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INCREASING THE PERFORMANCE OF DEDICATED BUSINESS SYSTEMS THROUGH THE CUSTOMIZED DESIGN OF THE MAIN MODULES IN THE APPLICATIONS

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Abstract: *The paper presents the increase of performance in dedicated business systems through the customized design of the main modules in the applications. Executive IT systems are managerial IT systems built on the informational needs of strategic management. Managers obtain the information they need from many sources, including letters, memos, journals and reports made by hand or through computer systems, from meetings, telephone conversations and social activities. The main purpose of executive IT systems is to provide the decision-makers who ensure the strategic management of the organization quick and easy access to information about critical factors in the fulfillment of strategic objectives. Such systems involve the use of graphical representations and quick access to database content to provide information on the current state and projected trends of strategic components in the organization. A business computer system can be any entity in real life, for which a set of components is identified (phenomena, objects, processes, notions, concepts, entities or collectivities) located both in mutual relations, as well as with the environment and acting jointly for achieving well-established objectives - we can easily establish that any organization economy can be considered an open, adaptable system operating in an environment of business. An economic organization must use customized business IT systems for different application modules that must manage inputs and outputs, but be interconnected at the same time with the business environment external to the organization.*

Keywords: *business systems, environment of business, executive computer systems, data for system modules, data usage, customized design of economic applications*

JEL Classification: C23, C26, C38, C55, C81, C87

1. Introduction

Achieving good economic efficiency by enterprises depends on the existence of a scientific management based on a good knowledge of economic laws, operative and accurate knowledge of demand and supply on the internal and external market, of the dynamics the prices of the goods, the technological trends as well as the way of use resources at their disposal. Starting from the fact that, on the one hand, mathematical models represent the scientific component of an information system, and on the other hand, taking into account the facilities offered by the use of information and communication technology as a component of the computer system, the latter is a real tool in scientific management of economic activity.

Here are some of the arguments brought forward in favor of the management of organizations economic using IT systems:

- SI offers the possibility of simulating economic processes and phenomena both at the microeconomic and macroeconomic levels. Mathematical models can be developed and implemented regarding the economic development forecast, different plan variants can be developed and then the optimal variant can be chosen.

- at the microeconomic level, with the help of IS, the available resources are harmoniously correlated with the proposed objectives like planning overhauls and capital repairs, ordering scheduling and tracking production, inventory management.

- by means of SI, it is possible to implement the principle of selection and information by exception. By applying this principle, decision-makers are relieved of a series of data that are often „suffocating” and cannot be used properly. Ex: In supply we have a nomenclator of raw materials and materials with 15,000 positions – the idea is to highlight only the products that deviate from the normal state (stocks outside the lower and upper alarm limits) to avoid breaking stock or fixed assets of current means (supernormative stocks).

The higher the management level, the smaller the set of necessary indicators, and the more complex the indicators. According to the principle of selection and information by exception, only those indicators that are necessary and sufficient for each decision-making level should be selected (Bernhardt, Liu, and Serfes, 2007; Otter, 2022).

- SI ensures the implementation of a multitude of mathematical models and as a result of this aspect will increase the economic efficiency at the level of the reference unit. Ex: In the field of foreign trade, models can be implemented regarding the prospecting of the foreign market, the correlation

of the export load with the domestic manufacturing production, the calculation of the economic efficiency on each commercial transaction, the choice of the optimal offer.

- by implementing IS, the anachronism regarding the use of labor is removed. Ex: approx. 70-80% of the time of the technical-functional staff is used for routine activities (observation, recording, centralization of data on processes and economic phenomena), leaving too little time for control, analysis, forecasting and ordering (decision) activities. Thanks to the use of IS, decision makers will have more time to analyze data and make appropriate decisions.

2. Preparing economic data for customized applications modules that are used in transactions

At the micro and macroeconomic level, the design of information systems must take into account the use of databases, mathematical models, obtaining final situations with the character of preventive signaling of deviations from the normal state, all of which represent a scientific form of management. This concept changes the entire information system, transforming it from a passive tool for ascertaining, recording and analyzing some economic phenomena and processes that have already happened, into an active tool for forecasting, commanding and controlling them.

By implementing some mathematical models and using the calculation technique in the specific activities, the information system prints increased valences to the information system under a quantitative and qualitative aspect. It is about increasing the computing capacity in terms of the volume of data processed and the operations performed, increasing the accuracy of information, increasing the operability, complexity and completeness of reporting-information situations, etc. All this determines a closer proximity of the decision-maker to the economic phenomena and processes that he has in mind, with the multitude of positive economic aspects that derive from this (Hidalgo, 2023; (Bürgi, 2023).

Regarding the relationship between the computer system and the information system, it can be appreciated that the computer system tends to equalize the dimensions of the information system, but it does not have the same scope as the latter, because within the information system there may be activities that cannot be fully automated.

The computer systems are included in the information systems, and they are intended to serve the management of the economic unit, so it can

be appreciated that the main objective of the IS coincides with the general objective of the basic economic activities.

The main objective pursued through the introduction of an IS is the selective and timely provision of all management levels with necessary and real information for the substantiation and operative elaboration of decisions regarding the most efficient performance of all activities in the economic unit.

The main objective therefore refers to the entire activity in the economic unit. In order to get to know the activity more closely, and to carry it out in the best conditions, other secondary objectives can be defined, which are called “conditions” for achieving the main objective. Between the main objective and the secondary objectives there must be a compatibility, in the sense that the achievement of the secondary objectives must lead to the achievement of the main objective.

Classification of the objectives from the point of view of the fields of activity on which the economic effects are reflected

- General objectives - are the objectives that affect the basic activity within the economic unit (supply, production, sales).

Example of objective: Increasing the degree of loading of the production capacity. It is achieved by implementing mathematical models, planning, programming, ordering, launching and tracking production. OR through the implementation of advanced models and techniques for planning overhauls and capital repairs of machinery (Bernhardt, Liu, and Serfes, 2007; Kolari, Huang, Liu, and Liao, 2024).

Example of objective: Increasing labor productivity. It is achieved through the rational use of the labor force (the operative monitoring of personnel activity is carried out on the computer).

Example of objective: Optimum use of transport capacity (for fleets). It is achieved by implementing mathematical models that optimize transport routes, correlating the volume of goods to be transported with the capacity of the means of transport.

Example of objectives: Reduction of the number of administrative staff. Increasing the profit and profitability of the economic unit (Otter 2022; Sánchez-García et al., 2024).

- Specific objectives - are the objectives that affect the functioning of the information system.

Example of objectives: Increasing the response speed to beneficiary requests. Increasing accuracy and precision in the process of processing data and informing management. Ensuring the completeness of information necessary

for management. Ensuring the appropriateness of information necessary for management. Simplification and rationalization of information flows.

The economic effects of achieving the objectives related to the operation of the information system are difficult to quantify, but can be estimated. In the end, they will positively influence the development of the basic activity. In conclusion, the economic effects of IT implementation are direct and indirect (Burgi 2023; Otter 2022).

Classification of objectives from the point of view of the possibilities of quantifying their effects (objectives)

- Quantifiable objectives (quantitative): increase in production volume, decrease in transport costs, decrease in specific consumption of raw materials and materials

- Non-quantifiable objectives (of a qualitative order): increasing the prestige of the economic unit - it is achieved, for example, by increasing the quality of production (or services), decreasing the refusals of the beneficiary (the number of complaints).

At the level of an economic unit, a lot of objectives can appear, but since the resources to achieve them are limited, it is necessary to know and prioritize them according to the management's requirements. By presenting the objectives in front of the management and then among the employees, there is the possibility of getting to know them, of better understanding the requirements that impose the achievement of the objectives, and as a result, a closer and wider acceptance of all the factors that can compete in the implementation of the systems will be acquired informatics.

3. Customization of data used in IT systems

IT systems for company functions

It is important for a manager to understand that IS directly supports functions operational and managerial aspects of the organization in accounting, finance, human resources, marketing and operational management. For example, marketing managers need information about volume and sales trends, provided by marketing IS (Applications: Sales management, Market research and forecasts, Promotion and advertising, Automation of the activity of sales, Interactive Marketing, Customer Relationship Management – Customer Relationship Management = CRM, Production Management. Economic directors need information about financial costs and benefits, provided by financial IS (Applications: Preparation of the income budget and expenses

= BVC, Financial planning, Cash management, Investment management). Managers responsible for production need information to analyze resource needs and labor productivity, provided by manufacturing information systems (Bernhardt, Liu, and Serfes, 2007; Hidalgo, 2023).

HR managers need information about entitlements employee salaries and professional development, provided by information systems of human resources and the applications are: Personnel record, Payroll, Improvement of personnel qualification. In conclusion, information systems for enterprise functions provide managers with a variety of information for substantiating decisions in the functional areas of business.

Operational computer systems

Operational computer systems processes data generated and used in business operations. Depending on the role they have, there are several categories: processing systems of transactions - records and processes data resulting from transactions, updates databases of data and produce a variety of documents and reports; process control systems that provide operational decisions that control physical processes; automated systems of services - those that support communications (Hidalgo, 2023; Otter, 2022).

Computer systems have always been necessary for the processing of data generated and used in business operations. Operational ISs produce a variety of information, but they (the knowledge) do not highlight which information products are most appropriate for managers. For this reason, further processing via computer systems is necessary.

Transaction processing systems

Operational informational systems include most transaction processing systems, which have evolved from manual information systems to mechanical data processing systems and then to systems of electronic data processing. Transaction processing systems record and processes data resulting from transactions such as sales, purchases and changes of inventory. They can process data created by modifying items in a database file of data (for example the name and address changes of a customer), generating a variety of informational products for internal or external use (for example invoices for customer, paychecks, sales receipts, purchase orders, dividend payments, payments of taxes and financial invoices) and highlighting the databases used by an organization for further processing, through managerial information systems (Bernhardt, Liu, and Serfes, 2007; (Bürge, 2023).

Process control systems

Operational informational systems generate information to support routine decisions, which control scheduled operational processes. Decision rules outline the actions to be taken when a computer system is faced with a multitude of events. There is a category of computer systems called process control systems, in which decisions to adjust the production process are made automatically by computers. Oil refineries and automated enterprise assembly lines use such systems, which monitor a physical process, acquire and process sensor data, and make real-time process adjustments (Bürigi, 2023; Kolari, Huang, Liu, and Liao, 2024).

Automated service systems

One of the roles of operational information systems is the development of traditional office automation methods and paper-based communications. Automated service systems acquire, process, store and transmit data and information in a form specific to electronic communications. Automated systems are based on word processing, telecommunications and other information systems technologies. Examples of typical office automation applications include word processors, electronic mail, publishing, teleconferencing, and image document processing.

For custom IT systems, the encapsulation and reuse of objects can be described in the following example:

```
package ejb.customer_bank_account;

import javax.ejb.CreateException;
import javax.ejb.EntityBean;
import javax.ejb.EntityContext;
import javax.ejb.RemoveException;

public abstract class CustomerBankAccountBean implements
EntityBean {
    private EntityContext theContext;

    public CustomerBankAccountBean() {
    }

    // creation method of a home interface

    public String ejbCreate(String contNr,
String accountDescription,
float initialBalance)
throws CreateException
{
    setAccountNumber(accountNr);
}
```

```
setAccountDescription(accountDescription);
setAccountBalance(initialBalance);
return null;
}

public void ejbPostCreate(String accountNr,
String AccountDescription,
float initialBalance)
throws CreateException
{
}

//abstract getter/setter metode

public abstract String getAccountNumber();
public abstract void setAccountNumber(String cnr);

public abstract String getAccountDescription();
public abstract void setAccountDescription(String cnr);
public abstract float getAccountBalance();
public abstract void setAccountBalance(float acb);
//the metodele remote interface

public String getCntNumber() {
return getAccountNumber();
}

public String getCntDescriere() {
return getAccountDescription();
}
public float getBalance() {
return getAccountBalance();
}
public void increaseBalance(float sum1) {
float acb = getContBalance();
nr1 += sum1;
setAccountBalance(nr1);
}
public void decreaseBalance(float sum1) {
float nr1 = getAccountBalance();
nr1 -= sum1;
setAccountBalance(nr1);
}

//the methods javax.ejb.EntityBean interface

public void setEntityContext(EntityContext ctx) {
theContext = ctx;
}

public void unsetEntityContext() {
theContext = null;
}
```



```
}  
public void ejbRemove()  
throws RemoveException  
{  
}  
public void ejbActivate() {  
}  
public void ejbPassivate() {  
}  
public void ejbLoad() {  
}  
public void ejbStore() {  
}  
}
```

A primary key that refers to multiple fields of the entity bean class is usually represented by a specially developed class for this purpose. Such a class must be a public class and must have a public constructor with no arguments. The fields of the primary key class that represent the primary key of the entity bean must address those of the entity bean class by name (Hidalgo, 2023; Sánchez-García et al., 2024).

4. Conclusions

A business company must maintain appropriate relations with other economic, political and social systems in its environment. The group of systems includes several factors such as customers, suppliers, competitors, shareholders, trade unions, financial institutions, government agencies and communities, each with its own objectives relative to the organization in question. Information systems are those that facilitate the interaction between the organization seen as a system and each of the listed factors. On the other hand, taking into account the definition of an information system characterized by the existence of at least two subsystems between which there is self-regulation through reverse connection and analyzing this for the economic information system we can find that it has a cybernetic character. (Bernhardt, Liu, and Serfes, 2007; Otter, 2022). A company involved in the business environment needs customized IT systems that allow the flexible use of data and are much more flexible to the changes that are currently occurring in the company's external environment.

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EUROPEAN UNION'S ENERGY EFFICIENCY POLICY – NEW DEVELOPMENTS AND CHALLENGES FOR MEMBER STATES

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Abstract: *The European Union (EU) 's energy efficiency policy has seen significant development over the last 15 years. The adoption of Directive (EU) 2023/1791 in September 2023 brings major changes compared to previous directives, namely Directives (EU) 2012/27 and 2108/2022. The new legislation introduces more ambitious targets and stricter requirements for Member States in terms of energy transition. This paper will discuss the recent changes in legislation, including a review of the integrated national plans for energy and climate (NECPs) of 2023 submitted by member states last year, as well as the European Commission (EC)'s evaluation of all these plans (COM (2023) 796 final). It will provide a renewed perspective on challenges encountered by the EU member states when implementing these measures and the overall impact related to performing the energetic sustainability targets at the European level. Our findings will show that the last Directive (EU) 2023/1791 witnesses for the first time the "energy efficiency first" principle in the EU. Besides, the EU's 2020 reference energy efficiency scenario for the energy consumption reduction of at least 11/7% up to 2030 sees itself finally renewed. However, despite this, only 21 EU member states succeeded in being on time with their newly updated integrated national plans for energy and climate – i.e., it is only them that have yet to comply with this given 2030 target.*

Keywords: *energy efficiency, integrated national energy and climate plans (NECPs), energy policy, EU member states, European Union (EU)*

JEL Classification: *Q40, Q43, Q48*

1. Introduction

Energy efficiency refers to using the minimum amount of energy needed to perform a task or process, with no energy wasted. This means reducing energy use without affecting performance and cutting costs, while also reducing environmental impact (SFH, 2024). This paper will explore energy efficiency as outlined by EU Directives and detailed in the National Energy and Climate Plans (NECPs) of EU member states. Specifically, it will examine new legislation, the role of NECPs in demonstrating member states' commitments, and their role in guiding the energy transition. Additionally, a brief look at the European Commission's evaluation of NECPs (COM (2023) 796 final) will be provided. The study will measure energy efficiency by analyzing primary (PEC) and final (FEC) energy consumption projections up to 2030 for each EU member state, and assess how these projections align with the Commission's monitoring (EC/Directive (EU) 2023/1791).

2. Literature review

There should be mentioned here data sources and studies conducted by international organizations about EU energy efficiency issues. In 2015, the European Commission (EC) and the Intelligent Energy Europe Program of the European Union (EU) conducted a comprehensive study entitled "*Synthesis: Energy Efficiency Trends and Policies in the EU*" (EC, 2015b), covering the period from 2000 to 2013 and based on 200 key indicators. The study examines the overall energy efficiency trends for the EU27 as well as for individual member countries. One key-finding was that the 2008-2009 crisis negatively impacted energy efficiency trends and the long-term policy implementation. However, after 2010 the trends showed a recovery, i.e., returning to pre-crisis levels.

The International Energy Agency (IEA), which plays an important role in developing energy indicators related to energy consumption and energy efficiency, conducted a study in 2018 – "*Analysis and Outlook to 2040*". This study indicates that there is potential for about a 40% reduction in greenhouse gas emissions even without the introduction of new technologies. The IEA also suggests that the global landscape could change significantly if all countries fully implement their energy efficiency potential by 2040 (IEA, 2018). In another study of 2019, the IEA also highlighted the multiple benefits of energy efficiency: energy efficiency reduces the need for primary energy and the costs of energy imports, supports physical and mental health by improving conditions in household-homes and workplaces, has a positive impact on GDP, creates

jobs, and improves employee productivity by ensuring a healthier and more comfortable work environment, thereby reducing absenteeism (IEA 2019).

Energy efficiency is considered the most effective solution to the challenges of energy affordability, supply security, and climate change. For this reason, the IEA (2022, p.19) refers to it as the “first fuel” of all energy transitions. We should also mention here our main data source, Eurostat (2022), which provides the newest and reliable data about energy consumption trends and the EU’s 2020 and 2030 energy efficiency targets through the *Energy efficiency statistics*.

3. Methodology

In order to carry out a brief analysis of energy efficiency policies within the European Union, we adopted a methodological approach with a series of stages as: (i) a review of the specialized literature, including European Commission reports, directives and regulations on energy efficiency; (ii) at the same time, we also examined in detail the National Energy and Climate Plans (NECPs) of each EU member state since they were submitted for the first time in draft form in 2020 and until further updates; (iii) the assessment of the European Commission on these national plans for energy was analyzed in the end.

In order to give depth to this analysis, in addition to the legislative documents, we also analyzed the statistical data provided by Eurostat, the International Energy Agency (IEA) and other relevant sources in order to have a clear picture regarding the reduction of primary energy consumption and final, energy savings, as well as the distance from the energy efficiency targets proposed for 2020 and 2030 in the case of each EU member state. These objectives and national data were then compared with the recommendations and evaluations of the European Commission in order to identify discrepancies and propose solutions to improve the alignment and effectiveness of energy efficiency policies.

4. Results and Discussion

In 2012, EC adopted its first energy efficiency Directive (EED) which established a common framework of measures to promote energy efficiency within the European Union, measures necessary to achieve the main objective of energy efficiency by reducing the EU’s annual energy consumption by 20% until 2020 (Directive 2012/27/EU). In 2018, the European Commission proposed a new form of the EED directive, to improve energy efficiency in the European Union and to achieve climate change and clean energy (from renewable sources) objectives (Directive 2018/2002). This new directive

included more ambitious targets to reduce final energy consumption and increase the use of renewable energy sources, as well as measures to improve energy efficiency in the construction and transport sectors. In May 2022, as a result of Russia's military invasion of Ukraine, the Commission proposed the REPowerEU plan (COM/2022/230 final) with new objectives to further increase the ambition to reduce energy consumption and this time to limit as much as possible the EU's dependence on imports of fossil fuels from Russia (Andrei, 2023). The new Directive on energy efficiency was finally adopted in 2023 (Directive (EU) 2023/1791 and represents the cornerstone of EU energy efficiency policy (EP, 2023b).

4.1. Main points and improvements of the new Directive (EU2023/1791)

Applying the principle of “energy efficiency first” becomes compulsory for the first time with the new Directive (EU 2023/1791) that explicitly imposes to the EU Member States to include the energy efficiency in their political decisions – e.g., on investment planning in both the energetic sector and the other non-energetic sectors.

The new EU Directive equally reaches a specific energy efficiency target for 2030, i.e., a supplementary reduction of the final energy consumption (FEC) of 11.7%, as related to what was in 2020, as noted in Directive (EU 2023/1791, Art. 4/1). Another important new legislation provision regards the yearly *energy savings* that the EU member States are called to implement. And these targets nearly doubled – e.g., as high as 1.49% currently, as compared to 0.8% previously. Finally, these savings will be supposed to approach an average of 1.9% step by step up to the end of 2030 while referring to sectors like industry, constructions and transportations in the use of final energy consumption (FEC / Directive /EU/ 2023/1791 Art.8).

As for the *public sector* – about 5-10% of the EU's FEC on average – this Directive demands the member States for a yearly reduction of at least 1.9%, as compared to 2021. Besides, at least 3% of total surface used by the public administration at all levels and in all territories is demanded to be renovated (Directive /EU/2023/1791 Art. 5/1). Also to be noticed that this level of energy saving in the public sector could naturally be yielded by measures taken in a diversity of sectors like: transportations, public buildings, healthcare, water, including waste water management, sewages, waste management, district heating and cooling, energy distribution and storage, public lighting, infrastructure, education and social services (Directive /EU/ 2023/ pt.35). It is here assessed for any individual EU member country with more than 3% of total surface of public buildings renovated the capability to enrich its next-future year renovation quota with the current year surplus, as reported (Directive /

EU/ 2023/1791/pt.40). Actually, renovation is expected to turn those buildings into almost no energy consumption and zero carbon emissions establishments.

The same Directive here define the *energy poverty*. This is “no access for a household to basic energy related services – i.e., heating and cooling, warm water, lightening, plus the energy afferent to electrical appliances” (Directive EU 2023/1791/pt.52). Member States are called to settle their own definitions on the *vulnerable customer* – i.e., in terms of quantification: incomes, weight of energy specific expenses in total/ disposable income, the home-building specific energy efficiency, the age, health and others relevant criteria of dependency on electrical appliances, as also suggested by the European Commission (EC) – in order to have further related provisions, e.g., on prohibiting any disconnection of these customers in critical situations from electricity (Directive EU 2023/1791 pt.77).

Another important provision of this Directive regards the *small and middle size enterprises (SME)*, i.e. for programs in the EU member countries sustaining *audit actions* in the area of energy and their recommendations to be implemented. It is as such that the *average energy consumption of the enterprise* becomes the basic criterion for the applied systems of energy management and audit (Directive EU 2023/1791, pt.82). All enterprises – i.e., firms, companies, here including SME – are demanded for a system of *energy management* implemented once they overpass the 85 TJ a year energy consumption – i.e., it is the *energy audit* that applies when not. This audit is a systematic procedure to obtain the adequate information on the energy consumption profile proper to: a building or to a group of buildings, an operation or an industrial or commercial facility, a public or private service provided (Directive EU 2023/1791, pt.32). According to the same Directive, member States are called to promote/ produce *local plans for heating and cooling in (big) cities of over 45,000 inhabitants* (Directive EU 2023/1791, Art.25/6). In context, a revised definition for *district heating and cooling* systems will so be introduced.

Financing the energy efficiency – another chapter of this Directive’s provisions – is the one calling the same member States for promoting and sustaining new, renewed and innovative credit products, procedures and schemes – called “green” – in favour of the energy efficiency (Directive EU 2023/1791 pt.135).

4.2. Updating NECPs’ projects (2023) according to the new energy efficiency objective

Like several revisions of all the EU directives on energy efficiency, in turn the individual energy and climate plans (NECPs) of the 27 member States needed to be updated to show how they found to meet the targets of energy

efficiency by reducing energy consumption, first for 2020 and now for 2030. These intervals are intermediate to the ultimate goal of reaching climate neutrality in 2050. When the first NECPs were completed (2020), the majority of countries' proposals for the 2030 energy efficiency targets were considered to have low, very low, or modest ambition. Now, Member States revised their plans to comply with the new energy efficiency Directive (EU) 2023/1791 concerning the achievement of 2030 targets of 11,7 % to reduce the final energy consumption. The NECPs updated were expected to demonstrate increased ambition in terms of objectives, targets, and contributions and required to be submitted by 30 June 2023 in a draft form.

4.3. The main findings of the European Commission (EC) on the draft updated plans on energy efficiency (COM 2023 796 final)

The Commission initially analyzed only 21 of the 27 updated draft plans of the EU member States (updated draft NECPs), namely those that were submitted until the middle of November 2023, so that the analysis could have been published by the end of last year 2023. A first finding highlighted that current projects would only lead to 5.8% improvements in energy efficiency, compared to the EU-wide target of 11.7% set in the revised Energy Efficiency (Directive (EU) 2023/ 1791). Although most EU Member States have presented their contributions to the 2030 energy efficiency targets, only a few of them have proposed sufficiently ambitious levels.

Three other Member States submitted their projects too late (Belgium on 30 November 2023, and Ireland and Latvia on 8 December 2023) so that the country-specific assessment could not be completed until the end of 2023, being partially taken into account in this communication COM (2023) 796 final. The following year, 2024, on 23 February, the Commission published its assessments of the updated drafts of the National Energy and Climate Plans (NECPs) for the 2021-2030 interval of Belgium, Ireland and Latvia. These assessments include recommendations on the areas where these countries should step up their ambitions to comply with the EU's 2030 targets, together with an explanatory fact sheet for each country (EC, 2024a).

Bulgaria submitted its National Energy and Climate Plan (NECP) draft updated to the Commission on 12 January 2024 and is currently facing infringement proceedings. Finally, the last two EU countries, Austria and Poland, have not submitted their Plan drafts as of April 2023. These two countries are also facing infringement proceedings for failing to meet the deadline -- i.e., then, Poland submitted a NECP draft on 5 March 2024 during the writing of this article. The Commission was published new Recommendations on the draft National Energy and Climate Plans for Bulgaria and Poland on 26 April 2024 (EC, 2024b).

5. Conclusions

The changes of the new 2023 Energy Efficiency Directive (EU) 2023/1791 compared to the previous directives, 2018/2002 and 2012/27/EU, briefly include the following:

- “*Energy efficiency first*” principle is now legally defined for the first time;
- A new target is set to reduce EU aggregate final energy consumption (FEC) by 11.7% by 2030 (compared to the 2020 reference scenario).
- A new goal of increasing energy savings is set as follows: from annual savings of at least 0.8% of final energy consumption (currently) to 1.3% (2024-2025), then 1.5% (2026-2027) and 1.9% starting in 2028. This results in an average of 1.49% new annual savings for the period 2024-2030).
- Another important provision refers to the obligation of member States to give priority to vulnerable customers and social housing so that they are not affected by energy saving measures.
- A new annual goal of reducing energy consumption of 1.9% for the public sector as a whole is also introduced.
- Extension of the obligation to renovate 3% of central administration buildings
- The obligation for enterprises, including SMEs, to have an energy management system and to carry out energy audits.
- The obligation of the member States to monitor the energy performance of data centers
- local heating and cooling plans in larger municipalities is also foreseen.

Then, there is the member States’ turn, with their NECPs updated, to support the EC energy efficiency policy. Judging by the degree of low ambition within which the countries were assessed according to the first NECPs proposals for 2030, there can be asserted that only part of the countries was in the satisfactory situation of having reached the targets for 2030, but the question also arises whether they will manage to maintain this downward trend and whether the rest of countries will align to the new binding targets of new Directive. The degree of ambition of member States and their alignment with the new objectives were detailed by the EC in several stages: (i) for the States that submitted their plans on time; (ii) then, for the other States that delayed, in two more additional stages. Additionally, the EC has instituted infringement procedures against those States that failed to meet their obligations to submit contributions to the reduction of final energy consumption for 2023 on time.

Key questions yet to be answered

Could the policies formulated as described above fail? Are the 2030 specific targets realistic, especially considering the time allowed for their implementation? What about the NECPs on the Member States' side? Will they reconsider their ambitions in line with the EU's recommendations for necessary reforms before submitting their final NECPs by the deadline of 30 June 2024? Furthermore, could the 2050 long-term objectives be in some real danger? What would be the full and exact causes of a potential failure?

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INEQUALITY OF INCOME DISTRIBUTION IN EUROPE

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Abstract: *Internationally, too many countries pursue moderate wage policies with the risk of shrinking the growth of the world economy, but increasing incomes is a necessary measure to maintain an adequate standard of living. In 2015, the gap between the average income inequality of the European Union (5.16) and of Romania (8.32) was at the highest level (3.16), of all the studied period (2007-2023). Starting from 2019, the income inequality index in Romania began to decrease to 7.08, then in 2020, it reached 6.62 and 5.83 in 2023, reducing the gap with the European Union level which was 4.76 in 2023. At the same time, for 2023, in the ranking of the top five countries with the highest index of inequality of income distribution, Bulgaria has the highest rate of inequality of income distribution with 6.61, followed by Lithuania with 6, 32, Latvia with 6.32, Romania with 5.83 and Portugal with 5.60. Between 2016 and 2024, the minimum monthly gross wage in Romania increased by 320%, from 232 euros/month to 743 euros/month.*

Keywords: *income inequality, monthly national minimum wages*

JEL Classification: *D39, D63, E24, E25*

1. Introduction

In the labour market, the vulnerability given by the inequality of income from wages is a transitory state, determined by the strategies of the respective country, by the level of economic development, by certain events that influence the level of poverty. The European Commission (2010) promotes equality and social inclusion so that society can benefit from equal opportunities in the field of work. Economic inequality among people in many countries is very high and, in many cases, has been increasing, compounded by overlapping inequalities in health, education and many other dimensions. However, economic inequality is not increasing everywhere, and in some countries, it has decreased or remained stable.

This study examines the evolution of income inequality in the European Union and, in particular, in Romania, and the influence of the increase in the monthly gross minimum wage in balancing income inequality for the period 2007-2023. Globally, there are large differences across countries and over time, showing that high and growing inequality can be limited and the extent of inequality today is something we can change (Hasell, 2023).

2. The history of the study of income inequality

In the last twenty years, there has been a resurgence of interest in the long-term evolution of the distribution of income and wealth, and a vast literature has resulted from this. The basis of this type of specialized literature is the pioneering work of Kuznets in 1953 and Atkinson and Harrison in 1978. This line of research resulted in other works by those researchers and of others such as Piketty in 2001 and 2003, Piketty and Saez in 2003, two papers by Atkinson and Piketty in 2007 and 2010, also Atkinson et al. in 2011 and Alvaredo et al. in 2013.

These studies generated a large volume of data, which represented a research resource for various further international analyses. They were also a source of information for the public debate on income inequality for many researchers, among whom we mention Lamarche, Oehler, and Riobóo (2020) and Joe Hasell and others (2023).

There are specialists who argue that an integrated analysis of the economic well-being of households is needed to measure economic performance and progress (Stiglitz et. al., 2009), by correlating three indicators, income, consumption and wealth to better understand material living standards and their sustainability over time (Fisher et. al., 2021 and Balestra et. al., 2018).

In the United States, after the 1970s, the increase in wage income inequality was driven by a nearly 50% increase in the pay gap between the lowest-paid 10% and the highest-paid 10%. According to Piketty (2014), in order to understand inequality as it exists and redistribution as it could be, we should give up the idea of a world in which work is supposedly homogeneous and instead analyse the formation of income inequality.

One of the explanations of labour income inequality is based on the different contributions to productivity, as a result of work in various positions in an organization. The theory of human capital (Becker, 1964), which is viewed with hostility, is based on the difference in productivity and the importance of each employee's work, which is measured mechanically as the inequality between two human beings and which leads to inequality of wages, with direct implication in inequality of conditions of life.

So, human capital is characterized by different capacities to contribute to the production of goods and services demanded by consumers, at different

levels, and this determines different wages. In the past year, most developed countries have used analyses of material standards of living data on household incomes (Hasell et al., 2023).

3. Historical wage inequalities

In developed countries, the average wage in 1990, compared to 1870s, is 10 times higher, based on increased productivity, due to technological progress and skills, producing 10 times more (Piketty, 2014). At the same time, in the long term, the increase in labour productivity also led to an increase in the purchasing power of employees.

At the base of wage inequalities is also the qualification gap through which labour productivity is lower in underdeveloped countries. Implicitly, the average purchasing power is 10 times lower than in developed countries, and also the imbalance between labour demand and supply for different levels of capital human, especially after the 1970s.

In the United States, since the beginning of deindustrialization, that is, since the end of the 1960s, high qualifications in computer science, communications, for services related to enterprises are encouraged and better paid. At the same time, there is the largest part of the population, which does not have these qualifications and is involved in sectors with low productivity, such as services for individuals, in public food or commerce, or even unemployed. Concerns about rising income inequality in the United States over the past three decades have focused on rising wages for skilled (educated) workers, attributed in varying proportions to technological change and globalization (Alvaredo et al., 2013).

4. Equality is best for everyone

There are studies in the literature that show that equality is good for people (Wilkinson and Pickett, 2010). The study demonstrates that income inequality is not good for anyone, neither for the poor, nor for the rich, nor for society as a whole. With the goal of aggressively driving economic growth, inequality has increased, but it is surprising to note that its impact has generated an aggravating condition for everyone.

For many years, by general political agreement, regardless of party orientation, left or right, a high degree of income inequality has been accepted as necessary to promote economic growth, seen as the main driver of positive social change. The deepening of income inequalities over the years has shown that it is necessary to redistribute the benefits of economic growth to the advantage of the poor.

Income inequality causes damage to society as a whole, leading to an increase in public service expenses. All things considered, there is a lack of benefits, but also an increase in suffering (Fischer, 2018, Hasell, 2023). There are initiatives that concern the reduction of inequality in public health social assistance services, but they are not constant and do not achieve their fundamental goal. Social or health problems (mental illness, school failure or drug use) addressed in the same conditions, especially for the poor, lead to solving the current health problems, but do not reduce the inequalities that generated this state of affairs and problems which the socio-economic disadvantages produce.

5. The evolution of income distribution inequality in European Union

At the international level, there are several methodologies by which the inequality of labour income is calculated. The 20:20 technique (the ratio of wage incomes of the highest paid 20% of employees to those of the lowest paid 20% of employees) is considered relevant by some economists because it correlates better with measures related to human development and social stability, which includes the index of well-being among children, the index of population health and social problems, the prison population, physical and mental health, etc. (methodology used to design the human development indicators by the United Nations Development Programme).

The most used method for studying the distribution of income inequality is represented by the indicator which is calculated as the ratio between the incomes of the upper and lower quintiles (S80/S20). It is the part of the total income that belongs to the richest 20% of the country's inhabitants and the part what belongs to the poorest 20% (harmonized methodology and adopted by international statistics). Governments, as political decision-makers, and society cannot combat poverty and social exclusion without analysing the inequalities within society, regardless of whether they are of an economic or social nature.

There are still inequalities in income distribution in 2023, the last year for which we have published data. The weighted average of national rates calculated for 20 of the EU Member States shows that the top 20% of the population (with the highest equivalent disposable income) has 4.6 times higher income than the bottom 20% (with the lowest equivalent disposable income) (Annex 1, Figure 1).

The states in the European Union with the lowest rates of inequality are, in general, the Nordic countries, which develop and constantly implement policies that promote as little difference as possible between the wage incomes of the best-paid employees in relation to the income of employees with low wages. But in 2023, the lowest inequality rate was in Slovenia with 3.34

closely followed by Belgium with 3.38, the Czech Republic with 3.42 and Slovakia with 3.63 followed by Finland with 3.78 (Annex 1, Figure 1). In the Netherlands it is 3.93 and in Denmark it is 4.15, and in Sweden it is increasing, having 4.73.

In the first five states where the income distribution inequality rate is the lowest in the analysed period, 2007-2023, it has variations of up to 0.1 points, which demonstrates the constant concern of the governments of the respective states to reduce and maintain a wage difference as small as possible (Figure 1). At the same time, in 2023, at the opposite pole is Bulgaria, with the highest income distribution inequality rate of 6.61, followed by countries such as Lithuania with 6.32, Latvia with 6.32, Romania with 5.83, and Portugal 5.60 (Annex 1, Figure 1). Romania had the highest rate, of 8.11, at the beginning of the analysed period, in 2007, but it decreased approximately 2.3 percentage points until 2023, being already in the fourth position.

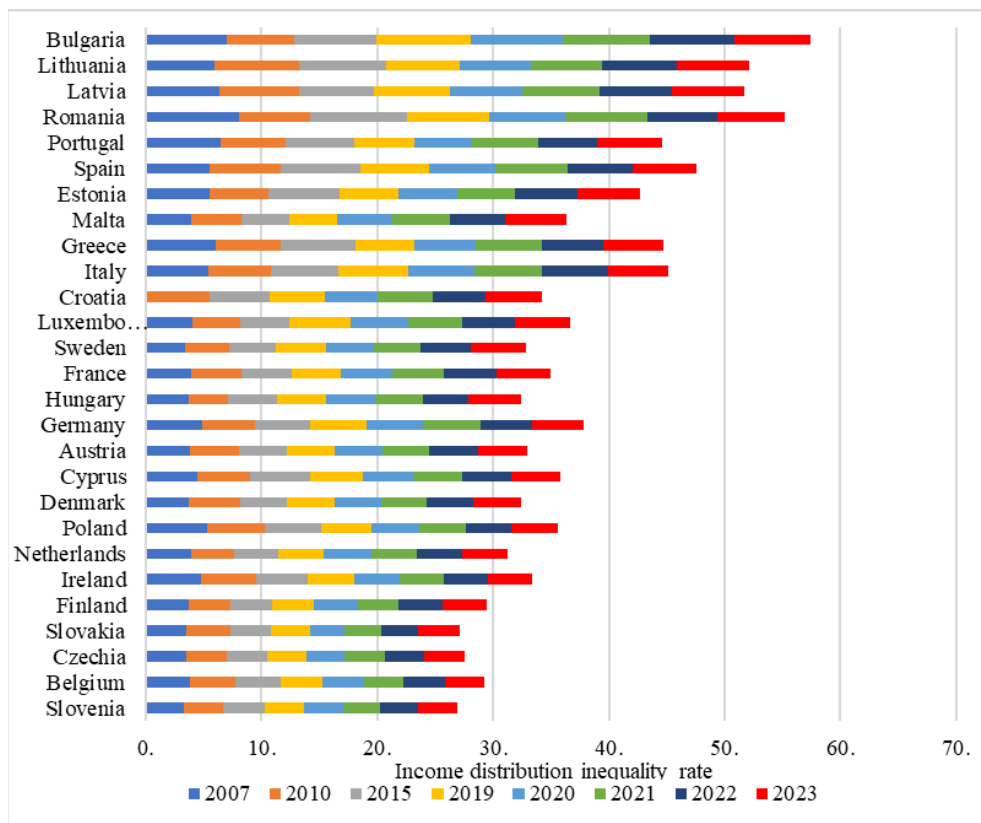


Figure 1. The evolution of income distribution inequality in European Union countries

Source: Eurostat database 2024, *Inequality of income distribution*

In the analysed period, it can be observed that year 2010 has lower values for these five countries, of which Portugal has the lowest value, 5.56, followed by Bulgaria with 5.86, and Romania with 6.11, being surpassed by Lithuania with 7.35 and by Latvia with 6.84 (Figure 2). In the following period, wage policies had the expected results in 2023, when the values of this indicator are the lowest.

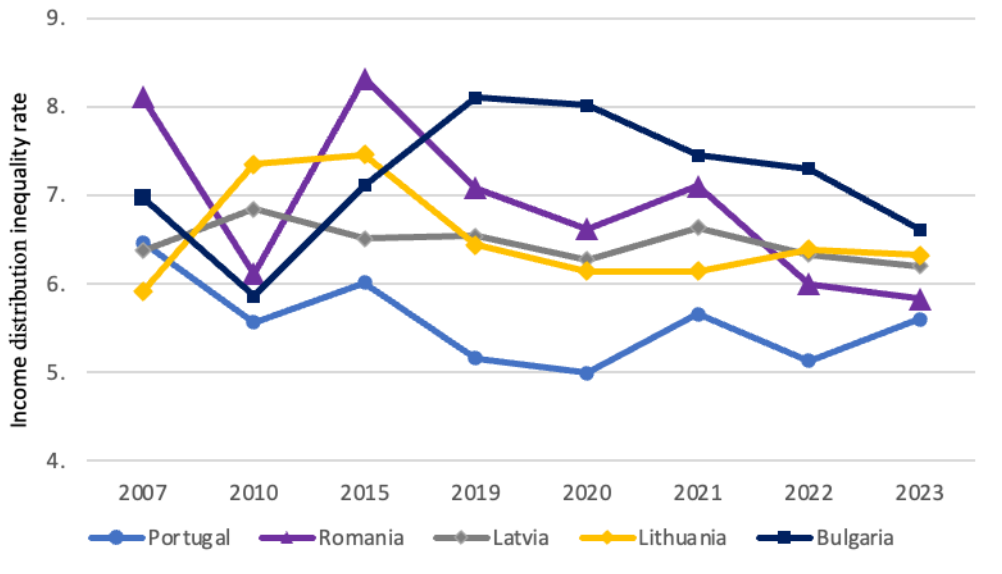


Figure 2. Evolution of income inequality in the first five states with the highest income distribution inequality rate

Source: Eurostat database 2024, *Inequality of income distribution*

6. Income inequality in Romania

Inequality is considered to be large and unfair because of the gap (Molnar, 2010) between the living conditions of the majority of the population and the luxurious life, in many cases ostentatiously displayed, of the rich. Also, it is a well-known fact that many of the wealth and large and very large incomes come from activities or capital accumulated in the underground economy, by breaking the law or by exploiting the weakness of the legal system, as well as from acts of corruption, while many poor people have neither the opportunity nor the possibility or ability to get a job, with even less of one that would allow the realization of decent incomes.

The general low standard of living in Romania, compared to that in other European countries, heightens the feeling that the distribution of income is unfair, which affects economic and social behaviour, as well as social

cohesion. From the point of view of equity and efficiency, the excessive growth of inequality has become a subject of concern for decision-makers in social and economic policy, but also for researchers in the social and economic field.

Maintaining income inequality within reasonable limits is a constant concern through the adoption and application of social and economic policies oriented towards knowing the causes and determining factors, as well as the link with economic and social development. Consistent assessments of income and consumption inequality have been made since the second part of the 1990s, thanks to the availability of a new source of relevant data collected through household statistical surveys.

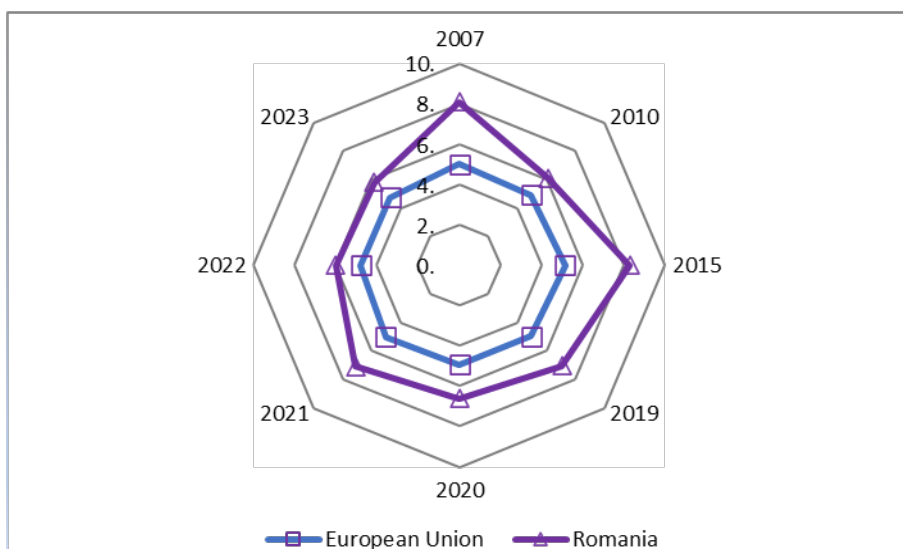


Figure 3. Evolution of the income distribution rate in Romania compared to the European Union average

Source: Eurostat database 2024, Inequality of income distribution

Compared to the European Union average, in 2007, the income inequality rate is 5.02, and in Romania it is 40% higher (8.11), being the highest degree of income inequality in the European Union (Figure 3). As a result of the entry into the European Union, the directives and requirements of the desired convergence, efforts were made to reduce the gap between incomes. The EU average remains approximately constant over the years, with a decrease in the gap compared to this average being registered in Romania.

Since 2013, Romania has again the highest degree of income inequality, of 6.8, followed by 7.2 in 2014 and 8.3 in 2015. This situation can also be interpreted that the most well-paid employees in Romania earned 8.3 times more than those with the lowest salaries (Figure 3).

In 2015, the gap between the European Union average of 5.16 and Romania's 8.32 increased again, when the largest income inequality was recorded for the studied period 2007-2023. This evolution of income inequality rate shows us that high wages have increased much more than the minimum wage (Figure 3). Starting from 2019, the income inequality index started to decrease, as a result of the increase in the minimum wage, it fell to 7.08, then in 2020 it reached 6.62, up to 5.83 in 2023, narrowing the gap with the Union European which registered in 2023 an index of 4.76 (Figure 3).

The period in which income inequality decreased, in the years 2010, 2019, 2020 and 2023, was mainly determined by the increase in the guaranteed minimum wage and the level of pensions.

On the one hand, inequalities in income distribution are also encouraged to stimulate people to improve their situation through work, innovation or the acquisition of new skills. On the other hand, exaggerated income inequalities, with too little of a starting base, lead to poverty and social exclusion together with all the problems associated with this condition. The states that have low values of the income inequality index also present poverty rates much lower than the European average.

7. Evolution of the minimum monthly gross wage in UE

At the level of the European Union, only a part of the countries have established a national minimum wage, only 22 out of 31 states studied by KPMG (2016) from this point of view. It was desired to implement a common directive (EU Directive 2022/2041) at the EU level regarding the labour market, with the help of which to study which is the state with the lowest, respectively the highest monthly gross minimum wage in Europe and what is their value.

Almost all states have some form of minimum wage, but the specifics vary greatly from state to state. In some countries, such as Romania, there is a single national minimum wage. In other states, there are different levels of minimum wage, depending on the industry in which the employer operates, the position held by the employee, the employee's education, age, or other criteria. In these cases, minimum wages are often set on the basis of collective labour agreements. There are interests in clarifying these issues, as there may be a number of complications due to the way it is defined.

In 2024, the lowest gross minimum wage in Europe is 477 euros/month in Bulgaria, followed by Hungary with 675 euros/month, Latvia with 700 euros/month, and Romania is in position 4, with 743 euros/month (Appendix 2). At the opposite pole, the highest monthly minimum wage is 2,570 euros in Luxembourg. The ratio between the highest and the lowest wage is five times, at the level of the European Union.

8. The evolution of the minimum monthly gross wage in Romania

In Romania, income distribution is marked by the generally low level of wages and their relatively high inequality (8.3 in 2015). Inequality increased during the transition period to the market economy (Molnar 2010), in periods of economic decline and economic growth, both, with some interruptions of this trend, mainly related to elections. Before 2000, inequality increased because many households suffered more or less income losses due to high inflation and economic recession, and others got richer, by fair or foul means.

The accelerated growth of the gross minimum wage per economy in Romania, from the period 2012-2016, should have alleviated some of the income inequality of employees, but this did not happen. Thus, despite the fact that the minimum wage increased by 50% in this interval, the increase in the wages of the lowest paid employees did not manage to have a growth rate higher than that of the incomes of the richest wage earners, so that inequality increased from an index of 6.3 in 2012 to 8.3 in 2016 (Figure 3).

The minimum monthly gross wage per economy in 2016 increased from 232 euros/month to 460 euros/month in 2020, when it stagnated in 2021, then increased annually to 743 euros/month in 2024 (Figure 4).

It follows that, in Romania, the minimum monthly gross wage increased by approximately 100%, it practically doubled in the period 2016-2020, from 232 euros/month, to 460 euros/month and followed, in the years 2021-2024, an increase of 161%, up to 743 euros/month. So, between 2016 and 2024, the minimum monthly gross wage in Romania increased by 320%.

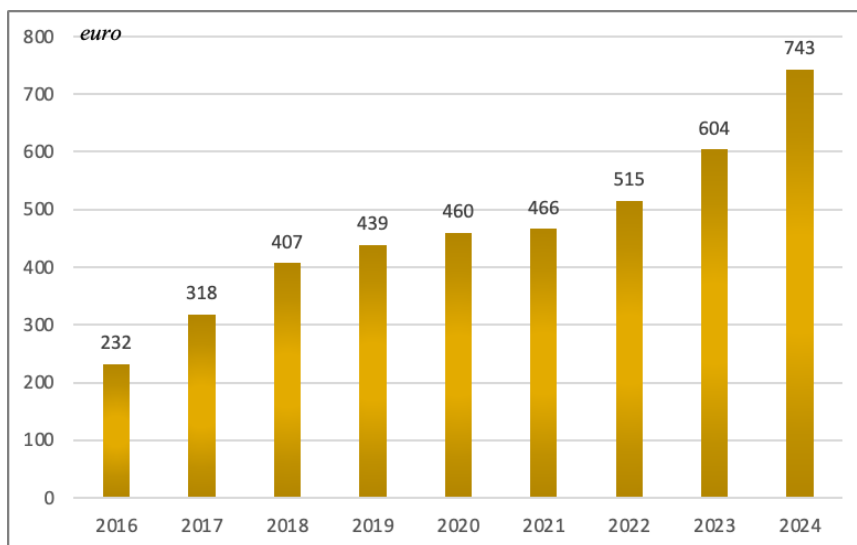


Figure 4. The minimum monthly gross wage in Romania (euro)

Source: Eurostat database, Minimum wages [tps00155]

The increase in the gross minimum wage per country guaranteed in payment implies a closeness of the remuneration to the level required by the EU Directive 2022/2041 on adequate minimum salaries in the European Union.

The gradual transition to progressive wage taxation in Romania positively complements the transfer reforms aimed at reducing income inequality (OECD Economic Surveys: Romania 2024).

In order to reduce inequality and to prevent its excessive growth, income redistribution through policies to increase the minimum wage and pensions has become a necessity. In a tight labour market, large wage increases threaten to erode international competitiveness and unit labour costs have risen rapidly (World Bank, 2023).

9. Conclusions

Global income growth in recent years has been driven, since 2007, by developing and emerging economies. It is worrying that in some countries wages have remained at their 2007 level (Global Wage Report 2014/15) and even in some developed economies, wage growth stagnated in 2012 and 2013. At the level of each employee or the level of the company, one can see the effects produced by the level of wages, by the possibility of their increase.

In 2015, the gap between the average income inequality of the European Union (5.16) and of Romania (8.32) was at the highest level (3.16), of all the studied period (2007-2023). Starting from 2019, the income inequality index in Romania began to decrease to 7.08, then in 2020 it reached 6.62, and 5.83 in 2023, reducing the gap with the European Union level, which was 4.76 in 2023. At the same time, for 2023, in the ranking of the top five countries with the highest index of inequality of income distribution, Bulgaria has the highest rate of inequality of income distribution with 6.61, followed by Lithuania with 6.32, Latvia with 6.32, Romania with 5.83 and Portugal with 5.60.

By increasing the level of social protection and increasing the efficiency of the social protection system, as well as by ensuring the necessary resources, including by better collecting taxes and social contributions and by allocating more resources in line with economic growth, income redistribution has an important contribution to alleviating inequality through social transfers.

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Annex 1

Inequality of income distribution rate

	2007	2010	2015	2019	2020	2021	2022	2023
EU 27	:	:	5.16	4.98	4.93	5.04	4.79	4.76
Belgium	3.87	3.92	3.83	3.61	3.65	3.42	3.56	3.38
Bulgaria	6.98	5.86	7.11	8.10	8.01	7.45	7.30	6.61
Czechia	3.52	3.47	3.51	3.34	3.34	3.43	3.48	3.42
Denmark	3.73	4.41	4.08	4.09	4.00	3.93	4.03	4.15
Germany	4.93	4.49	4.80	4.89	4.87	4.98	4.38	4.44
Estonia	5.54	5.01	6.21	5.08	5.03	5.03	5.39	5.37
Ireland	4.82	4.70	4.50	4.02	3.92	3.75	3.81	3.86
Greece	6.01	5.61	6.51	5.11	5.23	5.79	5.20	5.28

Spain	5.48	6.16	6.87	5.94	5.77	6.19	5.63	5.50
France	3.88	4.43	4.29	4.27	4.42	4.41	4.60	4.63
Croatia	:	5.54	5.14	4.74	4.59	4.77	4.57	4.91
Italy	5.42	5.38	5.84	6.01	5.75	5.86	5.62	5.27
Cyprus	4.44	4.54	5.20	4.58	4.31	4.23	4.28	4.27
Latvia	6.37	6.84	6.51	6.54	6.27	6.63	6.33	6.20
Lithuania	5.91	7.35	7.46	6.44	6.14	6.14	6.39	6.32
Luxembourg	4.02	4.10	4.26	5.34	4.99	4.59	4.54	4.79
Hungary	3.67	3.41	4.30	4.23	4.16	4.15	3.99	4.47
Malta	3.89	4.33	4.15	4.18	4.69	5.03	4.75	5.30
Netherlands	3.97	3.65	3.82	3.94	4.15	3.88	3.94	3.93
Austria	3.77	4.34	4.05	4.17	4.11	4.00	4.25	4.28
Poland	5.26	4.98	4.92	4.37	4.07	4.03	3.91	4.06
Portugal	6.47	5.56	6.01	5.16	4.99	5.66	5.13	5.60
Romania	8.11	6.11	8.32	7.08	6.62	7.10	6.00	5.83
Slovenia	3.31	3.42	3.60	3.39	3.32	3.24	3.28	3.34
Slovakia	3.48	3.80	3.54	3.34	3.03	3.20	3.12	3.63
Finland	3.71	3.61	3.56	3.69	3.72	3.58	3.75	3.78
Sweden	3.35	3.85	4.06	4.33	4.12	4.04	4.34	4.73

Source: Eurostat database 2024, Inequality of income distribution; Note (:)not available

Annex 2

Minimum gross monthly wage (euro)

	2019	2020	2021	2022	2023	2024
EU 27	:	:	:	:	:	:
Euro area – 20 countries	:	:	:	:	:	:
Belgium	1594	1626	1626	1842	1955	2070
Bulgaria	286	312	332	363	399	477
Czechia	525	546	596	655	729	755
Denmark	:	:	:	:	:	:
Germany	1561	1544	1602	1739	1997	2054
Estonia	540	584	584	654	725	820
Ireland	1656	1707	1724	1775	1910	2146
Greece	758	758	758	832	910	968
Spain	1050	1108	1108	1167	1260	1323
France	1521	1539	1555	1646	1747	1767
Croatia	507	546	567	622	700	840
Italy	:	:	:	:	:	:
Cyprus	:	:	:	:	940	1000

Latvia	430	430	500	500	620	700
Lithuania	555	607	642	730	840	924
Luxembourg	2090	2142	2202	2313	2508	2571
Hungary	461	452	476	504	624	675
Malta	762	777	785	792	835	925
Netherlands	1636	1680	1701	1756	1995	2134
Austria	:	:	:	:	:	:
Poland	529	583	619	642	811	998
Portugal	700	741	776	823	887	957
Romania	439	461	467	516	604	743
Slovenia	887	941	1024	1074	1203	1254
Slovakia	520	580	623	646	700	750
Finland	:	:	:	:	:	:
Sweden	:	:	:	:	:	:

Source: Eurostat database 2024, Minimum wages [tps00155], Note (:)not available

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ACCOUNTING ADJUSTMENT IN THE CONTEXT OF EUROPEAN FUNDS - CHALLENGES AND SOLUTIONS THROUGH SIMULATION

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Abstract: *The implementation of European funds is a critical pillar in Romania's economic and social development, yet it often faces significant accounting challenges, particularly during the pre-financing and accounting reconciliation phases. This study addresses the difficulties encountered in the process of adjustment and accounting reconciliation within projects funded by European funds, through a simulation. By examining the scenario of incomplete recording of amounts received as pre-financing, the paper explores the accounting adjustment methods necessary to ensure compliance and financial transparency. The results emphasize the importance of careful planning and the implementation of rigorous verification and accounting adjustment procedures, which are essential for the successful management of European funds. The adopted perspective encourages a proactive and integrated approach, suggesting that adaptability and accounting precision are key in overcoming financial obstacles and achieving the objectives of projects with European funding.*

Keywords: *European Funds, Prefinancing, Accounting Reconciliation, Accounting Adjustment, Challenges and Solutions, Simulation, Financial Compliance*

JEL Classification: *H81, C63, M41, M49, D61*

1. Introduction

1.1. Accounting Reconciliation: Context for ensuring compliance and transparency

In recent decades, European funds have become a vital source of financing for projects across the European Union, supporting innovation, development, and cohesion in various sectors. These funds represent not only an opportunity for growth and expansion but also a significant challenge in terms of financial and accounting management. Compliance with accounting records and accounting reconciliation at the end of European projects are essential

for ensuring transparency and the efficient use of allocated resources. This contextual discussion explores the complexities associated with the management of European funds, emphasizing the importance of strictly adhering to accounting principles and EU regulations at every stage of the project's life cycle. The Ministry of Investments and European Projects creates guides for beneficiaries, designed to offer guidance in the course of running projects financed through non-repayable grants. Beneficiaries are responsible for requesting reimbursement only for those eligible costs, which have been properly recorded in the project's analytical accounting register. It is crucial that the accounting records of programs supported by European funds are conducted separately, through a system of analytical accounts within the main accounting records of the beneficiary or partners, thus ensuring complete transparency of all transactions and providing the necessary information. Organizations accessing these resources will develop sets of procedures and accounting policies that meet both general accounting standards and the conditions stipulated in the contractual agreements between parties. A key principle in creating these accounting procedures is to align the costs supported by subsidies with the income obtained from them, thus following the principle of accrual accounting. In accounting terms, non-repayable European funds are recognized as subsidies, whether related to assets and investments, or associated with revenues or current operations.

Regardless of the operational program's name - whether it's the Regional Operational Program (POR), the Human Capital Operational Program (POCU), the National Rural Development Program (PNDR) for the 2014-2020 financial allocation period, or the National Recovery and Resilience Plan (PNRR), the Education and Employment Program (PEO), the Social Inclusion and Dignity Program (PIDS), the Regional Programs (PR), or the Just Transition Program (PTJ) for the current 2021-2027 period - accounting reconciliation, in the context of correctly finalizing the records of amounts received for pre-financing and maintaining a distinct accounting of the project, is essential and must be carried out in strict adherence to recognized accounting principles. This involves not only precise and transparent documentation but also careful interpretation of the rules and regulations so that each transaction accurately reflects the economic reality of the project and ensures compliance with the funder's requirements. The accounting reconciliation process is not just a formality but a crucial phase that validates the financial integrity of the project, highlighting the organization's commitment to rigorous and responsible financial management. Therefore, a methodical and professional approach contributes not only to the success of managing European funds but also to strengthening trust and transparency in the relationship with funding

institutions, thereby ensuring a solid foundation for future achievements and continuous access to European financial support.

The successful implementation of projects funded by European funds crucially depends on the ability of organizations to navigate through a complex legislative and accounting framework. From the initial moment of obtaining pre-financing to the subsequent stages of reporting and justifying expenses, each step must be approached with meticulous rigor. Accounting records must not only reflect financial accuracy but also demonstrate compliance with the specific objectives and requirements set by the EU. Therefore, the process of accounting reconciliation becomes a critical element in completing the project, ensuring that all funds have been used according to their initial purpose and that any discrepancies or errors are identified and corrected accordingly.

Against this backdrop, the analysis focuses on the challenges and solutions associated with compliance with accounting records in European projects. We explore the essential role of simulations and accounting adjustments in the reconciliation process, highlighting how these practices contribute to robust financial management and adherence to principles of transparency and accountability. In this context, we also address the impact of technology and accounting innovations in facilitating processes, thereby improving the efficiency and precision of financial reporting.

Thus, managing European funds represents a significant responsibility for any beneficiary organization, requiring particular attention to detail and a deep understanding of accounting and financial rules. In this introduction, we lay the groundwork for a comprehensive analysis of how organizations can successfully navigate the challenges associated, ensuring that each project not only achieves the set objectives but does so in full compliance with the strict requirements imposed by the European Union.

1.2. European Projects: Definition, Progress, and Accounting

In the realm of funding and development, European projects stand as the cornerstone of progress and innovation, addressing a wide range of objectives from economic growth and social cohesion to supporting ecological and digital transitions. Defined by accessing funds provided by the European Union, these projects are tailored to meet the specific needs and challenges of member states and their regions, thereby facilitating the achievement of common strategic goals.

The progress made in the implementation of European projects is vital for ensuring sustainable and balanced development across the entire Union. This progress is measured by meeting the specific indicators of each operational program, reflecting a direct positive impact on local economies and European citizens. Continuous monitoring and evaluation efforts are critical for the ongoing adjustment and enhancement of strategies and actions.

Within this complex and dynamic setting, accounting plays a pivotal role in the effective management of allocated financial resources. European project accounting demands a rigorous and detailed approach, ensuring compliance with EU financial regulations as well as transparency and accountability in the use of funds. Consequently, the adoption of appropriate accounting systems is necessary, systems that allow for precise transaction recording, careful monitoring of financial flows, and the execution of accounting reconciliation at the end of projects. This accounting endeavor not only facilitates correct and timely reporting but also contributes to assessing the impact of projects, thus highlighting their real contribution to the established development objectives.

Therefore, in an era where European projects are more relevant than ever, the harmonious integration of definition, progress, and accounting becomes crucial for fulfilling the aspirations and expectations of the European community. The role of accounting, in particular, goes beyond its traditional function, becoming a pillar of transparency, efficiency, and ultimately, the success of these ambitious initiatives.

2. Financial and Accounting Management of European Projects

2.1. The Importance of Accounting in EU-Funded Projects

Accounting, at its core, is much more than just the recording of financial transactions; it represents the backbone of transparency, accountability, and compliance in any project funded by the European Union. Its role surpasses traditional aspects, evolving into a crucial tool for strategic planning, performance monitoring, and ensuring financial integrity. Within the context of European projects, accounting takes on even greater significance, considering the complexity of the EU's rules and reporting requirements. The importance of accounting in EU-funded projects is multi-layered. Firstly, it ensures compliance with European financial regulations and standards, a key element in preventing audit-related risks and maximizing the project's chances of success. Every euro spent must be justified and aligned with the project's objectives, and accounting provides the necessary framework to demonstrate this.

In addition to compliance, accounting contributes to the efficiency of fund management. Through careful monitoring of financial flows and budgets, accountants help to early identify any deviations or financial issues, allowing for informed decisions to correct the course of action. This not only optimizes resource use but also supports the long-term financial sustainability of the project. Accounting also plays a crucial role in assessing the performance and impact of the project. Detailed financial analysis enables stakeholders to understand whether project objectives are being achieved in a cost-effective manner, offering a solid foundation for evaluations and reports to funders. This not only ensures transparency and accountability but also contributes

to the trust and credibility of the beneficiary organization in the eyes of the community and partners.

Accounting within EU-funded projects is not just a formal requirement but a vital component that directly influences the success and sustainability of the project. By ensuring rigorous and transparent financial management, accounting not only facilitates compliance with European standards but also the efficient achievement of development goals, thus solidifying the foundation for a prosperous and inclusive future within the European Union.

2.2. Challenges and Solutions in Accounting Reconciliation and Adjustment

The effective management of European funds introduces various accounting challenges, particularly in the stages of reconciliation and adjustment. These processes are crucial for ensuring the financial integrity and compliance of projects but often encounter significant obstacles.

Challenges

One of the main challenges lies in the complexity of EU rules and requirements, which demand a deep understanding and precise application in accounting practice. Regulations can change or be subject to different interpretations, leading to confusion and errors in accounting records.

Another major challenge is maintaining distinct accounting for each project, which allows for clear tracking of eligible expenses and received funds. This requires adaptable accounting systems and efficient transaction segregation, which can be difficult for organizations with limited resources or multiple concurrent projects.

Also, the accounting reconciliation process at the end of the project can be complex and time-consuming, involving a detailed verification of all transactions and the adjustment of any discrepancies. This process is critical for the successful completion of the project and requires particular attention and specialized skills.

Solutions

To tackle these challenges, one key solution is investing in continuous professional training and access to updated resources. The accounting team must be up-to-date with the latest changes in EU regulations and possess the necessary skills for the correct application of accounting standards. Implementing robust and flexible accounting systems is also essential. Modern technology can provide efficient solutions for transaction segregation, budget monitoring, and facilitating accounting reconciliation. Specialized software can automate some of the repetitive processes and reduce the risk of error.

Close collaboration with auditors and financial consultants represents another important strategy. These professionals can offer support in interpreting EU rules, preparing for audits, and applying best practices in accounting for European projects.

Finally, developing clear internal procedures and rigorous documentation of all transactions and accounting decisions are fundamental. These practices contribute to transparency and facilitate the reconciliation process, ensuring that all funds are used according to their intended purpose and that the project is ready for final checks.

In conclusion, while the accounting management of European funds involves significant challenges, there are a series of strategies and solutions that can facilitate the process. By adopting a proactive approach and using available resources, organizations can successfully navigate the complexities of accounting reconciliation and adjustment, ensuring the success and sustainability of their European projects.

2.3. Financial Compliance: Ensuring Accuracy in Accounting Records

Financial compliance plays a pivotal role in any project funded by the European Union, acting as a cornerstone that ensures not only the integrity and transparency of the accounting process but also the ongoing eligibility for funding. In this context, ensuring accuracy in accounting records becomes essential, representing a continuous effort to align accounting practices with the standards and requirements imposed by European funding structures.

Financial compliance translates into strict adherence to the financial and accounting regulations established by the European Union, with the primary goal of preventing fraud, errors, and any other irregularities that could affect the smooth running of the project. Precise and transparent accounting records are indispensable to demonstrate that funds have been used according to their purpose and to facilitate audit and evaluation processes.

2.4. Challenges and Strategies in Ensuring Accuracy and Compliance

Among the major challenges are the complexity of tax and accounting legislation, frequent changes in regulations, and the need to correctly interpret the various requirements specific to each funding program. Additionally, maintaining detailed and organized records of all financial transactions requires robust accounting systems and rigorous internal procedures.

To efficiently navigate these challenges, organizations need to prioritize the continuous update of the accounting teams' knowledge regarding current legislation and regulations. This can be achieved through ongoing training programs and access to specialized resources. Moreover, the implementation of

adaptable and scalable accounting information systems, capable of managing the financial complexity of European projects, is critical.

Effective collaboration between accountants, project managers, and external consultants can facilitate the correct interpretation of requirements and the application of best practices in project accounting. This joint effort ensures a unified vision of financial management and contributes to the quick identification and resolution of any compliance issues that may arise.

In summary, financial compliance and ensuring accuracy in accounting records are essential pillars for the success of projects funded by European funds. By adopting a proactive approach, based on knowledge, technology, and effective collaboration, organizations can overcome accounting challenges and contribute to the achievement of the ambitious objectives of the European Union, ensuring that each project is not only a financial success but also a model of integrity and transparency..

3. Case Study: Simulation of Accounting Reconciliation in a European Project

3.1. Presentation of the Context and the Problem

Context

In the vast landscape of European funding, efficiently and compliantly managing funds is a constant challenge for beneficiary entities. This case study focuses on a non-profit organization that accessed European funds for the development of an ambitious education and training project. Despite initial success in implementing project activities and achieving interim objectives, the organization faces difficulties in the final stage of accounting reconciliation, an essential step for concluding the project and justifying the use of funds to the management authority.

The central issue identified relates to the incomplete recording of amounts received as pre-financing and the challenges encountered in maintaining distinct and accurate accounting for the project. These deficiencies have led to significant discrepancies between accounting records and financial documentation, complicating the reporting process and endangering eligibility for final funding tranches.

The causes leading to this situation include inadequate financial management planning for the project, insufficient knowledge of the accounting team regarding the specifics of European fund accounting, and the use of an accounting system unsuitable for the complexity of the project's activities. Additionally, inefficient communication between the involved departments exacerbated the problem, preventing timely identification of discrepancies and the application of necessary corrective measures.

The impact of this problem is multidimensional. Beyond the immediate risk of losing remaining EU funding, the organization faces potential long-term repercussions, including reputation damage, difficulties in accessing future funding, and possible financial penalties from the management authorities. Moreover, this situation affects the organization's ability to accurately assess the impact and efficiency of the project, compromising long-term strategic objectives.

In the following sections, we will explore the methodology applied to address and solve this problem, as well as the lessons learned in the process of simulating accounting reconciliation, with the aim of providing valuable insights and recommended practices for the financial management of European projects.

The Problem

In the world of grants, these are not considered directly as profit or reserves upon receipt, as they come with certain commitments for the beneficiary. Their reflection in accounting depends on the project stage and the nature of the involved costs. For instance, subsidies received for expenses that have not yet been realized do not qualify as immediate revenues because these expenses are still pending. When a subsidy covers actual expenses, it is recognized as income at the same time as the expense.

Government compensations for expenses or losses are recognized as profit or loss at the time those costs are recorded. Financial aids without future obligations are seen as revenues when they become actual liabilities.

Subsidies related to depreciable assets are generally recognized as profit as the respective assets are depreciated. Similarly, subsidies for production or services align with income at the time expenses are recognized. In the case of subsidies for land involving specific contractual obligations, they are accounted for as revenues over the period covering the associated obligation costs.

Practice requires careful correlation of expenses supported by subsidies with the corresponding income in the financial accounts, ensuring that any received amount is correctly recorded and transparently reflects the nature of the supported costs. Any reimbursement or approval of amounts is based on clear and precise documentation, so that the initial records of receivables are appropriately adjusted, providing a faithful picture of the project's financial situation.

In our study, we analyze a situation where subsidies received for a European project remained in account 472 "Revenues Recorded in Advance," instead of being appropriately recognized and correlated with specific expenses.

This omission led to a distorted view of the financial situation and potential complications in accurate reporting according to accounting standards.

Ideally, these subsidies should have been reflected as revenues only when the related expenses were actually recorded, thus ensuring that each received amount is aligned with a specific and eligible expense. However, in the absence of these recordings, the organization risks facing difficulties both in financial planning and in demonstrating financial compliance in the event of an audit.

The situation now requires urgent corrective action to realign the accounting records and recover compliance with the financial requirements of the European funder. This will involve a careful review of transactions, detailed reconciliation of accounts, and collaboration with accounting experts to ensure a complete and accurate recovery. The narrative presented here reveals a key problem faced by organizations in managing the finances of European projects and underscores the vital importance of adhering to accounting procedures to ensure long-term success.

3.2. Applying the Reconciliation Methodology

To address the identified issue and restore the financial and accounting compliance of the European project, the organization decided to implement a rigorous accounting reconciliation methodology. The process was structured in several essential stages, each serving its specific role in ensuring the accuracy of financial records and reconciling the amounts received as pre-financing with the actual expenses of the project.

Review and Assessment of the Current Situation

The first step involved a comprehensive review of all accounting records and financial documentation related to the project. This included a detailed verification of invoices, contracts, expense reports, and bank statements, aiming to identify any potential discrepancies and mismatches.

Detailed Transaction Reconciliation

The accounting team performed a detailed reconciliation of each transaction, ensuring that all received and spent amounts were correctly recorded and accurately reflected the project's activities. This step included adjusting accounting entries where necessary and correctly allocating pre-financing amounts to the project's eligible expenses.

To adjust the accounting situation described and clear the entries from account 472 "Revenues Recorded in Advance" in line with the project's completion, a series of accounting steps will be followed. The necessary

accounting entries depend on the specifics of the transactions carried out and the applicable accounting regulations at the national level.

1. **Recording Realized Revenues:** The first step is to transfer the pre-financing amount from “Revenues Recorded in Advance” (account 472) to realized revenues. This reflects that the pre-financed funds have been spent according to their purpose and officially recognized by the Managing Authority as eligible. The accounting entry will look like this:
 - Debit account 472 “Revenues Recorded in Advance”
 - Credit specific project revenue accounts (e.g., 741 “Subsidies for Investments” or a similar account, depending on the nature of the validated revenues)
2. **Reflecting Expenses:** It will ensure that all project expenses have been correctly recorded in their respective expense accounts. This is a prior, but essential step for the correct reconciliation of the funds.
3. **Regularization of the Pre-financed Amount:** After the revenues have been recognized, it is necessary to ensure that the pre-financed amount is reflected as being fully used or reimbursed. If there are unspent amounts or sums that need to be returned to the funder, these should also be adjusted through corresponding accounting entries.
4. **Project Closure:** Once all transactions have been correctly reflected, and the project’s final report has been accepted, it will ensure that all project-related accounts are properly closed. This includes the final transfer of amounts from account 472, so there are no unjustified balances.
5. **Verification and Reconciliation:** It will conclude with a detailed check of all accounting records related to the project to ensure everything has been recorded correctly and there are no discrepancies. A reconciliation between the accounting records and the project’s final report, as well as the supporting documentation, is crucial to ensure the financial-accounting correctness of the project.
6. **Documentation and Archiving:** It will ensure that all accounting records and supporting documentation are well documented and archived in accordance with national regulations and the funder’s requirements. This will facilitate any future audits and ensure compliance with applicable regulations.

Considering the expenses validated solely with salaries and related contributions, for the balance of account 472 to reach 0, indicating that all pre-recorded revenues have been recognized as actual revenues, in accordance with the expenses made and validated within the project, the steps and accounting entries are:

1. Transfer of Amounts from 472 to Recognized Revenues:

- Initially, you have amounts in account 472 as a result of pre-financing. These amounts need to be transferred to revenues once the expenses are officially recognized.
- **Equation:**
 - Debit 472 “Revenues Recorded in Advance”
 - Credit 741 “Subsidies for Investments” (or another revenue account suitable for your project)
- This entry reflects that the pre-financed amounts are now recognized as revenues, following the validation of expenses.

2. Reflecting Expenses with Salaries and Contributions:

- Assuming the initial expenses with salaries and contributions were correctly recorded, they would have debited expense accounts and credited liability accounts (for example, liabilities to staff or tax liabilities).
- **Initial Example (assumed already carried out):**
 - Debit 641 “Expenses with the salaries of the staff” for the salary amounts
 - Debit 645 “Expenses with health social insurances” for contributions
 - Credit 421 “Personal - Salary payable” and similar accounts for contributions

3. Actual Payment of Salaries and Contributions:

- At the time of payment, you will make an entry to reflect the movement of money from the bank or cash to employees and institutions.
- **Equation:**
 - Debit 421 “Personal - Salary payable” (and similar accounts for contributions)
 - Credit 512 “Bank accounts in lei” (or another relevant account for the payment made)

4. Final Regularization of Account 472:

- After all these entries, account 472 should accurately reflect the amount of pre-financing that has been spent and validated. If there is still a balance, this indicates a discrepancy between the pre-financed amounts and the expenses made and recognized.
- If the balance is a credit (i.e., you still have amounts in 472), you need to check:
 - Have all pre-financed amounts been transferred to revenues?
 - Are there unrecorded or unvalidated expenses that should be reflected?

If after carrying out these accounting entries, account 472 does not reflect a zero balance, it is necessary to identify the cause of the discrepancy. This could involve reviewing the recorded expenses, the amounts transferred as revenues, and, if applicable, making corrections according to supporting documentation and approvals from the AM. It is crucial to maintain a clear and detailed record of all transactions and to consult with a professional accountant or auditor for specific assistance and to ensure compliance with accounting standards and project requirements.

Consultation and Collaboration with the Management Authority

Alongside internal efforts, the organization closely collaborated with representatives of the management authority to validate the reconciliation procedures and to ensure they comply with EU requirements and guidelines. This consultation provided valuable insights and contributed to improving the organization's accounting practices.

Documentation and Reporting

All stages of the reconciliation process and the results obtained were thoroughly documented, laying the groundwork for the reporting phase to the management authority. The report included a description of the applied reconciliation methodology, adjustments made, and financial control measures implemented to prevent similar issues in the future.

The outcomes of applying this reconciliation methodology were positive, successfully restoring the financial accuracy and accounting compliance of the project. This process not only ensured eligibility for the remaining funding but also strengthened the organization's ability to efficiently manage European funds, thereby contributing to the long-term sustainability and success of its initiatives.

3.3. Accounting Equation Simulation

We have the following key simulated information:

- **Total project value:** 47,472.00 RON
- **Total pre-financing received:** 45,098.40 RON
- **Own contribution (5%):** 2,373.60 RON
- **Total eligible value:** 45,098.40 RON
- **Total validated amount:** 43,000.00 RON
- **Ineligible expenses:** 2,098.40 RON
- **Total amounts to be refunded from pre-financing:** 2,098.40 RON
- **Total amounts refunded after accounting reconciliation with the management authority:** 2,098.40 RON

The initial accounting entries can be:

1. Recording the receipt of pre-financing:

- Debit 512 "Bank accounts in RON": 45,098.40 RON
- Credit 472 "Revenues Recorded in Advance": 45,098.40 RON

2. Recording the own contribution:

- Debit 512 "Bank accounts in RON": 2,373.60 RON
- Credit 455 "Owner's Contribution": 2,373.60 RON

During the project, entries for salaries and contributions expenses:

3. Recording salary expenses:

- Debit 641 "Expenses with the staff salaries": the total amounts for net salaries
- Credit 421 "Personal - Salary payable": the total amounts for net salaries

4. Recording social contributions expenses:

- Debit 645 "Expenses with social insurances": the total amounts for contributions related to salaries
- Credit 431 "Social Contributions Payable": the total amounts for contributions related to salaries

Upon project completion and after validating the expenses:

5. Transfer of validated amounts from recorded advance revenues to actual revenues:

- Debit 472 "Revenues Recorded in Advance": the total validated amount of 43,000.00 RON
- Credit 741 "Subsidies for Investments": the total validated amount of 43,000.00 RON

6. Recording ineligible expenses to be refunded:

- Debit 741 "Subsidies for Investments": 2,098.40 RON
- Credit 512 "Bank accounts in RON": 2,098.40 RON

Final accounting entries for reflecting the refund:

7. Refunding the unvalidated amount to AM:

- Debit 472 "Revenues Recorded in Advance": 2,098.40 RON
- Credit 512 "Bank accounts in RON": 2,098.40 RON

This last entry adjusts the balance of account 472 to zero, reflecting that all advance recorded revenues have been either recognized as revenues or refunded to AM.

Table 1. Reconciliation and Final Adjustment - Accounting Entries

No.	Debit Account	Debit Amount (RON)	Credit Account	Credit Amount (RON)	Explanation
1	472 "Revenues Recorded in Advance"	43,000.00	741 "Subsidies for Investments"	43,000.00	Recognition of revenues from the validated subsidy spent according to the project
2	741 "Subsidies for Investments"	2,098.40	512 "Bank accounts in RON"	2,098.40	Refunding to AM the ineligible and unvalidated amount from pre-financing
3	472 "Revenues Recorded in Advance"	2,098.40	512 "Bank accounts in RON"	2,098.40	Adjusting the advance revenue account for the amounts returned

3.4. Analysis of Results and Implications for Accounting Practice

The analysis of the accounting reconciliation process and the adjustments made within the European project highlights several valuable lessons and significant implications for accounting practice, especially in managing projects funded by the European Union. This endeavor provided not only an immediate solution to the specific problems encountered but also a replicable and improved model of best practices for future projects.

Positive Outcomes:

- **Restoration of Financial Compliance:** The rigorous reconciliation process led to the identification and correction of financial discrepancies, ensuring compliance with EU regulations and ongoing eligibility for funding.
- **Enhanced Transparency:** The implemented monitoring and reporting system increased financial transparency, facilitating a better understanding of the project's financial status both internally and in relation to management authorities and external auditors.

- **Increased Trust from Funders:** Demonstrating rigorous and responsible financial management has strengthened the trust of funders and project partners, paving the way for future collaborations.

Implications for Accounting Practice:

- **Need for Continuous Training:** The case underscores the importance of continuous training for accounting professionals to keep their knowledge up to date regarding European financial regulations and reporting practices.
- **Adaptability of Accounting Systems:** It highlights the need for flexible and adaptable accounting systems capable of managing the accounting specifics of European projects and facilitating monitoring and reconciliation processes.
- **Effective Collaboration:** It reveals the importance of close collaboration between the accounting team, project management, and external consultants to ensure compliance and efficiency in managing funds.
- **Internal Control Procedures:** It emphasizes the critical role of robust internal control procedures in preventing financial discrepancies and facilitating efficient accounting reconciliation.

The successful implementation of the reconciliation methodology within the European project demonstrates that, by adopting appropriate accounting practices and focusing on the principles of transparency, accountability, and compliance, organizations can overcome financial challenges and ensure the sustainability of EU-funded projects. This case study serves as a reference point for organizations looking to improve the accounting and financial management of European projects, providing a solid foundation for developing effective and sustainable long-term strategies. Therefore, it is recommended that these lessons be integrated into the standard accounting practices of organizations to facilitate better management of future European projects and to maximize their positive impact on the targeted communities and sectors.

4. Conclusions

The accounting reconciliation process within the context of managing European projects presents a series of challenges and essential opportunities for beneficiary organizations. The analysis conducted in this article, starting with the contextualization of financial and accounting issues and continuing with detailing the applied methodology and learned lessons, underscores the importance of a proactive and informed approach in the financial management of projects funded by the European Union.

By addressing the issues of reconciliation and accounting adjustments in detail, organizations can significantly improve the financial management of European projects, ensuring they are implemented efficiently and in accordance with EU requirements. The experiences and practices presented in this article can serve as a guide for entities facing similar challenges, providing them with a reference framework for continuous improvement of accounting and financial processes.

In conclusion, success in managing European funds lies not only in the ability to navigate the complexity of financial regulations but also in organizations' commitment to applying solid principles of accounting and financial management. Thus, ensuring transparency, compliance, and efficiency at all stages of the project lifecycle will not only facilitate the achievement of proposed objectives but will also contribute to strengthening trust in the organization's ability to manage European resources responsibly and sustainably.

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„EUROPEAN EDUCATION AREA” – ASPECTS REGARDING THE ROMANIAN HIGHER EDUCATION

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Abstract: *“Higher education” represents an important dimension of the “European Education Area,” holding a key role within population-centred policies regarding the development of a holistic approach to education, as established in the documents developed at the level of the European Union. Considering the EU-level target according that “The share of 25-34-year-olds with tertiary educational attainment should be at least 45% by 2030,” the analysis of the comparative aspects related to the evolution of higher education, at the level of the member states of the European Union, reveals a constant increase in the share of people having higher education degrees, suggesting that the EU will exceed the objective for 2030 by a considerable margin. In this context, the Report on the condition of higher education in Romania 2022-2023, developed and published by the Ministry of Education, constitutes a complex analysis of the Romanian university education system, rendering a series of relevant aspects regarding the developments and perspectives outlined in the reference fields and as a whole. The rapid adaptation to global challenges requires new approaches of cooperation and mobility, and the Romanian universities have now the opportunity to connect with higher education institutions in the EU and outside it. The mentioned report includes Part I – “Analysis of the supply and demand of the higher education system”, Part II – “Relevant actions and outcomes obtained in the academic year 2022-2023”, and Part III – “Directions for development of higher education 2024.” These actions are drawn in accordance with the new Higher Education Law no. 199/2023 and with the strategic objectives of the “Educated Romania” Project, as well as with the requirements of education beneficiaries. The issue of “increasing the percentage of higher education graduates, in accordance with the provisions of the Europe 2020 Strategy” was analyzed by the Court of Accounts of Romania, as early as 2015, as part of a performance audit mission. Starting from the premise that the increase in the quality and competitiveness of education generates well-being, the need for studies to underlie adequate public policies that respond to current needs and challenges has been emphasized.*

Keywords: *European Education Area, sustainable collaboration, mobility, Romanian Higher Education, European indicators*

JEL Classification System: *K30 General*

1. Introductory Aspects: “European Education Area” - Relevant documents developed at the level of the European Union

“*The European Education Area*” was grounded in decades of collaboration, in the context provided by “*The Strategic Framework for European Cooperation in Education and training* (ET 2020)”.

“*The Council Conclusions on European Teacher and Trainers for the Future of May* (2020) have confirmed the need to provide additional support to teachers for the development of their skills and careers, considering “*the role of teachers as cornerstones of the European Education Area*” (Erasmus+ Programme Guide, 2024).

In “*The Commission’s Communication on Achieving the European Education Area by 2025*” (European Commission, 2020), having “*the key role of teachers*” in view, relevant actions were proposed for the training of competent and motivated teachers and were included in “*The plan to launch Erasmus+ Teacher Academies*”.

“*The Commission’s Digital Education Action Plan (2021-2027)*” (European Commission, 2021a) establishes the need for all teachers to have the skills to use technology effectively and creatively so that all learners develop the digital skills they need to learn and work “*in an ever more digitalised world*”.

“*The Erasmus+ Teacher Academies*” promotes “*sustainable collaboration*” and “*mobility* (virtual, physical and blended)”, in the field of initial and continuing professional education and training of teaching staff, the results being transferred in the framework of **the policy-making process in the field of pedagogical education at European and national level**, in order to achieve “*The European Education Area*” and the main objective, respectively to “*enhance the European dimension and internationalisation of teacher education*”.

“*Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on achieving the European Education Area by 2025*” refers to both early childhood education and higher education, research and adult education, which hold “*a key role*” within the population-centred policies needed to develop “*a holistic approach to education and training*” (European Commission, 2020).

“The Commission proposes to consolidate ongoing efforts and further develop the **European Education Area along six dimensions**”:

„1. **Quality**

2. **Inclusion and gender equality**

3. **Green and digital transitions**

4. **Teachers and trainers**

5. **Higher education**: The European higher education systems should aim at:

- Closer and deeper cooperation between higher education institutions,...
- A policy framework across borders that allows for seamless transnational cooperation, ...,
- Higher education institutions as central actors of the “knowledge square”: education, research, innovation and service to society, ...,
- Automatic recognition of qualifications and study periods abroad...,
- A stronger focus on specialised education programmes in advanced digital skills, ...,

6. **Geopolitical dimension**: The change in the global order (e.g., the rise of China, retreat of the US from the multilateral order) calls for strengthening European international cooperation, including in education” (European Commission, 2020, pp. 6-13).

2. Comparative aspects regarding the evolution of higher education at the level of the EU member states

✓ **Education and Training Monitor 2023 - Higher education (European Union, 2023, pp. 52-64)**

Tertiary educational attainment - EU-level 2030 target: „**The share of 25-34-year-olds with tertiary educational attainment should be at least 45% by 2030.**”

At the level of the European Union, a **steady increase in the proportion of people with higher education** is estimated, so that the EU will exceed the 2030 target by a considerable margin, already exceeding 45% around 2025. Between 2021 and 2022, **most European countries saw an increase in the tertiary education graduation rate** of 0.5 percentage points or more (13 countries), although there were also EU countries where the graduation rate decreased of more than 0.5 percentage points (5 countries: Slovenia, Denmark, Hungary, Luxembourg, and Portugal).¹

The 2023 edition of the *Dashboard* on mobility in higher education shows that **progress** has been made **in the development and implementation**

of policies conducive to educational mobility, but there are still areas for improvement in all education systems in the EU.² At least half of education systems in the EU meet all or most of the criteria for the indicators in the *Dashboard*, with the exception of *support for disadvantaged learners*.

The mobility of credits financed within the framework of EU programmes involved the **majority of mobile credit graduates at bachelor's and master's level studies** (52.8%). EU-funded programmes supported more than 80% of mobile credit graduates in 16 EU countries.

There are only four countries where less than 50% of mobile credit graduates took part in EU-funded programmes: the Netherlands (40.0%), Denmark (37.8%), France (37.5%) and Sweden (37.0%).

In **2021**, there were more than 305,000 mobile graduates from tertiary education programmes at bachelor's and master's level in the EU. **The number of mobile university graduates in EU countries increased** by 23.3% in the last 5 years, and **the number of graduates who completed a full cycle in a country other than their country of origin constituted 8.4% of the total graduates at the time of reporting** of these education levels in the EU (an increase of 1.3 percentage points compared to **2017**).

From **2017 to 2021**, the **share of bachelor's, master's and internal mobility master's graduates increased in all but five of the EU countries**.

In relation to the number of graduates in their education systems, Luxembourg (55.39%), Austria (21.2%) and the Netherlands (18,8%) have the greatest share.

In absolute numbers, France (78,593), Germany (53,250) and the Netherlands (32,096) host the most mobile graduates.

Thus, **the proportion of graduates who obtained a full degree in a country other than their country of origin, known as degree mobility, continued to increase**, and the large number of non-EU graduates (representing 71.0% of total degree mobility) is proof of **the attractiveness of the EU as a study destination**.³

✓ **At the OECD level**, the issue is addressed through assessments, surveys and comparative analyses of educational policies developed and implemented in different countries, including regarding *student performance and teacher training* (OECD iLibrary, 2020).

✓ **The European Union** cooperates with **EU Member States** to support higher education to develop and contribute to Europe's resilience and recovery (European Commission, 2021).

Higher education has an essential role:

- „in achieving the European Education Area (EEA) and the European Research Area (ERA), in synergy with the European Higher Education Area
- in shaping sustainable and resilient economies, and in making our society greener, more inclusive and more digital
- in providing highly skilled Europeans with excellent prospects for employment, and engaged citizens participating in democratic life - 80% of recent tertiary graduates in the EU gain employment in less than 3 months after graduating” (European Commission, 2021b).

3. Aspects concerning the condition of higher education in Romania - developments and perspectives – *The Report of the Ministry of Education (2022-2023)*

Starting from 2005, the Ministry of Education developed and published an Annual Report for the monitoring and evaluation of the condition of the higher education system in Romania, in order to ensure the foundation of educational policies. *The report on the condition of higher education in Romania 2022-2023*, (2022–2023 Report), represents a complex x-ray of Romanian higher education, in the reference academic year, necessary for the operationalization of the changes introduced by the new *Higher Education Law nr. 199/2023 (2023)* Entered into force in September 2023, the law allows the start of the necessary reforms within the university education system, provided for in the “*Educated Romania*” Project (Ministry of Education 2022–2023), a project that responds to global challenges (green and digital transition, climate change, demographic developments, the emergence and intensification of the use of artificial intelligence, media influences, the needs of social inclusion and combating discrimination, etc.) (Government of Romania, Ministry of Education, 2023).

The vision of the “*Educated Romania*” Project seeks that, by the year **2030**, Romanian higher education become a fair and quality one for all students, a system that prioritizes *the needs of the student*, in which *good governance, ethics and integrity* are “**fundamental values**”. In this context, in order to rapidly adapt to a changing world, Romanian universities can connect with higher education institutions in the EU and outside it, with the need of “**new approaches, cooperation and mobility**”.

The principles of student-centred higher education, provided for in the *Higher Education Law no. 199/2023*, mainly aims at: (1) *sustained interaction between students and teachers*; (2) *collaboration and dialogue among members of the academic community*; (3) *active learning, empowering students to develop*

critical thinking; (4) continuous improvement of progressive learning based on summative assessments; (5) effective learning by realistically setting the time needed for teaching, individual study and assessment; (6) communicating and clarifying expectations - expected learning outcomes - as well as evaluation criteria; etc.

In **Part I – “Analysis of the supply and demand of the higher education system”**, the **2022 - 2023 Report** contains statistical data on the developments recorded in recent years at the level of the higher education system in Romania, from which we reproduce some relevant aspects (2022–2023 Report, quoted docs., pp. 12 -51).

✓ **Access and participation**

Demographic trends in recent years have highlighted **the decline of the resident population of higher education age**.⁴ In the last two university years, **the total number of students enrolled in higher education has decreased**, both in state and private education. In the **2022/2023** academic year, **538,720 students** (88.3% in state higher education institutions and 11.7% in private education institutions) were enrolled in the higher education system (for all study cycles).⁵

• **Cycle I – Bachelor’s university studies:**

In the **2022/2023** academic year, **410,181 students were enrolled in bachelor’s programmes, down by over 5.6 thousand students compared to the previous year** (87% of students in state education and 13% in private education). There are **fundamental fields of study with a large number of students** (*Business, administration and law, Engineering, manufacturing and construction, Health and social care*) and **others with a small number** (*Educational sciences, Services and Natural Sciences, Mathematics and statistics*). The maximum enrolment capacity in the first year was 132,215 places (89.9% in state institutions and 11.1% in private ones). In private education, the field of *Business, administration and law* is overrepresented (55.6% of all students were enrolled in specializations in this field).

• **Cycle II – Master’s university studies:**

In the **2022/2023** academic year, **the master’s degree cycle included 102,975 students, down by over 9 thousand compared to the previous year** (91.4% of them were included in state education and only 8.6% in private education). The number of students was **higher in certain core fields of study** (*Business, Administration and Law, Engineering, Manufacturing and Construction*) and **very low in others** (*Health and Social Care, Agriculture, Forestry, Fisheries and Veterinary Sciences, Educational Sciences*). Almost

60% of students in private master's programmes were enrolled in *Business, Administration and Law*, compared to just over 20% in state education. At the level of **2022/2023**, **3,476 people attended in postgraduate programmes**, of which **almost two thirds were enrolled in the field of Educational Sciences**.

- **Cycle III - University doctoral studies:**

In the **2022/2023** academic year, **21,803 people were enrolled in doctoral university studies**, compared to **22,240** people enrolled in the **2021/2022** period, **down compared to the previous year** (by 437 people).⁶ The highest percentages of PhD students were registered in the fields of *Engineering, Manufacturing and Construction* (27%) and *Health and Social Care* (22%), and the **lowest in Educational Sciences** (1%), *Services* (2%) and *Information and Communications Technologies* (4%).⁷

- ✓ **Pass rate in undergraduate university education** (2022-2023 Report, quoted docs., pct. 1.3.1.)

In recent university years, **the pass rate in undergraduate university education has declined**. In the **2021/2022** academic year, **the pass rate was 85.2%**. Compared to the previous year, **the share of students who passed decreased** and the share of those declared repeaters, with an unfinished situation, with interruption of studies or with abandonment during the academic year, increased (14.8%).⁸ In the reference period, **the highest values of the passing rate were recorded in the fields of: Educational Sciences** (91.5%) and *Health and Social Care* (94.8%), and the lowest in the fields of *Engineering, Manufacturing and Constructions* (80.9%) and *Natural Sciences, Mathematics and Statistics* (81%).⁹

- ✓ **Graduates of higher education** (2022-2023 Report, quoted docs., pct. 1.3.2.)

After a relatively constant increase in recent years, at the end of the academic year **2021/2022** a number of 125,580 people **graduated from higher education with a degree**, the value being **lower than the previous year**, (131,534 people), **in all study cycles** (bachelor's, master's, doctoral, postgraduate programmes).¹⁰⁻

- ✓ **Graduates of Bachelor's university education**

The analysis of the distribution of Bachelor's university education graduates (with or without a bachelor's degree) by the fundamental fields of study highlights: high shares, throughout the analysed period, in the fields of *Business, Administration And Law* (25-30%), *Engineering, Manufacturing and Construction* (16-19%) and *Health And Social Care* (12-15%); **reduced shares (3-5%) at the level of Educational Sciences, Services, Agriculture, Forestry, Fish Farming And Veterinary Sciences, Natural Sciences, Mathematics and Statistics**.¹¹

✓ **Graduates with a Master's university degree**

The end of the **2021/2022** academic year **saw a drop in numbers** (38,457 graduates). The analysis of the distribution of graduates with a master's degree by the fundamental fields of study highlights: the largest shares in the fields of *Business, Administration and Law and Engineering, Manufacturing and Construction*, the lowest shares in the fields of *Agriculture, Forestry, Fish Farming and Veterinary Sciences and Health And Social Care*.¹²

✓ **Graduates with a doctoral and postdoctoral university degree**

At the end of the **2021/2022** academic year, **the number of people who obtained doctoral and postdoctoral university degrees was decreasing compared to the previous year**. Out of 2,263 graduates: most PhD degrees were obtained in the fields of *Arts and Humanities* (20.2%), *Engineering, Manufacturing and Construction* (18.6%) and *Health and Social Care* (18.6%), and **the least in the fields of Educational Sciences (1.6%), Information and Communication Technologies (2.3%) and Services (3.8%)**.¹³

✓ **Human resources in higher education (2022-2023 Report, quoted docs., section 1.4.)**

In the academic year **2022/2023**, **the number of employees in higher education was 51,048 people, in a slight increase compared to the previous year**, (over 90% of the total teaching staff teach in state higher education and only 10% in private education, and over half is in the 40-54 age range)¹⁴.

✓ **The number of students assigned to a teaching staff member (2022-2023 Report, quoted docs., section 1.4.3.)**

In the academic year **2022/2023**, **the ratio between the number of students and that of teaching staff was 15.4, decreasing compared to the previous year, and the number of students per teaching staff was higher in private education (21.7), compared to state education (14.8)**.¹⁵

✓ **European indicators**

The graduation rate of tertiary education in Romania is low, and the number of students is decreasing. In **2022, 24.7% of Romanians aged between 25 and 34 had a tertiary education degree, compared to the EU average of 42%**. The figure remains low due to generally low participation in higher education, high dropout rates from tertiary education and, in part, emigration. The most recent data available shows that between 2011 and 2021, the number of students enrolled in a bachelor's programme has fallen by more than 20%, including due to demographic factors. At the same time, early school leaving, low baccalaureate pass rates and a high rate of students who do not take the baccalaureate exam limit the number of young people who could enrol in higher education.

Part II of the 2022-2023 Report – “Relevant actions and results achieved in the academic year 2022/2023” (2022-2023 Report, quoted docs., pp. 52–78), to achieve the objectives assumed by the “Educated Romania” Project, covers aspects such as:

1. **“Ensuring the normative framework of the higher education system”**, in the 2022/2023 academic year, 89 normative acts were developed, regarding the organization and operation of the higher education system.

2. **“Participation in forms of higher education”** – “Reviews and support studies for the foundation of public policies for higher education”, from which we exemplify:

Within the Project POCU – “Quality in higher education: internationalization and databases for Romanian education” - implemented by UEFISCDI and ME (the Project POCU, 2022), studies and reviews were carried out that focused on the issue of access to higher education, including the definition and use of an instrument for measuring dropout in Romanian higher education, **the dropout rate being measured for the first time.**

In Part III of the 2022-2023 Report – “Directions for the development of higher education 2024” (2022-2023 Report, quoted docs., pp. 79-84), it is stated that these directions are drawn in accordance with the *Higher Education Law no. 199/2023* and in accordance with the strategic objectives of the “Educated Romania” Project, as well as with the requirements of the beneficiaries of education, from which we selectively reproduce the following:

1. „Increasing participation in university education”

- increasing material/financial support for students from disadvantaged groups,

- the development of dual-type higher education, reconnecting the economic environment with the university environment,

- multiplication of analyses and studies specific to higher education (such as monitoring the professional insertion of graduates in the labour market);

2. “Increasing participation in lifelong learning”

- the implementation of the Global Convention for the Recognition of Higher Education Qualifications, adopted in Paris on 25.11.2019 and ratified by Romania through Law no. 164/2021 (2021);

3. “The internationalization of higher education in Romania”

- the development of periodic studies and analyses to monitor the degree of internationalization of Romanian higher education,

- accelerating the digitization of Erasmus+ mobility administration,

- the establishment of a new programme aimed at training Romanian specialists in key fields, at prestigious European institutions;

4. “Increasing the capacity of university management to implement national policies”

- the implementation of appropriate mechanisms for monitoring the insertion of graduates on the labour market,
- monitoring, evaluating and improving the infrastructure and the capacity of universities to implement various national policies;

5. “Increasing university autonomy in terms of the use of own funds and human resources policies”

- implementing the principles of good governance, ethics and academic integrity, to increase the trust of the general public and international partners;

6. “The quality of doctoral studies and the consolidation of an ethical climate in the university environment”

- intensifying the support offered by universities to PhD students, to encourage their originality,
- harmonization of university ethics codes with developments at the level of the *European Higher Education Area* (European Commission, 2024),
- expanding the obligation to attend ethics and academic integrity courses in all academic study cycles;

7. “Supporting partnerships, opening up to society”

- supporting exchanges of experience and good practices, in order to support university representation and affirmation on a national and international level;

8. “Developing a digital ecosystem for university education”

- the digitization of educational processes in higher education, including the training and development of advanced digital skills for teachers and students,
- the development of projects regarding the digitization of universities, financed from PNRR,
- the correlation of data collection tools with the National Institute of Statistics and the operationalization of IT systems for higher education.

4. Expert opinions expressed in other reports/studies/reviews, in relation to the issue of higher education in Romania

The problems faced by the Romanian higher education have been a constant concern of the specialists and with various topics were approached in the publicly expressed opinions, such as: “*The quality of the students, the level of instruction*”, “*Desynchronization between the study programmes and the requirements of the labour market*”, “*Avoidance of the teaching profession*”

by graduates”, “Involvement of technology in education and research”, “Bureaucratization of education”, “Financing of education and research”, “Youth migration, loss of human resources”, etc. (Badea, n.d.)

Specialized circles estimated about the **academic year 2022/2023** that “...it is prefigured to be twice as complicated, because an overlap of crises - financial, energetic, social, legislative is taking shape”, and rendered aspects such as: “*Outlook for fierce competition in the university education market*”, “*The number of teaching staff in higher education continues to decline*”, “*Higher education quality and universities’ rush for students*” (Gheorghiu, 2023). At the same time, the **Ministry of Education** (2021-2022) published the *Report on the condition of higher education in Romania 2021-2022* the aspects of its content being commented on in the approved media, in the sense that: in the last decade, the graduation rate of higher education (aged between 25-34 years) has not significantly improved, **a long-term stagnation trend** being recorded, the low levels of higher education graduation rates being determined by causes such as high early school leaving rates, low baccalaureate pass rates and **low levels of participation in higher education by students from disadvantaged backgrounds**.

“*Equality of access and opportunity remains a significant challenge, with a particularly low rate of completion of tertiary education in rural areas*” (Tanase, 2023). As early as **2015, the Romanian Court of Accounts** (2015) analysed, as part of a performance audit mission, the issue of “*increasing the percentage of higher education graduates, in accordance with the provisions of the Europe 2020 Strategy*”, over a period of 5 years (2011-2015), and the Synthesis of the Report drawn up as a result of this mission presented numerous elements and important assessments for the state and evolution of this phenomenon, from which we continue to capture some aspects.

Fierce competition on the higher education services market will force universities to reform and increase the quality of educational services provided (The Romanian Court of Accounts, 2015, p. 5). One of the basic pillars on which the *Europe - 2020 Strategy* is built is education, however not the one reduced to statistical measurements, but that education that, through quality and competitiveness, generates knowledge, skills, employability, productivity and finally **well-being** (The Romanian Court of Accounts, 2015, p. 12).

The contraction of higher education will be considerable, and the competition on the educational services market will be fierce, a situation that can represent a chance for Romanian higher education **to increase the quality of university training** (The Romanian Court of Accounts, 2015, p. 25).

Romania has lost a substantial part of its highly skilled workforce and the process is unlikely to ease in the future. The emigration of the labour force relieved but also destructured the market, and some areas began to experience an acute shortage of highly qualified labour. In this context, the problem of carrying out studies to inventory the specializations most vulnerable to emigration and those in which a significant internal restructuring is recorded, so that they can be considered for the **foundation of differentiated financing policies**, is becoming more and more acute (The Romanian Court of Accounts, 2015, p. 66).

Conclusions

Higher education occupies a key position in the service of society and the economy. In the context in which EU member states have set the objective that, **by 2030, at least 45% of people between the ages of 25 and 34 will obtain a higher education degree, a constant increase in the share of persons with higher education** is estimated at the EU level.

Evidence of the **EU's attractiveness as a study destination** is the large number of graduates from outside the EU, with an increasing share of graduates who have obtained a full degree in a foreign country, known as **degree mobility**. Although **progress has been made in the implementation of educational mobility-friendly policies**, there are still areas for improvement in all EU education systems, with **support for disadvantaged learners** still needed. Relevant data regarding the developments and perspectives of Romanian higher education can be found in the *Report on the condition of higher education in Romania 2022 - 2023*, prepared by the Ministry of Education.

Higher Education Law no. 199/2023 allows the start of the necessary reforms within the university education system, provided for in the "*Educated Romania*" Project, so that, by 2030, Romanian higher education become a fair and high-quality one for all students. Demographic trends in recent years highlight **the decrease of the resident population of higher education age, and the total number of students enrolled in Romanian higher education is decreasing**. Looking at **university bachelor's and master's studies**, at the level of **2022/2023**, there were **fundamental fields of study with a large number of students** (*Business, Administration and Law*) and **others with a small number** (*Educational Sciences*), while in **postgraduate programmes**, **almost two-thirds of the students were enrolled in the field of Educational Sciences**. Also, the number of people enrolled in **doctoral university studies was decreasing compared to the previous year**, in the academic year **2022/2023** the lowest percentage of PhD students being recorded in the field of *Educational Sciences* (1%).

The pass rate in bachelor's university education has decreased in recent academic years, during which **the field of *Educational Sciences* recorded high values of the pass rate** (91.5% in the 2021/2022 academic year). With regard to the **distribution of bachelor's university education graduates** (with or without a bachelor's degree) on the fundamental fields of study, **low shares were highlighted in the field of *Educational Sciences* (3 - 5% in the period 2014 - 2022).**

At the end of the 2021/2022 academic year, **the number of people who graduated from higher education with a degree was decreasing compared to the previous year, for all study cycles** (bachelor's, master's, doctoral, postgraduate programmes), and **the fewest doctoral degrees were obtained in the field of *Educational Sciences* (1.6%).**

Looking at **human resources in higher education**, at the level of 2022/2023, **the number of employees was slightly increasing compared to the previous year** (more than 90% of the total teaching staff teaches in state higher education). **The ratio between the number of students and that of teaching staff was decreasing compared to the previous year, the number of students per teaching staff being higher in private education (21.7), compared to state education (14.8),** which can lead to a decrease in the quality of the educational act in private education.

European indicators show that the graduation rate of tertiary education in Romania is low, and the number of students is decreasing, due to generally low participation in higher education, high dropout rates from tertiary and part-time education, due to emigration and demographic factors.

The results obtained in the academic year 2022/2023, in order to achieve the objectives assumed by the "*Educated Romania*" Project, were based on relevant actions such as **ensuring the normative framework of the higher education system**, through the elaboration of 89 normative acts, as well as numerous analyses and support studies for the **foundation of public policies for higher education**, the dropout rate being the first to be measured.

The directions for the development of higher education in 2024 were drawn in accordance with the *Higher Education Law*, in accordance with the strategic objectives of the "*Educated Romania*" Project and with the requirements of the beneficiaries of education, aiming among others: **increasing participation in university education and forms of education throughout life, the internationalization of higher education in Romania**, increasing university autonomy and the ability to use financial and human resources, increasing the quality of doctoral studies and **consolidating an ethical climate in the university environment, developing a digital ecosystem for university education**, etc.

In the **Report of the Romanian Court of Accounts (2015)** it was estimated that: on the one hand, the higher education services market will force universities to reform and increase **the quality of the educational services** provided, due to the considerable contraction of higher education and increased competition, and on the other hand, **Romania has lost a substantial part of its highly qualified labour force, and the process is difficult to mitigate in the future**, as studies are needed to show the specializations most vulnerable to emigration, in order to be considered for the **foundation of some** adequately differentiated **funding policies**.

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