments, where they can significantly influence the sustainable development of the organization.

Schaltegger and Zvezdov (2013) highlight the contribution of accountants to effective business management, providing critical support for informed decisions. These contributions also extend to sustainability initiatives, where accountants use their knowledge and experience to develop social and environmental accounting (Lewis, 2020).

O'Dwyer and Unerman (2020) show that the role of accountants in sustainability includes reporting socio-ecological performance, conducting environmental audits, assessing environmental risks and providing feedback to improve organizational policies.

Conclusions

Accounting information plays a central role in ensuring transparency, accountability and efficiency in the management of financial resources, thus contributing to the achievement of organizational objectives and strengthening public trust.

In terms of public financial control, accounting information contributes to a rigorous management of public funds by providing accurate and relevant data necessary for planning, monitoring and reporting processes. They allow public institutions to identify possible deviations from legal norms, implement corrective measures and promote a sustainable and responsible use of resources. Furthermore, the use of a sound accounting system facilitates the prevention and detection of fraud, thus increasing the efficiency of financial governance.

In the context of multinational companies, accounting information is an important tool for integrating CSR principles into corporate strategies and financial operations. They support decision-making that balances economic with social and environmental objectives, and contribute to the transparency of financial and non-financial reporting. The role of professional accountants is essential in the development of sustainability reports, which reflect the social, economic and environmental performance of organizations, thus strengthening stakeholder trust and corporate reputation.

An important aspect of accountants' work is encouraging companies to integrate environmental data into financial reports. They work together to implement sustainability accounting, which helps organizations identify and accurately measure environmental costs and impacts.

Accountants play a critical role in strategic sustainability decision-making. Through their professional expertise, they support governance, risk management, business analysis and ensuring corporate transparency, facilitating the development of strategies that promote long-term sustainability and efficiency.

In the context of modern organizations, professional accountants have an increasingly important role due to their strategic position at the intersection of all departments. This position enables them to set standards, develop models and provide relevant data for reporting, strengthening the involvement of organizations in the implementation of sustainability. By providing critical information and setting harmonized global standards for auditing, ethics and

accounting, they support organizations and governments in promoting compliance and combating financial crime.

Accounting information facilitates transparency and accountability in the use of public funds, contributing to better financial governance. In multinational companies, they are essential for integrating CSR into organizational strategy, supporting sustainable decision-making. Innovative accounting practices, such as social and environmental accounting, contribute to the development of resilient organizations capable of responding to global sustainability challenges.

Bibliography

1. Ascani, I., Ciccola, R., & Chiucchi, M. S. (2021). A structured literature review about the role of management accountants in sustainability accounting and reporting. Sustainability, 13(4), Article 2357.
2. Association of Chartered Certified Accountants (ACCA). (2014). Sustainability and business: The next 10 years. https://www.accaglobal.com/content/dam/acca/global/PDF-technical/sustainability-reporting/presentation -sustainability-and-business-the-next-10-years.pdf
3. Basel Institute on Governance. (2022, September 6). For the sake of sustainability, clear out corruption — Here's how accountants can play a role. https://baselgovernance.org/blog/sake-sustainability-clear-out-corruption-heres -how-accountants-can-play-role
4. Bonnebouche, J., Grenier, C., Mazat, J.N., Système d'information comptable. Tratement des opérations commerciales, Les Édition Foucher, Paris, 2001.
5. Bryman, A., & Bell, E. (2011). Business research methods (3. ed.). Oxford University Press.
6. Burritt, R. L., & Schaltegger, S. (2010). Sustainability accounting and reporting: Fad or trend? Accounting, Auditing & Accountability Journal, 23(7), 829–846
7. Chowdhury, E., & Nahar, S. (2017). Perception of accountants toward sustainability development practices in Bangladesh. Journal of Management and Sustainability, 7(3), 112–119.
8. DUȚESCU, A., Informația contabilă și piețele de capital, Editura Economică, București, 2000
9. Gray, R., Adams, C., & Owen, D. (2014). Accountability, social responsibility and sustainability: Accounting for society and the environment. Pearson Education Limited.
10. International Federation of Accountants (IFAC). (2015, July 29). Accounting for sustainability. From sustainability to business resilience. https://www.ifac.org/knowledge-gateway/preparing-future-ready-professionals/publications /accounting-sustainability-sustainability-business-resilience
11. Jamshidinavid, B., & Kamari, F. (2012). Ethics in management accounting: Moving toward ethical motivation. Research Journal of Finance and Accounting, 3(6), 90–96.
12. Lawal, A., Mohamed, R., Abdalla, H., ElKelish, W. W., & Lasyoud, A. A. (2022). The role of accounting information systems in firms' performance during the COVID-19 pandemic. Journal of Governance & Regulation, 11(1), 45–54.
13. Lungu, C.M., Teorie și practici contabile privind întocmirea și prezentarea situaţiilor financiare, Editura CECCAR, București, 2007.
14. Negrescu, M.,D., Caracteristicile informatiei financiare in contextual evolutiilor contemporane, Revista Contabilitate si informatica de gestiune, nr.9/2004, Editura ASE, Bucuresti

15. O'Dwyer, B., & Unerman, J. (2020). Shifting the focus of sustainability accounting from impacts to risks and dependences: Researching the transformative potential of TCFD reporting. Accounting, Auditing & Accountability Journal, 33(5), 1113–1141.
16. Pereira, C., Monteiro, A. P., Barbosa, F., & Coutinho, C. (2021). Environmental sustainability disclosure and accounting conservatism. International Journal of Advanced and Applied Sciences, 8(9), 63–74.
17. Saraswati, E., Erel, R. A., & Anjani, A. (2021). Roles of accountants and sustainable development goals in Indonesian crude palm oil industry. Global Business and Management Research: An International Journal, 13(4S), 575–586.
18. Saunders, M., Lewis, P. and Thornhill, A. (2009), Research methods for business students, (Fifth edition). Italy: Pearson Education Limited.
19. Schaltegger, S., & Zvezdov, D. (2013). In control of sustainability information: Untangling the role of accountants. Studies in Managerial and Financial Accounting, 26, 265–296.
20. Stănescu, S.-G., Păduraru, A., & Comândaru, A.-M. (2018). The role of the accounting profession in achieving the objectives of sustainable development. Annals of the "Constantin Brâncuşi" University of Târgu Jiu, 3, 117–122
21. Tommasetti, A., Mussari, R., Maione, G., & Sorrentino, D. (2020). Sustainability accounting and reporting in the public sector: Towards public value co-creation? Sustainability, 12(5), Article 1909.

STRENGTHENING EUROPEAN COMPETITIVENESS: OPTIMIZING INTERNAL CONTROL MECHANISMS IN PUBLIC CULTURAL INSTITUTIONS

Silviu Ionel Stoica[1]
Isabela Stancu (Liță)[2]
Valentin Radu[3]

Abstract

Rapid technological innovation and globalization have increased challenges for European economies. This paper emphasizes the importance of strong internal control systems in public cultural institutions for ensuring financial accountability and operational effectiveness, which are crucial for sustained growth and innovation. The study explores how efficient internal controls can enhance cultural institutions' performance by improving resource allocation, transparency, and regulatory compliance. It identifies best practices for implementing these systems to protect assets and support strategic decision-making aligned with European competitiveness goals. Using a mixed-methods approach that combines quantitative case study analysis and qualitative interviews with industry experts, the research highlights the vital connection between robust internal controls and cultural institutions' ability to adapt to economic challenges. Investing in effective control systems allows these organizations to improve service delivery, manage financial constraints, and contribute to a more competitive European environment. The findings underscore the significance of cultural institutions as essential components of the European economy, which policymakers must recognize. By creating conditions that enhance governance and accountability, Europe can protect its cultural heritage while boosting its global competitiveness. This paper aims to provide stakeholders with practical recommendations for enhancing the impact and resilience of public cultural institutions in line with European competitiveness objectives.

Keywords*: governance, accounting, globalisation, corporate, financial*

JEL classification: F38, F6, M41

Introduction

Globalization and the rapid advancement of technology have presented serious problems for European economies, placing a great deal of pressure on institutions of public culture to change and stay competitive. These firms must create strong internal control systems in this situation to guarantee operational effectiveness and financial responsibility. These components are necessary for cultural institutions to foster innovation and long-term growth (Skare, M., & Soriano, D. R.,2021).

The study emphasizes the critical link between internal strong points and the ability of cultural institutions to adjust to economic challenges through a combination of quantitative analysis of case studies and qualitative interviews with industry professionals. By investing in effective control systems, these organizations may enhance service delivery, manage finances more effectively, and create a more competitive environment in Europe.

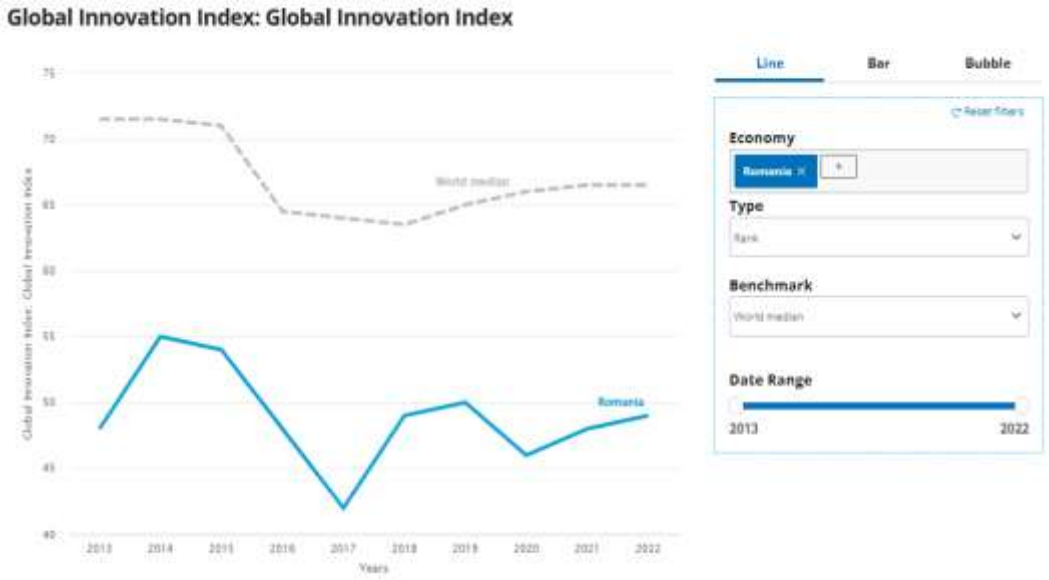
Promoting innovation and diversifying cultural offerings are important contributions made by private entrepreneurs (Kritikos, A. S., 2014) and are crucial for addressing the issue of competitive consolidation in the cultural sector. They aid in the revitalization of the cultural sector by developing projects that meet community needs and can draw in a more diverse audience. In this regard, the I.M.P.A.C.T. project in Gorj et al. emphasizes the value of cooperation between business owners, local authorities, and non-governmental organizations, which will result in positive synergy in the cultural and tourism sectors. These entrepreneurs' innovations not only enhance the quality of cultural services but also aid in the growth of the local economy by attracting tourists and creating jobs.

[1] Ph. Candidate, University Valahia of Târgoviște, *silviutgv@yahoo.com*
[2] Ph. Candidate, University Valahia of Târgoviște, *isabela.stanculita@yahoo.com*
[3] PhD Professor, University Valahia of Târgoviște, *valentin.radu@valahia.ro*

The European Union acknowledges these contributions through research and development investments, such as the Orizont 2020 program for 2014-2020, which supports innovative cultural heritage initiatives and allocates 76.4 billion euros, followed by Orizont Europe for 2021–2027 and a substantial budget of 95.5 billion euros.

The performance of research and innovation varies significantly throughout EU member states, Romania (Figure1) being no exception. Among other aspects, the different degrees of involvement in the programs, care, or allocate of excellence-based funding reflect this gap. Its limited involvement makes it more difficult for underperforming countries to improve their systems of innovation and research.

Figure-1- **Compare Global Innovation Index -Romania and World median**



Source: https://prosperitydata360.worldbank.org/en/indicator/WIPO+GII+235

For Romanian cultural institutions to come together and establish themselves in the European cultural landscape, they need to have robust internal control systems. These ensure not only the financial transparency needed to obtain European money, but also the professionalism and effectiveness necessary to effectively compete with similar institutions from other member states.

It is guaranteed that resources, particularly those provided through European programs, are used effectively and efficiently, yielding measurable benefits, by establishing stringent verification and evaluation procedures. Furthermore, these methods aid in the conservation of the nation's cultural legacy, which is crucial for promoting Romanian cultural identity throughout Europe. European standards are followed in the inventory, preservation, and digitization processes of collections, ensuring their maximum worth and public access.

The primary objective of this study is to examine the critical role that strong internal control systems play in enhancing the performance of public cultural institutions and furthering the more general goals of European competitiveness. By focusing on operational performance and financial responsibility, the paper aims to identify best practices for implementing these systems to support long-term growth and innovation in the cultural sector.

Research methodology

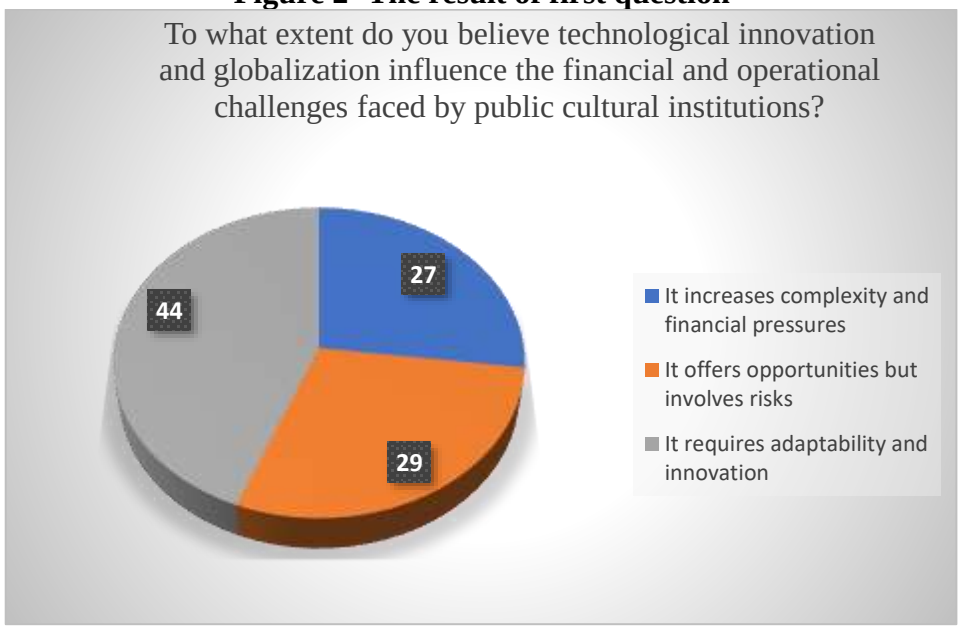
The research hypothesis is that investments in internal control systems can significantly contribute to creating a more competitive and resilient European environment for cultural institutions. It is based on the idea that such systems improve operational efficiency and financial accountability, facilitating transparency and the correct allocation of resources, which are essential for adapting to the financial and operational challenges posed by technological innovation and globalisation.

To validate the hypothesis, scientific research based on the questionnaire was carried out. The questionnaire was addressed to a sample of 170 people made up of specialists in the appropriate field from 30 entities from 4 counties of the South Muntenia Region, namely: Dâmbovița, Arges, Prahova and Ialomita.

The questionnaire was sent within 30 days of the working hypothesis being launched. A total of 158 individuals provided accurate and comprehensive responses. The created questionnaire was a crucial instrument for gauging factors that are not readily apparent, yielding important and worthwhile findings. The article served as the basis for the questionnaire, which addressed internal controls, globalization, technological innovation, and their significance for public cultural institutions. Demographic information regarding study participants, such as age, education level, gender, and background, was gathered in order to obtain a complete picture.

According to figure no. 2, 44 percent of respondents believe that "technological advances and globalization affect the financial and operational problems of public cultural institutions" based on their responses to the first question.

Figure 2- The result of first question



Own source

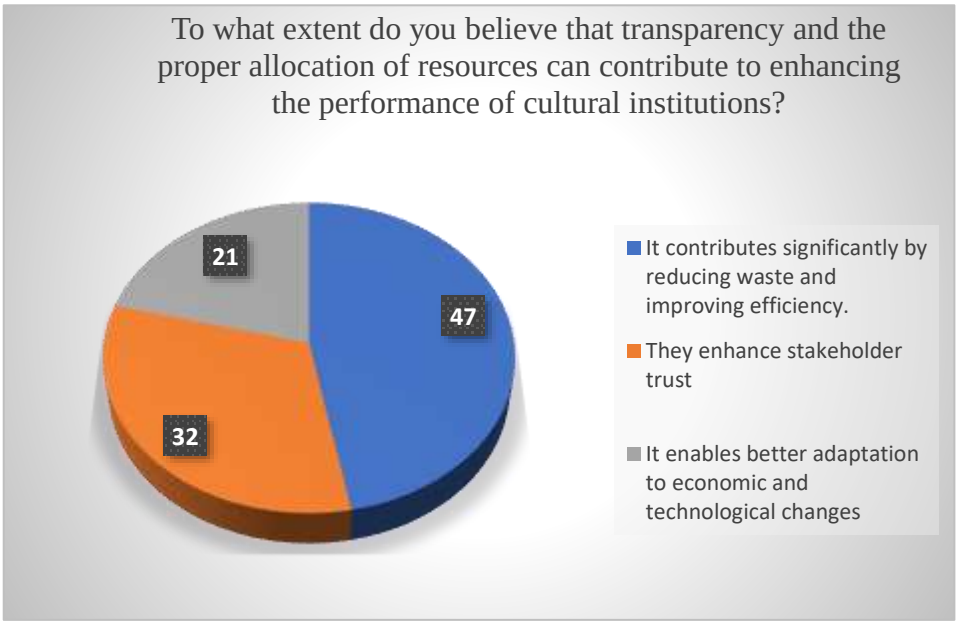
To the second question, "To what extent can internal control systems improve the operational efficiency and financial accountability of these institutions?" obtained 43% of the answers (figure no. 3).

Figure 3-The result of second question

Own source

To the next query "To what extent do you think that transparency and the correct allocation of resources can contribute to increasing the performance of cultural institutions?" As a gauge, we have a 47% rate, which increases stakeholder trust (figure no. 4).

Figure 4- The result of third question



Own source

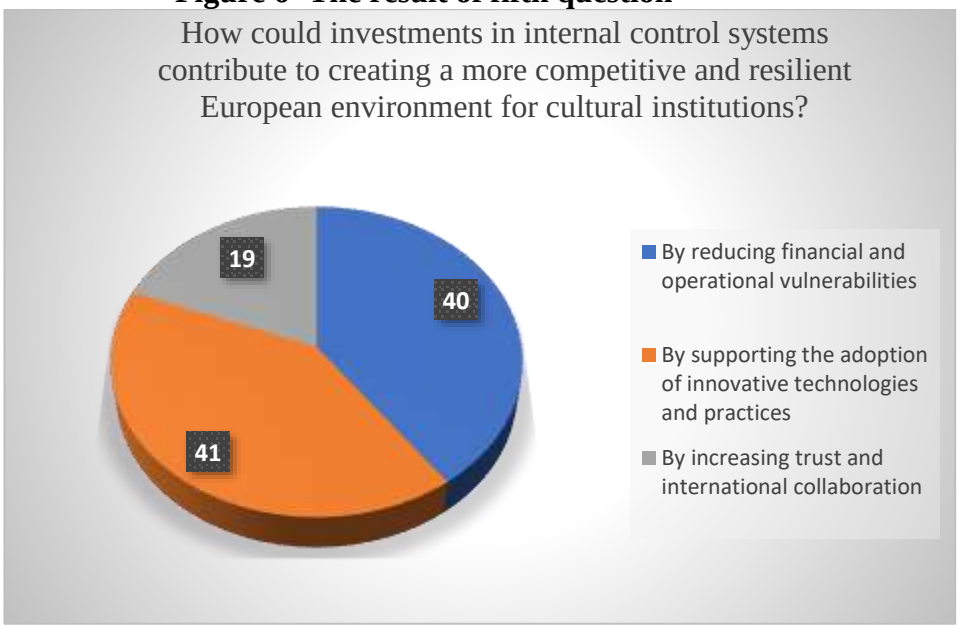
To the question "What are the best practices you think are necessary for implementing an effective internal controversy in public cultural institutions?" Our 42% success rate in putting in place a regular monitoring and auditing system is shown in figure nr. 5.

Figure 5- The result of fourth question

Own source

The fifth question, "how could investments in internal control systems contribute to creating a more competitive and resilient European environment for cultural institutions?" garnered 41% of the responses (figure no.6).

Figure 6- The result of fifth question



Own source

1. The Role of Internal Control Systems

Internal control systems (Kaplan, S. E.,1985) are procedures intended to guarantee the accuracy of accounting and financial data, increase operational effectiveness, and stimulate adherence to legal requirements (Al-Dmour, A.,2018). For enterprises to successfully manage risks, safeguard assets, and accomplish their objectives, these systems are necessary.

Components:

Five essential elements of internal control systems are listed in the COSO (Committee of Sponsoring Organizations of the Treadway Commission) framework (Figure 6):

Figure 6: Internal control systems-role

Source: own sources

Together, these five elements form a strong internal control framework that aids businesses in accomplishing their goals and successfully controlling risks. All elements must be present and operating in unison within the company for internal controls to be effective.

1.1. Importance of financial accountability and operational effectiveness

For every organization, especially public cultural organizations, to succeed, two essential pillars are operational effectiveness and financial accountability.

Building confidence with the public, donors, and government organizations is facilitated by transparent financial procedures. Resource allocation to the most significant projects is guaranteed by efficient finance management. Robust financial controls aid in preventing waste, fraud, and misuse. Leaders are empowered to make well-informed strategic decisions when they have access to accurate financial data. The organization is shielded from legal and reputational threats by following financial norms and standards.

Increasing the productivity and efficiency of an organization's processes is the aim of operational effectiveness. Key benefits include of Improved Performance Simplified processes and efficient use of resources yield better outcomes. Finding and eliminating inefficiencies can result in significant cost savings. Effective operations ensure that services are delivered efficiently and meet the needs of the intended audience.

A productive and well-organized workplace can boost employee morale and output. A flexible and agile organization can seize new possibilities and respond quickly to shifting circumstances. Financial accountability and operational effectiveness are closely related. Strong financial controls ensure that resources are used wisely, which increases operational effectiveness. Operational effectiveness can lead to improved financial performance by reducing costs and increasing income.

Internal controls and long-term innovation and growth in cultural organizations have a complex and important link. In addition to guaranteeing operational effectiveness and financial accountability, robust internal control systems foster an atmosphere that encourages creativity and flexibility (Bracci, E., & Tallaki, M.,2021).

To sum up, robust internal control frameworks are the cornerstone of cultural institutions' long-term development and creativity. These systems enable businesses to prosper in a more competitive environment by improving resource allocation, transparency, strategic decision-making, compliance, accountability, information sharing, and adaptation. Therefore, making an investment in efficient internal controls is not merely a compliance issue; rather, it is a strategic necessity that can greatly improve the overall effectiveness and influence of cultural institutions in the European setting (Ayinde, O. Et. al.,2022).

2. Performance Improvement with Effective Internal Controls

Public cultural institutions must have strong internal control systems in place to succeed and last. They create a structure that makes it easier to allocate resources optimally, improves transparency, and guarantees compliance with relevant laws (COSO.,2012).

Delivering accurate and timely financial information is crucial for making well-informed decisions about resource allocation, and this is made possible by strong internal control systems. Cultural institutions can maximize their influence by precisely defining their top priorities and allocating resources appropriately. Additionally, good internal controls are essential for identifying and removing unnecessary spending, which improves the efficient use of the resources that are available.

Strong internal controls also guarantee financial reporting's transparency and correctness, which is essential for building stakeholder trust. These organizations can continue to receive support and preserve public trust by acting responsibly with public monies (Pickett, K. S.,2010). The risk of financial misuse is also greatly decreased by routine internal and external audits, which offer the required monitoring and responsibility.

By using these tools, cultural organizations strengthen their dedication to moral financial conduct while also improving their operational integrity.

Simplifying the operations of cultural organizations can result in lower expenses and higher-quality public services by streamlining internal processes through efficient internal control systems. By encouraging the growth of an organizational culture based on honesty and responsibility, these approaches help to increase public confidence in cultural institutions. Effective internal control implementation improves public impression and ensures long-term sustainability by allowing institutions to adhere to current legal laws.

2.1. Identification of Best Practices for Implementing Effective Internal Control Systems

Setting specific, measurable goals for the internal control system that align with the business's strategic goals. These objectives should be reviewed on a regular basis to make sure they still support the company's strategic aims, particularly if it expands or encounters new difficulties. Involving management and staff in the internal control process should also be a priority to cultivate a dedication to upholding efficient controls across the board.

Identifying any risks that would prevent the goals from being accomplished. The effect and probability of these risks will be evaluated to appropriately prioritize management measures. Frequent re-evaluation of risks, their impact, and likelihood enables proactive risk management and guarantees that the required control measures are ranked in order of their influence on the accomplishment of corporate goals. This strategy boosts the possibility of success and facilitates wise decision-making.

Develop a mix of preventative (to avoid problems) and investigative (to uncover problems) strategies that are appropriate for lowering the risks that have been identified

(Hubbard, D. W., 2020). Organizations can develop a thorough risk management plan that actively seeks to prevent potential risks in addition to identifying them, guaranteeing stability and safety over the long run, by integrating these preventive and investigative approaches.

Improve data security, automate control processes, and enable real-time monitoring by utilizing artificial intelligence technologies (Mughal, A. A. ,2018). Automatic warnings can help ensure that regulations are followed. Organizations can improve data security and compliance, expedite operations, lower human error, and react swiftly to possible threats or compliance problems by incorporating these cutting-edge technologies into their frameworks.

To guarantee support and alignment with corporate goals, include important stakeholders in the design and execution phases. A culture of compliance is fostered by this cooperative approach (Fahy, M. Et. al., 2005).

Conclusion

Internal control systems support resource allocation, transparency, and regulatory compliance and are crucial to the financial accountability and operational effectiveness of public cultural institutions.

Effective internal control requires the use of cutting-edge technologies, risk assessment, stakeholder involvement, and the achievement of specific objectives. Strong internal control systems inside cultural organizations can enhance service delivery, better handle budgetary constraints, and promote a more competitive European market. Internal control investments preserve Romanian cultural history and identity while fostering innovation and long-term growth.

After the questionnaire was analysed, a sizable portion of participants expressed great satisfaction with the services offered by cultural organizations. They also emphasized the significance of enhancing public communication and broadening the selection of cultural activities. Furthermore, several respondents emphasized the necessity of putting in place an internal control system, which is thought to be crucial for guaranteeing efficacy and openness in these firms' administration. The conclusion that the research hypothesis is validated is supported by these observations.

Bibliography

1. Al-Dmour, A. (2018). The impact of the reliability of the accounting information system upon the business performance via the mediating role of the quality of financial reporting. *The International Journal of Accounting and Business Society*, *26*(1), 78-111.
2. Ayinde, O., Aromokun, O., Ayinde, O., & Aromokun, O. (2022). The Relationship between Organisational Culture and Administrative Controls: A Qualitative. *system*, *12*(1), 74-89.
3. Bracci, E., & Tallaki, M. (2021). Resilience capacities and management control systems in public sector organisations. *Journal of Accounting & Organizational Change*, *17*(3), 332-351.
4. Committee of Sponsoring Organizations of the Treadway Commission. (2012). Internal control—Integrated framework: Framework and appendices, September 2012.
5. Fahy, M., Weiner, A., & Roche, J. (2005). *Beyond governance: Creating corporate value through performance, conformance and responsibility*. John Wiley & Sons.
6. Hubbard, D. W. (2020). *The failure of risk management: Why it's broken and how to fix it*. John Wiley & Sons.

7. Kaplan, S. E. (1985). An Examination of the Effects of Environment and Explicit Internal Control Evaluation on Planned Audit Hours. *Auditing: A Journal of Practice & Theory*, *5*(1).
8. Kritikos, A. S. (2014). Entrepreneurs and their impact on jobs and economic growth. *IZA World of Labor*.
9. Mughal, A. A. (2018). Artificial Intelligence in Information Security: Exploring the Advantages, Challenges, and Future Directions. *Journal of Artificial Intelligence and Machine Learning in Management*, *2*(1), 22-34.
10. Pickett, K. S. (2010). *The internal auditing handbook*. John Wiley & Sons, Inc..
11. Skare, M., & Soriano, D. R. (2021). How globalization is changing digital technology adoption: An international perspective. *Journal of Innovation & Knowledge*, *6*(4), 222-233.

VALUATION OF FINANCIAL-ACCOUNTING INFORMATION FOR INCREASE OF FINANCIAL PERFORMANCE IN ORGANIZATIONS

Cristina-Gabriela, Vasciuc (Sandulescu)1
Ștefan-Alexandru, Preda2
Florin, Radu3

Abstract

Maintaining an optimal level of performance is the essential condition for the sustainable development of organizations. To achieve this goal, a consistent flow of quality information is required, reflecting the performance of the activity, clarity on the direction and reasons for its evolution, and allowing control over how performance can be improved. The process requires the existence of an information system and effective managerial control.

The purpose of the article is to analyze how financial-accounting information contributes to improving the financial performance of organizations. Emphasis will be placed on identifying the ways in which correctly collected and interpreted financial data support the adoption of strategic and operational decisions, in order to increase the efficiency and financial sustainability of companies.

The objectives of the article are: to identify the role of financial-accounting information and to explore the impact of capitalizing on financial-accounting information on financial performance.

A detailed literature review will be conducted, including academic articles, books, financial reports and relevant case studies, to understand the principles, tools and impact of leveraging financial-accounting information on financial performance.

Examples of organizations that have applied techniques for processing and leveraging financial-accounting data to improve financial performance will be presented. Case studies will be selected from various business sectors and will illustrate success and challenges encountered.

Keywords*: financial performance, financial-accounting information, organization, efficiency*

Jel classification*: M41, M49*

Introduction

Accounting information plays an important role in financial and economic decision-making. They also have a significant influence on the survival of organizations. Effective internal control systems are essential for the successful operation of organizations and for accounting and administrative control. They help the accounting information systems (AIS) department to generate and deliver relevant and reliable information. In the AIS environment, the characteristics of internal controls can affect operations and management, thereby influencing internal control in general. These internal controls are also implemented to ensure the achievement of operational and performance objectives.

It is believed that investments in AIS can provide organizations with important opportunities to increase the efficiency of business processes. Accounting information systems add value to the organization by providing correct and timely information, by efficiently and effectively carrying out the main activities, as well as by improving the quality and efficiency of financial processes. AIS are considered one of the most important systems within organizations, with the aim of providing the necessary information to management.

This information helps management effectively carry out their tasks in planning, monitoring the firm's resources, making decisions and increasing performance.

The effective implementation of AIS brings many benefits, such as improving the quality of work, product flow, flexibility, motivation and development of the use of software

[1] Phd. Student, first author, IOSUD-SDSE Valahia University of Târgoviște, România,
[2] Phd, student, author, IOSUD-SDSE Valahia University of Târgoviște, România, predastefanalexandru@yahoo.com
[3] Pro rector, author, prof. univ. dr., IOSUD-SDSE Valahia University of Târgoviște, România

applications, increasing the ability of employees to solve various problems, increasing the productivity and performance of employees in terms of production costs . In addition, the use of AIS can improve company productivity, employee work development, innovation and their attitude, facilitating the decision-making process within organizations.

Accounting is an essential element in the management process of an organization as it provides crucial information for planning, analysis, control and decision making within the organization. Leveraging financial-accounting information is vital to the success or failure of contemporary organizations. Accounting systems are responsible for recording, analyzing, monitoring, and evaluating a company's financial status, preparing tax documents, and providing information for various other organizational functions. These systems provide managers with information needed to measure financial performance.

To indicate the use of financial accounting within a company, there must be some essential variables, such as the collection of business documents (invoices, receipts, debit/credit notes), the use of accounting books (sales journal, purchases, returns, cash book) and the preparation of financial statements.

Research Methodology

The objectives of the article are: to identify the role of financial-accounting information and to explore the impact of capitalizing on financial-accounting information on financial performance.

The methodology used as a structure for the creation of the article is based on specialized literature and applied analyses, by synthesizing the relevant information from the articles mentioned below, to define the theoretical framework of the research.

Research strategy: For the realization of this article, a comparative study was carried out between selected countries based on articles from the mentioned specialized literature, such as Somalia, Jordan, Turkey, Malaysia, Egypt and other regions analyzed in relevant studies, the study of organizations in sectors such as banking (Somalia), manufacturing (Jordan) and real estate (Australia).

Somalia

Reference: Abdi & Ali (2016)

• Topic: Capital structure and financial performance of commercial banks.

• Observations: The study highlights that capital structure influences the financial performance of commercial banks in Mogadishu, indicating the impact of debt on profitability. Somalia's unstable economic and political context complicates achieving optimal financial results.

Jordan

References: Aizan (2016), Al-Adaileh (2018)

• Topic: Accounting information systems and financial performance of manufacturing companies.

• Observations: In Jordan, the implementation of computerized accounting systems is crucial for improving organizational performance, being a response to the demands of the developing market.

Pakistan

Reference: Aziz & Abbas (2019)

• Topic: Debt financing and firm performance.

• Observations: The study demonstrates that debt financing can have a positive effect on the performance of non-financial companies in Pakistan, but only when the level of debt is managed effectively.

Malaysia

Reference: Ghazali & Weetman (2006)

• Topic: Voluntary disclosure following the economic crisis.

• Observations: In Malaysia, the economic crisis has led companies to increase their level of transparency through voluntary reporting to gain investor confidence.

Turkey

References: Gonenc & Aybar (2006), Temiz (2021)

• Topic: The financial crisis and the performance of companies, respectively the impact of corporate disclosures.

• Observations: Financial crises significantly affect the performance of Turkish companies, while a higher level of financial transparency and disclosures contribute to increasing firm value.

Egypt

References: Dahawy (2009), Soliman (2013)

• Theme: Characteristics of firms and the level of voluntary disclosure.

• Observations: In Egypt, large companies with strong corporate governance tend to disclose more information, which improves investor perception.

Lithuania

Reference: Kanapickiene et al. (2021)

• Topic: Disclosure of information about tangible assets.

• Observations: In Lithuania, private sector firms tend to be reticent about disclosing detailed information about tangible assets in financial reports.

Australia

Reference: Ullah et al. (2021)

• Topic: Digitization and innovation in real estate.

• Observations: Australian managers face barriers to adopting digital technologies in the real estate sector due to high costs and lack of skills.

Indonesia

Reference: Malaranggeng (2019)

• Topic: Environment and recovery strategies.

• Observations: Indonesian companies use innovation strategies to improve their performance in difficult economic contexts.

Taiwan

Reference: Singh & Singh (2018)

• Topic: Firm performance and capital structure.

• Observations: Capital structure directly influences the performance of Taiwanese companies, and excessive use of debt can reduce profitability.

Peru

Reference: Robles (2024)

• Topic: Integrated financial system and administrative management.

• Observations: Integrated financial systems are essential for local governments in Peru, helping to increase administrative transparency and efficiency.

Saudi Arabia

Reference: Rehab (2018)

• Topic: Accounting information systems and organizational performance.

• Observations: Improving the quality of accounting information systems has had a positive impact on the performance of Saudi SMEs.

East Africa

Reference: Wanjau et al. (2018)

• Topic: Financial transparency and performance of listed companies.

• Observations: East African companies listed on regional exchanges have performed better due to increased financial transparency.

Review of the specialty literature

Accounting control systems are essential to a company's competitiveness, performance and long-term success, ensuring compliance with accounting information quality standards and contributing to the creation of long-term value and benefits.

Availability refers to the accessibility of accounting information when it is needed.

Availability allows for the simplification of operations, increased internal efficiency and the facilitation of sustainable growth. Organizations get a clear idea of how to invest in new technology or use existing technology more effectively when they analyze the availability of accounting information.

An organization's performance can be significantly predicted by security and integrity. Information security is one of the main features of information integrity. The accuracy and completeness of accounting information determines its integrity. System integrity is guaranteed when information processing is complete, accurate, timely, valid and authorized.

User attitudes are significantly influenced by their ability to ensure confidentiality and privacy. Privacy helps protect information in storage and transmission, ensuring the confidentiality of company information. The information is not available and must not be disclosed to unauthorized users or anyone who does not need to know it.

The accounting information system provides information for micro and macroeconomic activities, so the success of the organization will be better ensured by the quality of accounting information. The information provided must be relevant, reliable, timely, easy to understand, substantial and of good quality.

The accounting information system (AIS) is an essential tool for organizational management, contributing to improving control over operations and developing company performance. AIS involves identifying, collecting, processing and providing relevant accounting information to stakeholders, thus supporting decision-making at all organizational levels. At the same time, AIS is defined as a system intended to record the financial transactions of an organization, combining methodologies, controls and accounting techniques to track transactions, generate internal and external reports, as well as to facilitate the preparation of financial statements, which leads to a performance higher organizational level (Pérez, Urquía & Muñoz, 2010).

The traditional, paper-based AIS systems previously widely used are no longer suitable for today's dynamic business environment. The transformations brought about by the information technology (IT) revolution have fundamentally changed the way business operations are conducted, including accounting, which is now managed through IT applications and information systems (IS). The implementation of these applications improves financial performance, maintains transparency within organizations and ensures continuous access to financial reports throughout the financial year (Melitski & Manoharan, 2014). In addition,

optimal use of these technology solutions contributes to increased customer satisfaction, which determines long-term organizational success.

The benefits of AIS, mentioned in the specialized literature, include improving the quality of services, reducing costs, increasing the speed of processes, making well-informed decisions and optimizing the flow of information (Rehab, 2018). AIS provides management with valuable information that is up-to-date, relevant, verifiable and accurate, enabling better informed decisions (Al-Adaileh, 2018).

The Accounting Information System (AIS) represents an essential tool for improving organizational performance, being evaluated by its characteristics and by user satisfaction, the latter serving as an indicator of its performance. AIS provides accounting information about entities to various categories of interested users, supporting well-informed decision-making. Given that each decision involves several alternatives, accounting information must help users determine their course of action. Accounting is a process that, through the use of accounting records, generates clear and relevant financial statements.

AIS, as a digital application, introduces modern and innovative accounting practices, but many organizations, especially in developing countries, face difficulties in adopting these systems. However, companies are creating increasingly advanced AIS systems to achieve strategic goals and enhance performance (Eb, Pretorious & Zuva, 2013). Among the obstacles encountered in the adoption of AIS in these countries are lack of capital, technological obsolescence, limited financial resources, poor managerial information, low economies of scale and lack of funds to develop IT skills (Malaranggeng, 2019).

Financial performance reflects an organization's economic health, its ability to meet its long-term financial obligations, and its commitment to providing quality services. This indicates the degree to which the organization is meeting its financial objectives. Financial managers rely on the data provided by AIS to analyze past performance and plan for the future. AIS results, like financial reports, are fundamental at all levels of management and for various stakeholders, fueling decision-making processes at the operational, tactical and strategic levels.

In the context of organizations, AIS plays an essential role, facilitating the management of short-term issues in critical areas such as costs, expenses and cash flow. Accounting information supports planning, monitoring and decision-making, contributing to the efficient use of economic resources and the achievement of organizational objectives (Mitchelle et al., 2019; Marriot & Marriot, 2015).

AIS systems are critical to the success of an organization because they produce useful information that supports strategic decision making and control over company activities (Naranjo, 2014). In an era of information technology, AIS represents one of the most important sources of internal information, having the potential to increase the success of the decision-making process, considered the key factor in achieving organizational objectives.

For AIS to be efficient and effective in assessing financial performance, it must possess characteristics such as promptness, feedback, flexibility and accuracy (Hafnawi, 2018).

The primary purpose of accounting information is to provide high quality financial reporting. SMEs that have such information are better prepared to make informed decisions (IASB, 2008). The quality of decisions directly depends on the accuracy and relevance of the information contained in the financial statements provided by management.

Accounting information is an essential tool for recording, analyzing, monitoring and evaluating the financial status of companies. Also, they are indispensable in the preparation of fiscal documents and provide support for other organizational functions, constituting the basis for making strategic decisions.

AIS plays a key role in supporting organizations in adopting and maintaining strategic positions (Rosa & Purfini, 2019). These systems are responsible for analyzing the financial situation of companies, preparing tax documents and providing information that supports other

organizational functions, such as production, marketing, human resource management and strategic planning.

Accountants recognize the importance of integrating accounting and non-accounting data in AIS to support better business decision making. Regardless of the sector or the size of the business, accounting information is essential for making well-founded financial decisions essential for sustainable economic development.

AIS implementation must meet management's planning, control and decision-making requirements. This makes AIS vital to the survival and success of organizations.

AIS has a significant impact on organizational effectiveness. These systems are adopted to increase organizational efficiency and competitiveness by improving management commitment and information system effectiveness.

AIS benefits include:

- Improving the decision-making process;
- Increasing the quality of accounting information;
- Evaluation of financial performance;
- Improvement of internal control;
- Facilitating company transactions.

According to Aizan (2016), financial performance reflects the extent to which an organization's financial well-being is evaluated over a period of time. It involves using financial activities to generate higher sales, increased profitability and added value for investors through effective management of current and non-current assets, financing, equity, income and expenses. The primary purpose of financial performance is to provide relevant financial information to investors and other stakeholders to facilitate well-informed decision making. Financial performance can be used to evaluate organizations in the same industry or to compare investments at an aggregate level.

This represents a combination of the financial health of the organization, its ability to meet its long-term financial obligations and its commitment to provide benefits in the near future (Weber, 2018). In a broader sense, financial performance indicates the extent to which financial objectives are or have been achieved, being a process of measuring the results of the organization's strategies and actions in financial terms.

The complexity of the global economic phenomena of the last decades, such as the internationalization of business, the relocation of production, economic crises and the volatility of financial markets, generated the need for comprehensive performance measurement methods. These methods include both financial and non-financial criteria. Performance indicators are used to evaluate, report and improve the economic performance of an organization.

Studies show that entities that implement balanced performance measurement systems as a key management tool achieve superior results compared to those that do not use such systems. These tools facilitate strategic decision-making and help improve the overall performance of the organization.

Financial performance measures can vary substantially, having distinct characteristics and being applied depending on the context. These can be absolute or based on profitability, internal or external, reported for a specific period, as averages or growth rates over several years, or as variations from an average or trend. The indicators frequently used in evaluating the performance of companies are mainly of an accounting nature, derived from financial statements, such as: net profit margin, operating profit margin, return on equity, return on assets, earnings per share, price-earnings ratio and sustainable growth rate (Singh & Singh, 2018). Also, return volatility and capital market returns are used as performance measures (Abdi & Ali, 2016), and some researchers use the Tobin's Q indicator, which combines market performance with accounting valuation.

Return on Investment (ROI)

Return on investment (ROI) compares the economic value of the benefits generated by programs and policies with their associated costs. Also known as cost-benefit analysis, this method is used to evaluate projects in various fields, such as education, social services or health. ROI determines the gains or losses resulting from an investment, relative to the amount invested, usually expressed as a percentage. This indicator is used to evaluate the productivity of a business, to compare the performance of various projects or to support financial decisions (Abdi & Ali, 2016).

Interpretation of ROI

1. Positive values indicate a profitable project.

2. **Negative values** reflect an unprofitable project.

3. Between two projects with a positive ROI, the one with the higher value is preferred (under conditions of equal risk).

4. If the ROI is similar between two projects, the one with lower risk is preferred.

5. A higher ROI indicates a more advantageous investment situation.

Managers' objective is to maximize this indicator in the long term, which leads to increased enterprise value and increased benefits for shareholders.

Improving ROI

ROI cannot be managed solely by one department. Managers can influence ROI by:

• **Increasing** revenues and reducing costs (cashier);

• **Reduction** of assets used (the denominator).

These decisions can have positive or negative effects on the overall performance of the firm. For example, some measures that reduce ROI in the short term may improve the overall economic condition of the company, and others that increase ROI may lead to unsatisfactory activities.

Calculating ROI

ROI is calculated as the ratio between the operational profit generated and the total amount invested, the result being expressed as a percentage:

ROI=(Operating Profit Total Investment Cost)×100

This indicator is applicable to all types of investments, being used both for the selection of projects and for the evaluation of profitability after the completion of the investment. ROI is an essential tool in performance analysis and strategic decision making.

The role of investments in financial performance

Investments are a crucial means to ensure the development of a company in the medium and long term. They involve allocating resources with the goal of achieving long-term benefits or higher future earnings. An investment program sets out the objectives, actions and resources required, along with expected performance.

Investment objectives include:

• Increase in profit;

• Customer satisfaction;

• Expanding market share.

Profit obtained relative to assets used is a key indicator for evaluating management performance. ROI is one of the most used indicators for measuring return on invested capital.

Resource-Based View (RBV) Theory

Proposed by Barney in 1991, vision-based resource theory (RBV) argues that an organization's sustainable competitive advantage derives from performing activities in a superior way through the development and use of high-quality resources and capabilities. RBV provides a framework for evaluating the internal factors that can give an organization a sustainable competitive advantage.

A fundamental tenet of RBV is that not all resources have the same value and potential to become a source of sustainable competitive advantage. The theory is structured in three main levels:

• **Capability:** How an organization manages its resources.

• **Competence:** the efficiency with which these resources are managed.

• **Skills:** the set of technical, managerial and general skills available within the organization (Cragg et al., 2011).

Accounting information systems (AIS) are considered an integral part of an organization's resources. In the context of RBV theory, effective and appropriate management of AIS involves using their capabilities, competencies and skills to enhance organizational performance.

Barney and Clark (2007) state that the purpose of RBV theory is not to provide practical managerial solutions, but to explain the sustainable competitive advantage of some organizations compared to others. In this sense, theory can provide managers with valuable insights, even if they are not directly applicable, without the need to provide rigorous operational prescriptions.

The application of RBV theory in the context of AIS and financial performance involves the effective management of accounting information systems so as to leverage the capabilities, competencies and skills they provide. Adequate management of AIS contributes to improving organizational performance and achieving a sustainable competitive advantage.

The global shift to the digital age has transformed the environment into an essential factor for many economic sectors, influencing operational methods and decision-making processes. Suggestion systems for financial decision-making have redefined marketing, personalizing customer experiences and increasing corporate efficiency (F. Ullah et al., 2021).

Suggestion systems for financial decision-making have profoundly changed business, including marketing. These technologies allow companies to personalize consumer experiences, improve marketing strategies and gain a competitive advantage.

On the other hand, financial suggestion systems bring significant benefits to organizations, such as improving marketing, personalizing customer experiences, and increasing profitability. Especially in China, the global leader in digital innovation, these systems play a key role in shaping the digital economy and reconciling digital innovation with economic sustainability (M. A. Al Doghan, V.P.K. Sundram, 2023).

Financial decision-making systems are a catalyst for digital transformation and economic progress, providing significant opportunities for innovation and profitability.

Accounting and mandatory disclosure complement each other, contributing to the authenticity of financial data. These disclosures enhance transparency by highlighting companies' strengths, with the goal of maintaining public trust, increasing customer loyalty, and sustaining competitive advantage.

Information disclosure is central to the decision-making process (Hoppe, 2013), having a crucial role due to its relevance, usefulness and applicability in evaluating business outcomes. The inability to understand and interpret the results in accordance with the disclosed information reduces the effectiveness (Cai et al., 2015) and the relevance of managerial decisions (Robles, 2024). Moreover, Wanjau et al. (2018) highlight that inconsistency in information disclosure can lead to divergent outcomes, undermining the clarity of organizational goals and eroding investor confidence.

In light of this context, the numerous corporate scandals, financial crises and organizational failures in the global financial ecosystem have accentuated the need for greater disclosure of financial information. The diversity and complexity of firm characteristics can have a proportionate impact on the quality and authenticity of accounting information.

The performance of a firm can be evaluated by various methods, including the size of assets, the level of profit, the number of employees, the expansion of the branch network and the volume of sales (Bicudo de Castro, 2017). Other criteria include competitiveness (Egwakhe et al., 2022), age of the firm, added value and experience in cross-border markets. In addition, there are less conventional approaches that use attitudinal and behavioral indicators (Egwakhe et al., 2022).

Disclosure of accounting information is defined by researchers as the process of communicating or publishing in time all relevant information about a company, information that can influence the decisions of the public and investors (Temiz, 2021). Nguyễn et al. (2020) describe this process as a means of ensuring transparency within organizations so that shareholders and investors have simultaneous and fair access to relevant information.

Kanapickiene et al. (2021) emphasize the importance of accounting information disclosure, arguing that organizations should provide adequate, truthful and timely data to stakeholders to support well-informed decision-making. In this context, accounting disclosure is the communication of news, data and operational details that influence business. It is essential that all stakeholders have equal access to the same set of information in the spirit of transparency and fairness.

Discussions about the disclosure of accounting information, whether mandatory or voluntary, have become a topical issue due to the repeated failures of many corporate entities globally. Gonenc and Aybar (2006) emphasize the importance of protecting the interests of owners, managers and other stakeholders, warning that lack of transparency can deter foreign investors and block international capital flows (Soliman, 2013).

Dahawy (2009) demonstrated that the degree of disclosure of Egyptian companies is influenced by the secretive culture in this country, suggesting that cultural factors can have a significant impact on the amount of information disclosed.

Jensen and Meckling (1976) observed that large firms incur higher agency costs and public resentment, requiring significant volumes of external capital for financing. These costs are amplified by the moral pressures and political costs associated with large organizations. In contrast, Ghazali and Weetman (2006) argue that more profitable firms tend to disclose more financial information, and Marston and Polei (2004) add that firms with positive financial results are motivated to differentiate themselves through increased transparency.

Empirical studies have investigated the connection between accounting information disclosure and firm performance using various statistical methods.

Temiz (2021), Cai et al. (2015) and Hoppe (2013) used semi-parametric approaches and regressions, showing that information disclosure has a significant effect on risk, return on assets and profit level. Lack of disclosure can create negative stereotypes that affect the value creation process (Bicudo de Castro, 2017).

The disclosure of accounting information positively influences the value of organizations, being an essential factor in improving the performance of companies.

Conclusions

Disclosure of accounting information plays a vital role in increasing transparency, improving firm performance and strengthening investor confidence. Factors such as organizational culture, firm size and industry type significantly influence the level of disclosure. The practice of voluntary disclosure provides firms with opportunities for competitive differentiation and growth. However, for a more complete understanding of the complex relationship between disclosure and performance, additional research addressing methodological and contextual variations is needed.

Organizations adopt appropriate accounting practices to support strategic planning and decision-making, manage risk, facilitate audits, improve access to finance, optimize operational efficiency, build stakeholder confidence and monitor financial health. Sound accounting practices are fundamental to the success of organizations, helping them to effectively manage their resources, make informed decisions and remain competitive. In addition to regulatory compliance, keeping accurate accounting records supports organizations in increasing efficiency and improving operational performance, thereby contributing to consistent financial results.

Accounting practices are often called the "language of business" and require significant improvement across organizations.

It is necessary to improve accounting practices, increase the level of financial literacy and adopt effective financial reporting procedures. Implementing these measures will support organizations in achieving a higher level of sustainability and long-term success.

Financial performance analysis involves evaluating a firm's operational and financial characteristics based on financial statements and accounting reports.

Financial performance is a measure of how well an organization uses its resources to generate revenue from its core activities. It can also be used as a general measure of the financial health of the organization over a period, and is also useful for comparisons between sectors or industries. Methods of evaluating financial performance include analysis of operating income, operating profit, or operating cash flows. Financial statements can be used to assess revenue and profit growth or to analyze debt reduction.

Financial statement analysis focuses on the significant relationships between the various financial components, providing a clear insight into the firm's position and performance. This process considers factors such as industry type, managerial strategy, competitive environment, and available resources. The performance indicators used in this process help to interpret these relationships for a better understanding of economic performance.

The effective use of the Accounting Information System (AIS) in an organization provides significant benefits, such as better adaptation to the constantly changing environment, more efficient management of internal transactions and a high level of competitiveness. Additionally, managing human resources, using accounting information, and selecting financing options are areas that require rigorous management to ensure the survival and success of small businesses. Accounting information thus becomes indispensable to guide investors and creditors in making well-founded decisions regarding the investments and lending processes of companies.

The strategic importance of AIS shows that the use of accounting information is a determining factor in the success or failure of organizations. Other benefits include reducing costs, increasing quality, speeding up processes, making well-informed decisions and optimizing the flow of information.

Bibliography

1. Abdi, B. M., & Ali, A. I. (2016). Effects of capital structure on firm’s financial performance casestudy commercial banks in Mogadishu Somalia. IJRDO-Journal of Business Management, 2(9), 274-289.
2. Aizan, K. (2016). Accounting Information Systems and its impact on financial performance of manufacturing companies of Jordan. International Journal of Accounting, 3(2), 1-10
3. Al-Adaileh, R. (2018), Essentials of Management Information Systems. Karak-Jordan.
4. Aziz, S., & Abbas, U. (2019). Effect of debt financing on firm performance: A study on non-financial sector of Pakistan. Open Journal of Economics and Commerce, 2(1), 8-15.
5. Barney, J., & Clark, D. (2007). Resource-Based Theory: Creating and Sustaining Competitive Advantage.
6. Barney, J., & Clark, D. (2007). Resource-Based Theory: Creating and Sustaining Competitive Advantage.
7. Bicudo de Castro, V. (2017). Unpacking the notion of subjectivity: Performance evaluation and supervisor discretion. The British Accounting Review, 49(6), 532–544.
8. Bicudo de Castro, V. (2017). Unpacking the notion of subjectivity: Performance evaluation and supervisor discretion. The British Accounting Review, 49(6), 532–544.
9. Cai, J, Qian, Y. & Yu, M. (2015). Information asymmetry and corporate governance. The Quarterly Journal of Finance, 5(03), 1-36.

10. Cai, J, Qian, Y. & Yu, M. (2015). Information asymmetry and corporate governance. The Quarterly Journal of Finance, 5(03), 1-36.
11. Cragg, P., Caldeira, M., & Ward, J. (2011). Organizational information systems competences in small and medium-sized enterprises. Information & Management journal, 48(8), 353-363.
12. Dahawy, K. (2009). Company characteristics and disclosure level: The case of Egypt. International Research Journal of Finance and Economics, 34, 194-208.
13. Eb, A., Pretorious, P., &Zuva, T. (2013). The Role of Accounting Information Systems in Accounting Firm. International Journal of Advanced Computer Research, 1, 21-31.
14. Egwakhe, A. J., Abdullahi, A. O., Akande, F. I., & Umukoro, E. J. (2022). The broker: Cognitive prowess for business start-up performance. International Journal of Professional Business Review, 7(3), 1-13.
15. F. Ullah, S.M.E. Sepasgozar, M.J. Thaheem, F. Al-Turjman, Barriers to the digitalisation and innovation of Australian Smart Real Estate: a managerial perspective on the technology non-adoption Environ. Technol. Innovat., 22 (2021), Article 101527
16. Ghazali, N. & Weetman, P. (2006). Perpetuating traditional influences: Voluntary disclosure in Malaysia following the economic crisis. Journal of International Accounting, Auditing and Taxation, 15(2), 226−248.
17. Gonenc, H. & Aybar, C. (2006). Financial crisis and firm performance: empirical evidence from Turkey, Corporate Governance. An International Review, 14(4), 297-311.
18. Hafnawi, F. (2018). A contingency model of leadership effectiveness. Advances in experimental social psychology, 1, 149-190.
19. I Nyoman Sunarta, Partiwi Dwi Astuti, Accounting Information System Quality and Organizational Performance: the Mediating Role of Accounting Information Quality, International Journal of Professional Business Review 8(3):e01192,
20. Jensen, M. & Meckling, W. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. Journal of Financial Economics, 3(4), 305-360.
21. Kanapickiene, R., Greta, K-S., & Deimante, T. (2021). Disclosure of non-current tangible assets information in private sector entities financial statements: The case of Lithuania. Economies 9(78), 2-64.
22. M. A. Al Doghan, V.P.K. Sundram, Agility and resilience in logistics management: supply chain optimization INTERNATIONAL JOURNAL OF CONSTRUCTION SUPPLY CHAIN MANAGEMENT, 13 (1) (2023), pp. 1 16
23. Malaranggeng, V. (2019). The effect of environment and turnaround strategy on innovation and performance. Indonesia: Unpublished doctoral thesis
24. Marriot, N., & Marriot, P. (2015). Professional accountants and the development of a management accounting service for small firm; barriers & possibilities.Journal of Management Accounting Research, 11(5), 475-492.
25. Marston, C. & Polei, A. (2004). Corporate reporting on the internet by German companies. International Journal of Accounting Information Systems, 5(3), 285–311.
26. Melitski, J., Manoharan, A. (2014), Performance measurement, accountability, and transparency of budgetsand financial reports. Public Administration Quarterly, 38, 38-70.
27. Mitchelle, F., Reid, G. & Smith, J. (2019): “Information System Development in the Small Firm”, CIMA Research Foundation
28. Naranjo, F. (2014). A contingency model of leadership effectiveness. Advances in experimental social psychology, 1, 149-190.

29. Nguyen, T. M. H., Nguyen, N. T., & Nguyen, H. T. (2020). Factors affecting voluntary information disclosure on annual reports: Listed companies in Ho Chi Minh City Stock Exchange. Journal of Asian Finance, Economics and Business, 7(3), 53–62.
30. Pérez, E.R., Urquía, G.E., Muñoz, C.C. (2010), Information technology implementation: Evidence in Spanish SMEs. International Journal of Accounting and Information Management, 18(1), 39-57.
31. Rehab, U. (2018). The Impact of Accounting Information Systems on Organizational Performance: The Context of Saudi's SMEs. International Review of Management and Marketing, 8(2), 69-73.
32. Robles, D. S. P. (2024). Integrated financial management system: Its importance in administrative management in local governments in Peru - 2023. International Journal of Professional Business Review, 9(2), 1-17.
33. Singh, S., & Singh, A. (2018). Study on the relationship of firm's performance with capital structure-evidence from Taiwan. International Journal of Economics and Financial Issues, 8(3), 307-314.
34. Soliman, M. (2013). Firm characteristics and extent of voluntary disclosure: The case of Egypt. Research Journal of Finance and Accounting, 4(17), 71-80.
35. Temiz, H. (2021), The effects of corporate disclosure on firm value and firm performance: evidence from Turkey. International Journal of Islamic and Middle Eastern Finance and Management, 14(5), 1061-1080.
36. Wanjau, B., Muturi, W., & Ngumi, P. (2018). Effect of financial transparency on financial performance of companies listed in East Africa securities exchanges. Research Journal of Finance and Accounting, 9(4), 7-10.
37. Weber, K., J. (2018). Management Information Systems: Managing the Digital Firm (ninth ed.). Chicago: Prentice wetHall