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Digital recovery – a tool for gender equality

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Abstract. *The health crisis caused by Covid-19 has turned into an economic and social crisis that has affected all of us, but especially vulnerable people. With women being the majority in the sectors affected by the crisis, gender inequality increased during this period and has become a major issue in all EU's states. As a response to this crisis, the European Commission and Member States have agreed on a recovery plan with a stimulus package to boost the recovery in a digital and sustainable way in order to create a more resilient Europe. Digital technology has changed many things in our lives, economy and society and can be a major opportunity to address gender inequalities that affect both women and men, often in different ways. This paper examines gender inequalities at EU level and how digitization can make important steps in order to reduce the gender gap. Furthermore, in the last part of this paper we will suggest recommendations with a strong focus on the labor market in order to improve this current situation and to put gender equality in the middle of future EU's policies.*

Keywords: digitalization, gender inequalities, recovery plan, Covid-19.

JEL Classification: D04, J2, O3.

Introduction

Information and communication technologies (ICTs) are seen as necessary ingredients for economic and social development in the so-called 'knowledge society' and have attracted attention by governments, businesses, citizens and civil society organisations. They are tools with multiple functionalities providing ample opportunities for information and communication and having applicability in the entire sphere of economic, social, political and cultural life.

The recent crisis caused by SARS-CoV-2 has shown us the need to accelerate the digitization process in the European Union. For most employees, the work moved home to an online system, which required digital skills. Some sectors of the economy, such as social and tourism, have not had the opportunity to transfer their activity to the online environment. Because in these sectors most employees are female, the effects of the crisis were felt unevenly, with women being much more affected by the lockdown. Thus, the gender gap has widened and become an important social and economic issue for all EU countries.

The Recovery Plan for Europe is an ambitious plan of measures and the largest stimulus package ever funded through the EU budget. Through this plan, a post-COVID-19 Europe will be rebuilt, that will be more inclusive, digital and greener. The digital part is a very important one, Member States must use at least 30% of the financial resources of this plan in measures to increase the digitalisation of the economy and society. At the same time, the aim of this recovery plan is to transform the economies into more inclusive and sustainable ones in order to meet the challenges that the digital transition could produce.

Information and communication technologies are considered to generate opportunities for increasing employment among both women and men. Increasing digital skills for women can represent the security of better paid jobs and access to other facilities such as e-government, e-health, e-banking, e-learning, e-commerce, e-voting.

Given the urgency of identifying measures to support both the economic recovery and the digital transition in a way that contributes to reducing gender inequality, this article aims to analyze the current state of gender inequality in the European Union, but also the measures by which the digital transition can contribute to closing the gender gap.

Literature review

The pandemic caused by COVID-19 highlighted the existing gender inequalities in society and in some places even aggravated them. The recovery and resilience plan as European Union's response to the effects of this crisis, sets digitalisation as an important goal in economic and social measures. Digitization is an opportunity to adopt inclusive measures that promote gender equality so that they are not left behind.

The digitalization and widespread use of the Internet has transformed the way we live and work, and created new opportunities for personal development and the labor market, supporting innovative and sustainable technologies. The World Bank (2009) estimated that

each 10% increase in access to broadband produces a 1.38% increase in GDP for developing countries. However, we face a digital gap, women do not have equal access to the internet and face challenges both in social life and at workplace. The share of women among ICT and engineering graduates in the EU is 17%. Between 2004 and 2015, it declined in 20 Member States (EIGE, 2018).

Digital technology can be a tool to reduce gender inequality and promote inclusive and sustainable growth. ICT can be an opportunity for women to find jobs, also improving digital skills can reduce the pay gap between women and men, giving them higher salaries, they can have better access to health services, children's education, etc. EIGE's research (2018) shows that promoting women's and girls' access to STEM education (Science, Technology, Engineering and Mathematics) would contribute to the creation of over 1.2 million jobs by 2050 and would increase GDP over the long-term (up to EUR). 820 billion by 2050). At the same time, it would reduce the gender pay gap, because jobs that require STEM education are better paid.

The World Bank (2012) analyzed the effects of discrimination against women on the labor market and pointed out that this leads to slowing economic growth and lower productivity. They found that reducing or even eliminating discrimination would increase workers' productivity by 40%. Also, they found that eliminating discrimination against women in employment could boost worker productivity by up to 40%. If women's paid employment rates rose to equal those of men, GDP could increase by up to 14% by 2020.

A study analyzing how digital is helping close the gender gap at work (Accenture Research, 2016) looked at the concept of digital fluency. They describe digital fluency as the extent to which people embrace and use digital technologies to become more knowledgeable, connected and effective. They say digital fluency can help close the gender gap, and if governments make the necessary investments to double the pace at which women become digitally fluent, we could achieve gender equality in the workplace by 2040 in developed countries and by 2060 in developing countries.

Most authors believe that digitization will bring changes on the labor market. In terms of gender inequality, it is important to see whether this digitization process will exacerbate these inequalities through job losses, especially by women. Dengler and Matthes (2016) conducted an analysis in Germany on the risk of job losses due to digitalization. They found that In low-skilled jobs, the potential for substitution for men (54%) is significantly higher than for women (37%). Moreover, in the case of men, the risk of losing their job decreases as the job involves a higher level of knowledge, while in the case of women the risk increases in terms of skills. The accession states that the argument for this situation is given by the way the labor market is formed. Women make up most of the employee in social and cultural services, which are more resistant to automation while men have jobs in the technical field that can be replaced more easily.

Digitization at the center of the post-covid recovery plan

The Covid-19 pandemic has changed both the way of life and the way of working, many businesses have gone bankrupt, others have temporarily stopped working, and many people have lost their jobs or become technically unemployed. Moreover, this pandemic has accentuated the dependence on digital technology and has further highlighted the benefits of its use, as well as the need to accelerate the digitization process.

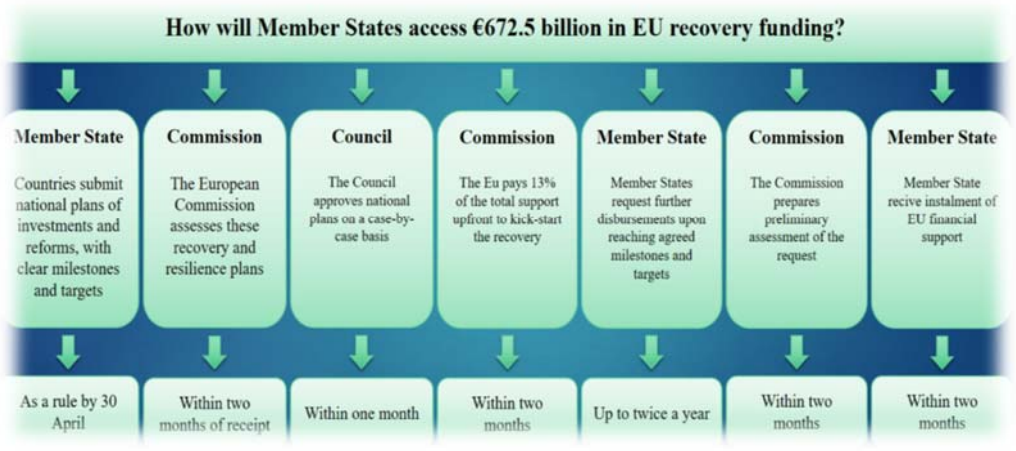
Through the Recovery and Resilience Plan, governments aim to recover post-covid economies and create better resilience, and the digital process will play a very important role, being placed at the heart of measures to bring the European Union's economy back on track.

In order for the population to fully benefit from the benefits of digitization, it is first necessary to ensure an appropriate infrastructure; increasing the degree of internet access; improving citizens' digital skills through training programs; improving the quality of digital education in schools, etc.

The Recovery and Resilience Plan is one of the European Union's most ambitious investment and reform plans, with 672.5 billion euros, 312.5 billion in grants and 360 billion in loans. It is a tool of NextGeneration EU along with other programs such as Horizon2020, InvestEU, rural development or the Just Transition Fund.

In order to benefit from these funds made available by the European Union, a Member State must draw up a recovery and resilience plan proposing a reform package and projects appropriate to the needs of the economy and society. However, the reforms and projects proposed by each Member State must support a sustained and inclusive long-term recovery centered on the green and digital transitions. This is an important opportunity to adopt the most appropriate reforms that will lead to job creation, inclusive growth and thus for all citizens to benefit from green and digital transitions.

Figure 1. *How will Member States access the recovery funds*



Source: European Commission.

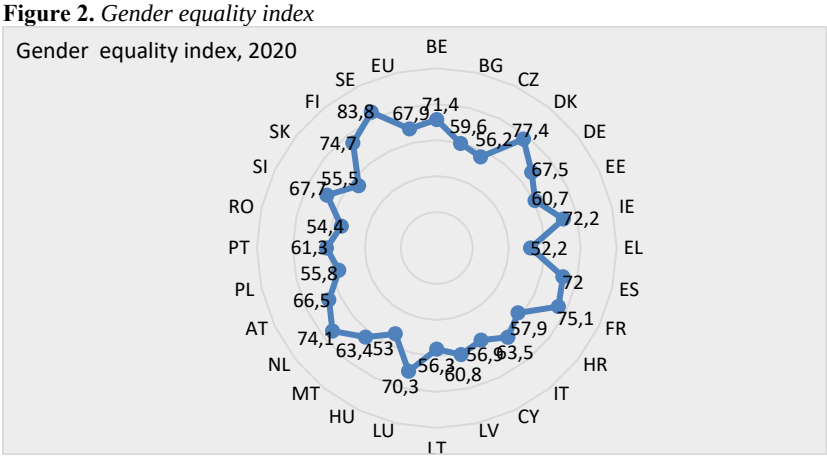
There are two important rules that Member States must take into account when drawing up the Plan. The European Commission has proposed a target for Member States, namely that at least 20% of expenditure be directed to projects that foster digital transition. The second rule refers to the fact that each Member State must take into account the country-specific recommendations adopted by the Council through the European Semester.

Therefore, Member States have the opportunity to make major and important investments to increase the living and working conditions of citizens. The current crisis has shown us that investment in increasing digital progress needs to be geared towards: increasing the population's access to the Internet, improving the population's digital skills so as to reduce gender inequality and make access to well-paid jobs easier, Accelerated the digital transformation of our public services, digitalization of medical and education services so that they can be accessed by the population and in times of crisis, Connect rural areas into a digital inclusive society, investments in industries of the future, digitalization of business so that they are adapted to the future.

Gender inequalities in EU

Gender inequality is a reality that we encounter in all European Union countries. Women face this reality every day in various forms, at work, in terms of education, in terms of pay, in household chores. The Gender Equality Index is a tool to measure the progress made at the European Union level, taking into account 6 areas of work, money, knowledge, time, power and health. Thanks to this instrument, Member States can implement objective measures in the areas where they have the worst results. As we can see in the graph below (figure 2), the results recorded by the Member State in recent years are modest, with only 9 of the 27 states above the EU average of 67.9 points.

Figure 2. *Gender equality index*



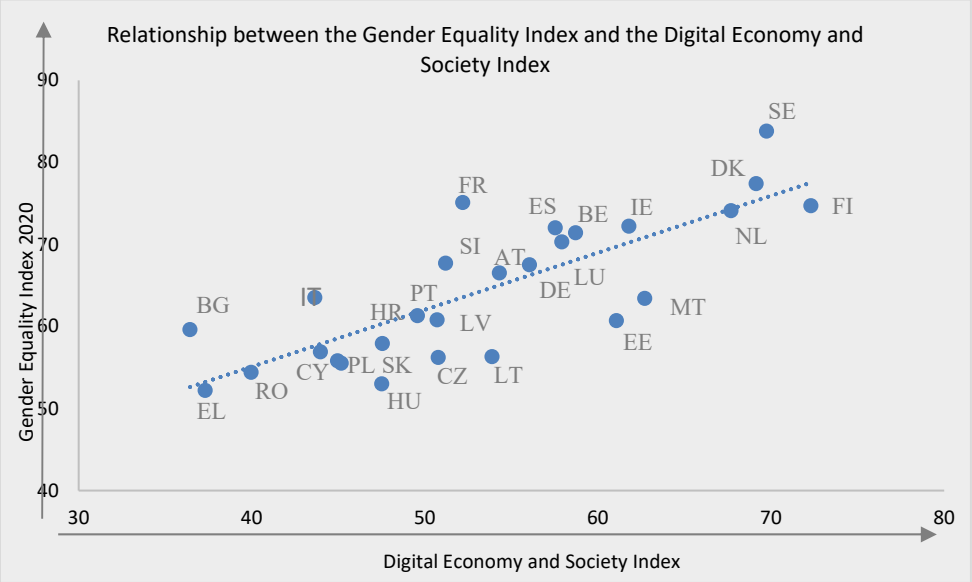
Source: Gender equality report, 2019.

The lack of visible progress makes women vulnerable in crisis situations, such as the current COVID-19 crisis. The top of the ranking is held by Sweden and Denmark, states that are part of the Nordic submodel where the emphasis is on lifelong learning, a well-

built system of social assistance, increased labor mobility, etc. We note that there are also countries that have recorded notable results in recent years, such as Italy, Portugal, France.

The coronavirus pandemic has caused economic and social damage felt throughout the European Union. Compared with other crises, this time women felt the most negative effects because they tend to work mostly in the social sectors, sectors that have been severely affected by the "lockdown" (Nae T. et al, 2020). The Recovery and Resilience Plan is the European Union's response to removing the effects of the crisis and consolidating a more digital, green and resilient Europe. Digitalisation is an opportunity for Member States to take inclusive measures to help reduce gender inequalities.

Figure 3. *Relationship between the Gender Equality Index and the Digital Economy and Society Index*



Source: Own calculation based on European Institute for Gender Equality data and European Commission data.

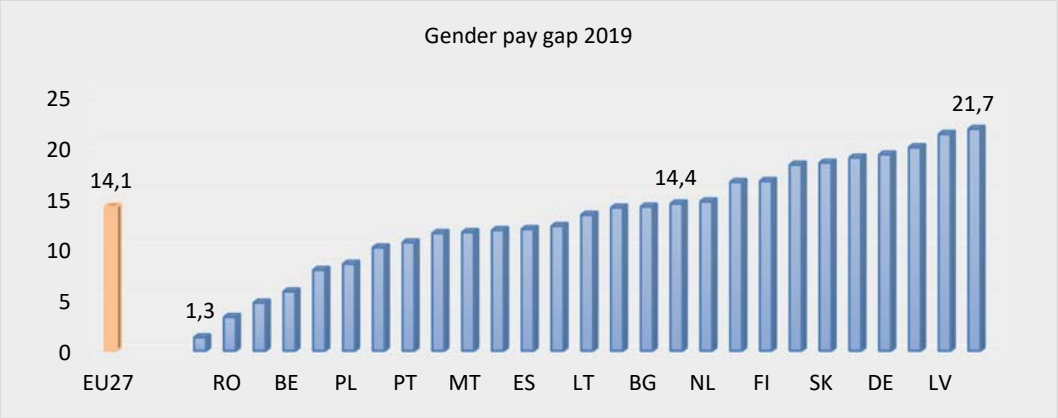
Progress has been made in recent years on gender equality, the percentage of employed women has increased, more and more women have a job in parliament, and the percentage of women in leadership positions has increased. Also, mesures ar taken to advance gender equality (e.g. European Commission's strategy on gender equality – Gender Equality Strategy 2020-2025). Despite this progress, there is still a significant gender gap in the European Union, and the pandemic has a regressive effect on the progress made in recent years.

It should be noted that the gender pay gap is primarily a structural problem and without the adoption of serious structural reforms, this problem will only partially improve. As we can see in the chart below (figure 4) there is a significant difference between average gross hourly earnings of male and female employees both within and between countries. The smallest gap is found in LU, RO, IT, and the largest gap is in EE, LV, AT. However, the reduced gap does not necessarily reflect greater gender equality but greater employment among women.

The Digital Economy and Society Index measures the level of performance in the field of digitalisation in the Member States, taking into account connectivity, human capital, use of the internet, integration of digital technology, digital public services. The analysis of the

relationship between the Gender Equality Index and the Digital Economy and Society Index shows that the states with the best results in terms of gender equality are also the best in terms of digitalization. As we presented in the section of the literature, the employment of women on the labor market, supporting women towards SME education, etc. increases productivity and innovation. The Nordic villages record the best results this time as well, at the bottom of the table we meet countries such as Romania, Greece, Bulgaria. The data analyzed indicate a close relationship between the level of gender equality and the level of digitization, so it is desirable that Member States adopt measures on digitization that are also inclusive, in order to reduce gender inequality, as gender inequality low supports the digital performance of the economy.

Figure 4. *Gender pay gap as difference between average gross hourly earnings of male and female employees (as % of male gross earnings)*



Source: Eurostat.

One of the main current objectives at European level is the ecological and digital transition. Digital technology has contributed to the maintenance of activities during social distancing restrictions and is expected to continue to be a key element in the development of post-covid life. The challenges facing the digitalisation process are multilateral: (i) social (job losses and rising unemployment), (ii) financial (the need to invest substantial amounts to support these processes), structural (low digital skills of the workforce, poor condition of basic infrastructure) etc.

Overview of digitalisation process among women

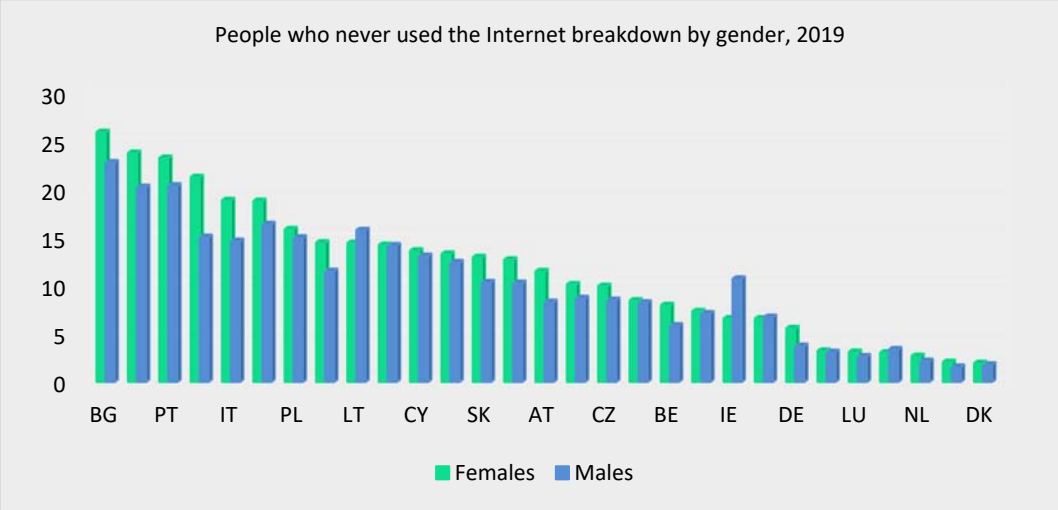
The ownership and use of digital technologies have substantial potential for economic empowerment of women and increasing gender equality. Access to the internet and ownership of and access to digital devices can offer additional employment opportunities, income and knowledge.

First, we analyzed the percentage of people, by gender, who have never used the Internet in the European Union in 2019. The Internet, nowadays, is widely used by the entire population, being the most accessible digital tool and being a need to reap the benefits of the process of digitizing the economy and society. As we can see in the figure below, the

data at EU Member State level is worrying. In Bulgaria, Greece and Portugal over 20% of individuals never used the internet.

The European Union average is 10.2% for women and 8.72% for men. In 23 countries, the number of women who have never used the Internet is higher than that of men, with the exception of Lithuania, Ireland, France and Finland, where men have higher scores. Member States need to identify the causes of this data and propose appropriate reforms so that the entire population has access to the Internet and digital skills. As we can see, there is a gender difference that is visible and that contributes to the accentuation of gender inequalities.

Figure 5. *People who never used the Internet breakdown by gender, 2019*

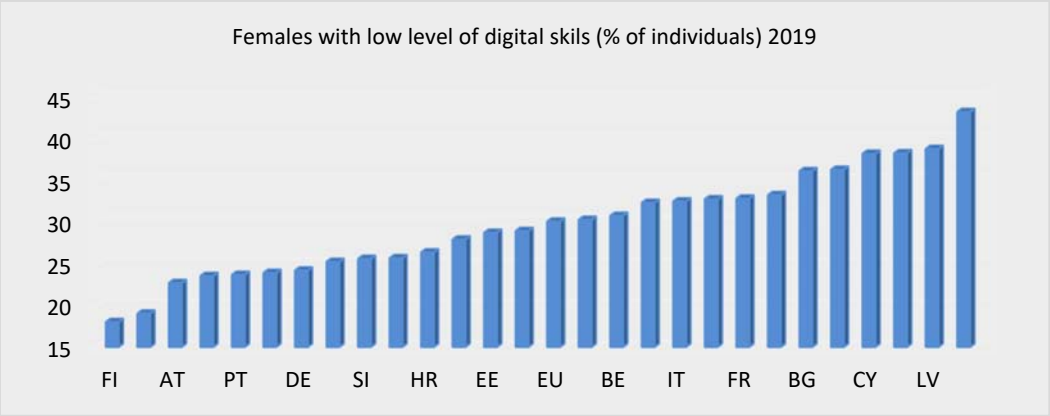


Source: European Commission.

Digital skills are essential to be able to benefit from the opportunities offered by digital progress. More and more sectors of the economy have undergone an extensive digitalization process in recent years, so digital skills are required by employers. The younger generation has a higher level of digital skills and there are no inequalities in terms of women and men, but older people tend to have a lower level of digital skills. Figure 5 indicates that the number of females with low levels of digital skills in the European Union is very high. In Romania over 40% of women have low digital skills which leads to a slow progress in terms of gender equality index, as we saw in Figure 1. Only two countries have scores below 20%, these being Finland and Norway, states where investment in education and gender equality are among the highest.

A high level of digital skills in the population, but especially in women is very important in creating inclusive digital progress. In order to benefit from the opportunities offered by the new technologies of the future, women must have advanced digital skills in order to adapt to the new requirements of the labor market.

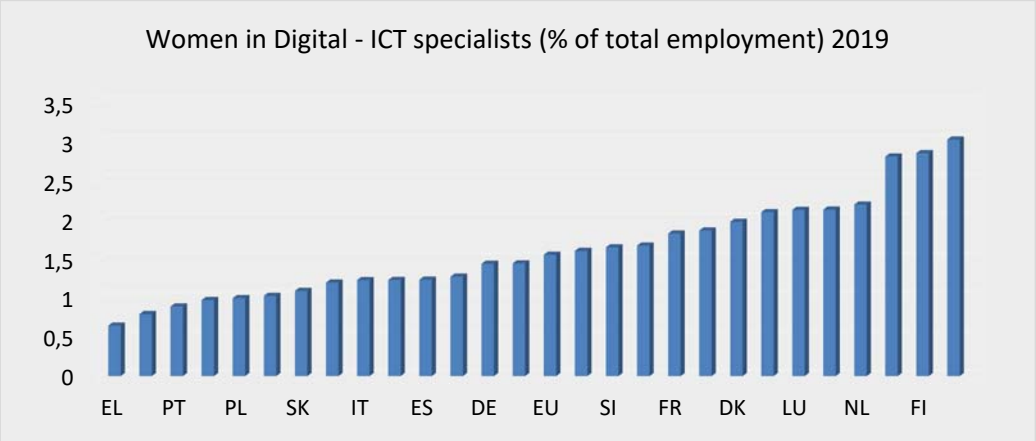
Figure 6. *Females with low level of digital skills (% of individuals) 2019*



Source: Eurostat.

ICT jobs are in the category of well-paid and sought-after jobs. The chart below indicates that women represent a small part of ICT specialists. Most women ICT specialists are in Sweden and Finland, about 3% of all employees, and the fewest are in Hungary and Greece with about 0.5% of all employees. Jobs in this category would provide them with higher incomes, which would allow them to invest in personal development, in the education of children, an above-average living. At the same time, the development that the ICT sector has known in recent years would ensure greater mobility on the labor market.

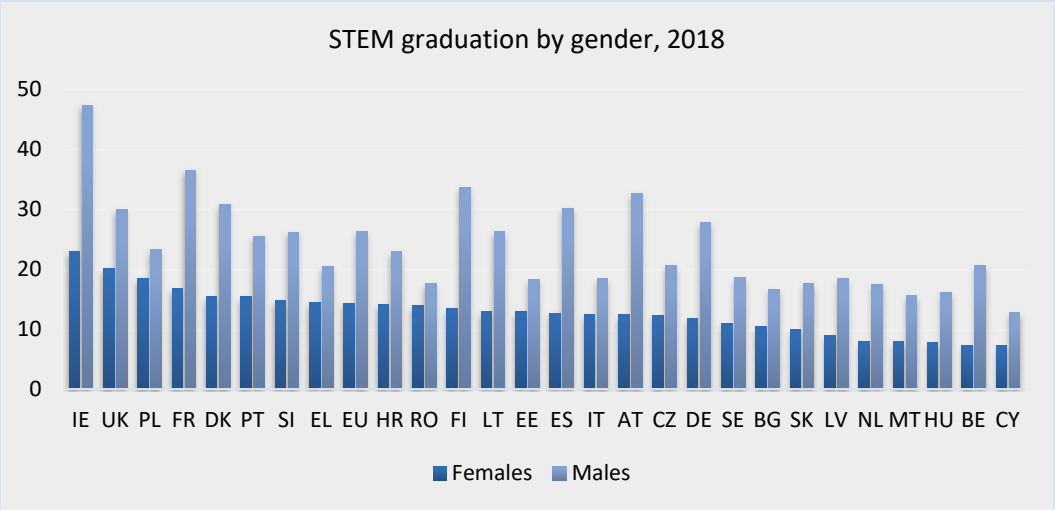
Figure 7. *Women in Digital – ICT specialists (% of total employment) 2019*



Source: Eurostat.

Given the low results regarding women ICT specialists, we also analyzed the number of women who choose STEM education. Data from 2018 indicate that a small number of women are graduating from technical studies. Despite a growing demand for people with advanced digital skills, the number of females studying STEM is far below the number of males. As we can see there is a gender gap regarding the number of graduates of STEM studies, in all EU countries these areas are dominated by men. This leads to the emergence of gender inequalities in the labor market, the segregation of women in certain areas, such as social, much lower paid.

Figure 8. *STEM graduation by gender, 2018*



Source: Eurostat.

Therefore, at the level of the European Union there is a digital gap that leads to the disadvantage of women in the labor market and in society. The Recovery and Resilience Plan that has in the center digitization, is a tool to reduce the gender gap and promote an inclusive and sustainable economy. Digitization and recovery reforms must be designed in the spirit of European values, solidarity, cohesion, and prosperity so that the entire population benefits from new opportunities. In order to achieve that, Member States must include achieving gender equality in the digital field in the reforms promoted, increase internet access, invest in women's education so as to increase digital skills and enable women to benefit from technological progress, and digital, to support female entrepreneurs in digital, to collaborate with the private sector so as to provide digital training for women to occupy higher positions within the company or to adapt to new requirements so as to avoid job losses.

Conclusion and Recommendation

The response to the pandemic should not be limited to measures to address gender inequalities, but to building a society that focuses on developing the potential of the female part of the population, as this is the key to stability and better economic resilience in the future. The transformation of society and the economy into a digital one is obvious and we feel it every day. The digital revolution must be in line with European values and promote cohesion and prosperity for all its citizens. As we have seen in the data presented above, at the level of the European Union there is a digital gap that risks affecting the results of digital reforms and recovery, affecting competitiveness and social inclusion.

Policy makers should also focus their efforts on changing society's perception of the role of women in the economy and society and implementing measures to empower women to be more active in digital activities.

For digital transformation to be a success, new tools need to be created to facilitate and accelerate the recovery from the crisis, and this transition must also take into account the

creation of new long-term opportunities to ensure good resilience in European Union countries. Thus, we consider it is necessary to implement reforms aimed at the following aspects:

Digital infrastructure – ensuring a good connectivity and implementation of digital services to make easier everyday life, which will also facilitate the performance of essential activities, as well as the modernization of existing platforms.

Education – the introduction of study discipline that will form the digital skills of students from primary school. There is also a need for a good digital infrastructure to enable the use and development of these skills. At the same time, adults should benefit from training and professional programs in the digital field. Policies should focus on boosting female labor force participation, investing in education, vocational training, even retraining. These measures help to obtain quality jobs. IMF research suggests that female labor force participation in India would rise by 2 percentage points if Indian states increased education spending by 1 percent of GDP (IMF, 2018).

Health – The provision of medical services has been interrupted by the context of the pandemic, but they have adapted very well to the online environment, this context can be considered an opportunity for investments in digital technologies that allow online consultations and other specific services.

Labor Market – In terms of mediating gender inequalities, the Government should create the right framework to attract as many women as possible to the labor market, thus the gap between the employment rate between men and women would be smaller, and total household income could grow substantially. Also, it is necessary to correlate jobs with digital skills so that they can be put into practice and capitalized.

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Creative methods for increasing the resilience of human resources to organizational change

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Abstract. *Survival and increased organizational performance depend on the ability of human resources to adapt to the permanent changes they face, that is, on their resilience. Resilient organizations have the ability to address change positively and meet challenges in crisis or difficult situations.*
The particular focus on human resource resilience stems from the interest in strengthening and increasing organizational performance, and these are influenced by the extent to which employees are able to cope with daily changes in the workplace.
This paper aims at a theoretical review of research on creative methods to promote and improve resilience among employees.

Keywords: creativity, changes management, resilience, human resources.

JEL Classification: O150.

1. Introduction

The complexity of defining what appears to be the relatively simple concept of resilience is widely recognized. Organizational resilience is multidisciplinary and multidimensional and relatively new to the knowledge of human resource management.

Today's unpredictable and chaotic environments raise the issue of resilience as a desired aspect of individuals, groups, organizations, communities and societies.

The concept of resilience has been applied in various fields of pre-psychology, environmental ecology, economics and engineering, but the term was initially used in the field of child psychology (Holling & Gunderson, 2002).

In organizational management studies, the concept of resilience has been used in crisis management to increase the reliability of organizations (Paton & Johnson, 2001).

Current changes in society require organizations to be flexible, adaptable, and creative enough to respond optimally to them, so that resilience has become a crucial concept for organizations to survive in turbulent and unpredictable environments. (Warner & Pyle, 1997).

As resilience becomes increasingly important for organizations, the gap in the literature on conceptualization, its sources and results creates an urgent need to understand the concept.

In the last decade, some studies have been organized focusing on organizations operating in changing environments, in an attempt to understand the principles of resilience (Mallak, 1998), sources of resilience (Weick, 1993) or characteristics that contribute to resilience (Wilson & Ferch, 2005).

2. Organizational resilience - overview

Researchers have defined organizational resilience as the ability of the organization to cope with change, continuing to grow by encouraging learning and adaptation (Folke et al., 2010).

Organizational resilience has two perspectives (Valikangas and Romme, 2012):

- *operational resilience* – focuses on overcoming the crisis and returns to a previous condition, often associated with the ability to interpret and adaptive action, also called passive resistance (Somers, 2009).
- *strategic resilience* – an active resilience, defined as the ability to quickly turn threats into opportunities, identifying a unique opportunity and acting quickly and efficiently (Valikangas & Romme, 2012).

Horne and Orr (1998, p.31) define resilience as "a fundamental quality of individuals, groups, organizations, and systems as a whole to respond productively to significant changes that disrupt the expected pattern of events."

Mallak (1998) states that resilience is not only necessary in the case of sudden shocks, but is also relevant for employees facing continuous transformation of the business environment.

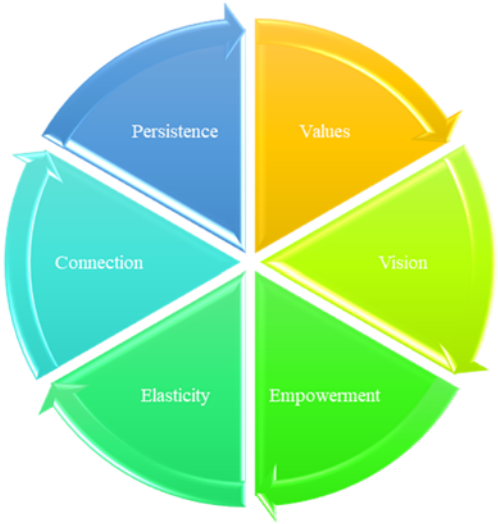
Robb (2000) considers that an organization that focuses on providing efficient services, in line with the proposed objectives, is constantly innovating and adapting to changing conditions in society, then this organization has a high level of resilience to change.

After consulting the literature we can say that organizational resilience is a capacity that helps the organization to successfully cope with the permanent changes in today's society and to achieve its organizational objectives effectively.

Hamel and Valikangas (2003) highlight the 3Rs: revolution, renewal and resilience, three important components of the constant reconstruction of organizational values, processes and behaviors.

In 1999 Mallak developed the theory of organizational resilience by analyzing the concept from six perspectives: vision, values, elasticity, empowerment, persistence and connection (Figure 1).

Figure 1. *Perspectives of organizational resilience*



Source: made by the authors.

Thus, a resilient organization would have the capacity to adequately navigate crises and to thrive and capitalize on change through opportunity. This is achieved by monitoring intra- and extra-organizational events, anticipating problems, and learning from experiences (Lengnick-Hall et al., 2011). These include a strong leader, a strong culture of learning and effective communication, factors that facilitate adaptive and proactive behaviors and are the basic features of a resilient organization.

The ability of an organization to develop these characteristics, however, is conditioned by the capabilities of employees, especially those of a proactive nature, such as the use of technology and learning from mistakes.

To date, only a few studies have investigated resilience capabilities in the organization. Therefore, in order to describe these capabilities, it was necessary to integrate the results from the research areas that specify the individual resilience stages:

- *Ability to anticipate*: Anticipation is the first dimension of organizational resilience, which refers to the ability of human resources to detect change and adapt proactively. (Teixeira and Werther 2013). This does not mean that resilient organizations can prevent any failure or crisis. Crises often do not herald their arrival. However, some organizations may see the unexpected faster and react immediately to it while others "wait to see." Madni and Jackson (2009) indicate that systems need anticipatory capabilities to avoid threatening situations or at least to minimize potential negative consequences.
- *Coping skills***:** In addition to anticipating and preparing for critical events, resilience also means dealing with "unforeseen dangers after they have become apparent" (Wildavsky 1991, p. 77). In the literature, there are many synonyms for "dealing with unexpected events": for example, dealing with unknown hazards (Wildavsky 1991), productive response to significant change (Horne and Orr 1998) or designing and implementing positive, behavioral adaptive immediate (Mallak 1998). Clearly, all these terms refer to the effective management of the unforeseen so as to withstand change. The general ability to deal with the unforeseen is closely linked to crisis management and can be separated into two subcategories: the ability to accept a problem and the ability to develop and implement solutions (see, for example, Jaques 2007). These capabilities involve immediate or short-term actions in response to unexpected events (Madni and Jackson 2009).
- *Adaptability***.** In addition to the first two phases, resilience also includes the ability to adapt to criticism and use change for one's own purposes. This skill refers to post-crisis adjustments and is aimed at organizational advancement (Limnios et al. 2014). Therefore, adaptation is one of the key capabilities that can help organizations avoid or reduce the negative consequences of unexpected events (Carley and Harrald 1997).

Table 1 provides an overview of the main resilience capabilities mentioned above, captured by the authors in an attempt to define the concept.

Table 1. *Perspectives on organizational resilience*

Resilience capabilities	Year	Author	Definition
Ability to anticipate	2009	Somers	Resilience "is more than just survival; this involves identifying potential risks and taking proactive action (...) to ensure that the organization thrives in the face of adversities (p. 13)
	2015	Ortiz-de-Mandojana and Bansal	Resilience is "the incremental ability of an organization to anticipate and adapt to the environment." (p. 6)
Coping skills	1998	Horne and Orr	"Resilience is a fundamental quality (...) responds productively to significant changes that disrupt the pattern of expected events, without engaging in an extended period of regressive behavior." (p. 31)
	2012	Linnenluecke et al.	Resilience is "the ability of the organization to absorb the impact and recover from an extreme event." (p. 18)
Adaptability	2007	Vogus and Sutcliffe	Resilience is "maintaining positive adjustments in difficult conditions so that the organization goes through events stronger and more inventive." (p. 3418)
	2011	Lengnick-Hall et al.	Resilience is "the ability of an organization to absorb the disruptive impact, to develop situation-specific responses, and ultimately to engage in capitalizing on the event that potentially threatens the organization's survival." (p. 244)

Source: made by the authors.

The data in Table 1 suggest that resilience is a fundamental organizational skill, geared towards organizational progress. It allows organizations to withstand stress, innovate continuously and adapt quickly to change. Consequently, resilience can be an important source of sustainable competitive advantage and should be deliberately developed.

By defining the three successive resilience stages (anticipation, coping and adaptation) we described the different stages of resilience, the role of individual as well as collective capacities, to show that only a combination of the three capacities can lead to resilient organizations.

3. Resilience of human resources

Recent theoretical conceptualizations of employee resilience in organizations describe it as an adaptive behavioral ability to gather, integrate, and use organizational resources (Kuntz et al., 2016, 2017; Lengnick-Hall et al., 2011).

Kuntz et al (2016, p.460) introduce a new measure to develop employee resilience, based on the following characterization: "the ability of human resources to adapt and develop continuously in the workplace, even when faced with challenges."

Organizations are essentially human, and as such, the concept of reluctance seems to be an appropriate point of view from which to visualize the complexity of organizational change.

Lengnick-Hall et al. (2011) argued that resilience is a particular aspect of human resources and human resources practices and policies that "work together to build resilience capacity and turn individual actions into collective resilience." (p. 252). Thus they came to the conclusion that this produces a dynamic organizational capacity, which can be developed and managed, generalizing individual action into a collective source of strategic advantage.

In the study by Hind, Frost, and Rowley (1996) on individual responses to stress and change within organizations, resilience was identified as an "interactive concept," a matter of context, the result of interaction between the individual and the environment. This concept, the authors considered, can be extended to the entire organizational culture, becoming a "resilient" organization. (p. 20). Hind, Frost and Rowley noticed a psychological relationship between the individual and the organization he belongs to. To investigate the individual's perceptions of the organization, the authors created a tool for measuring resilience, which produces a five-factor model:

- perceived organizational capacity for change;
- organizational attachment;
- social relations matrix;
- team cohesion;
- the meaning of reality, composed of elements related to information about the organization and use of experiences.

As a result of their research, Hind, Frost, and Rowley concluded that "key factors of resilience are transferable to organizational analysis." (p. 27).

Lengnick-Hall et al. (2011) stated that a firm's potential to develop resilience is derived from a set of specific organizational skills, routines, practices and processes, which in turn are derived from a combination of individual knowledge, skills and other attributes that are systematically developed and integrated.

Luthans et al. (2006) emphasized that in order to face today's challenge of change, the development of human resources must move towards the development of their psychological. Resilience, separated from hope, optimism, confidence or effectiveness, is "the most ignored" (p.40).

4. Creative methods to increase the resilience of human resources

As a very complex psychic formation, creativity is characterized by a multitude of meanings: productivity, utility, efficiency, value, ingenuity, novelty, originality. The creative skills of human resources do not develop by themselves, but through introductory exercises in creative techniques, by broadening the horizon depending on the degree of development of sensitivity, thinking, imagination and language in different fields.

In times of sudden change, organizational integrity is disrupted. In order to regenerate, there must be persistence, creativity and availability from all members of the organization.

Birnholtz, Cohen, and Hoch (2007, p.317) describe organizational resilience as the coherent, creative, and regenerative attitude of its members under stress. It is common for the organization's human resources to improve resilience. To this end, we further present some creative methods that promote increased resilience within organizations:

The sensory box or ***perceptual position*** incorporates a sense of reality and a degree of wisdom in terms of individual progress, which promotes resilience in the organization. Through this method, the human resources in the organization are urged to recognize their own strengths, weaknesses and possible vulnerabilities.

A sense of reality allows leaders to accept the organization's vulnerabilities, which is a crucial step in promoting resilience within organizations, as it helps leaders accept the organization's limitations and be able to identify possible internal and external sources to overcome these limitations. (Warner & Pyle, 1997).

Creating your own sensory box containing a realistic picture of the organization and its vulnerabilities is an important component of the perceptual position that leads to resilience. However, we must keep in mind that organizations grow, experiences accumulate and acceptance of reality can inhibit creativity, and this is necessary for resilience. Organizations are governed by common rules and organizational routines that inhibit the innovation and creativity of its members. (Garud, Hardy and Maguire, 2007).

In other words, the members of the organization accept the current state and future vulnerabilities of the organization through a sense of reality, and this understanding incorporates both the notion of trust and the notion of precaution. Thus, in order to avoid the inclination towards excessive prudence, which can affect organizations (Weick, 1996), the sense of reality should be accompanied by a creative and innovative attitude.

The value box is another creative method of increasing the resilience of human resources in the organization, deriving practically from the value systems of organizations.

Mallak (1999) emphasizes the importance of organizational values that develop a culture of resilience within the organization. The values within the organization emphasize the understanding of the implications of the stressful state and the essential source of resilience. Positive perception of values is suggested as a principle of increasing resilience by forming a positive attitude towards problem solving. In other words, although the level of pessimism is necessary for a sense of reality (Coutu, 2002), optimism and hope (Flach, 1988) are essential to increase organizational resilience.

The forecast box conveys the idea that in an organization there must be a certain measure of forecasting and pre-event preparation.

For the organization to withstand the challenges of a crisis or a changing situation, there must be adequate resources that employees can access to turn the threat into an opportunity. These resources are expected to be different from those used by employees in their day-to-day operations because resilience is required in extraordinary circumstances. (Mallak, 1998) While relational resources are essential as contextual sources, contributing to the organization of resilience, other tangible and intangible resources are needed to improve resilience.

The role box proposes a method by which the human resources in the organization can be prepared for future shocks, disasters and crises, so that they can offer innovative solutions.

In order for organizational resilience to materialize in turbulent environments, creative actions are needed that must be supported by well-thought-out and planned strategies.

The strategic actions of the members of the organization need to be creative, flexible and proactive to lead a solution-oriented organization. For Weick (1993), improvisation and creativity are important sources of increasing resilience.

Critical thinking is a method that involves involving and empowering employees to behave appropriately when facing change. In times of stress and turmoil, human resources need to go out of their way to think creatively and innovatively at different levels in a timely manner. According to Wilson and Ferch (2005), critical thinking helps individuals restore self-esteem in changing circumstances, characterized by stress and confusion. Self-esteem, critical evaluation of information and arguments, visualization of models and connections, building meaningful knowledge increase the resilience of human resources to organizational change.

Continuous communication is an important method for coordination in organizations that are subject to change (Weick, 1993). Horne and Orr (1998) suggest that effective communication of the organization's goals, mission, and vision is one of the key principles of organizational resilience. Continuous and effective communication builds trust.

According to Weick (1993) an important source of organizational resilience is a respectful interaction between employees, which incorporates trust, honesty and self-respect.

Taking into account the methods of increasing organizational resilience proposed in the previous lines, we must emphasize that they incorporate factors of creativity, innovation, as well as certain entrepreneurial concepts. Thus, organizations facing ever-changing environments need to differentiate themselves through innovation and entrepreneurship. These environments also require resilience for the organization to thrive in order to continue to function. However, resilience is also linked to renewal.

Given these aspects, we can see that the interconnection of entrepreneurial activities and resilience strategies creates successful organizational results.

Conclusions

The study of the literature on organizational resilience indicates a field of research that is promising, but which develops differently in different fields. While resilience has been widely discussed in psychology and ecology, the literature on organizational resilience is more limited.

However, there are two defining directions in the study of organizational resilience:

- The dominant one, which refers to organizational resilience as a result; that is, how the organization adapted to an unexpected event that required change.
- The secondary one, which analyzes organizational resilience as an action; in other words: the ability of human resources to do so.

Both approaches are important and contribute to understanding how organizational resilience is built and to observing the dynamic availability with which it is associated.

When a negative disruption causes a malfunction of the normal functioning of the organization, resilience allows it to cope with the unexpected event, adapting to changing conditions, to continue to operate and, in many cases, to generate a renewal within and outside the organization.

This paper tries to provide a synthesis of the literature on resilience in organizations and aims to highlight the fact that if an organization is resilient, then, inevitably, it will evolve.

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Digitization of external public audit in the context of the COVID 19 pandemic and the role of supreme audit institutions in the Recovery and Resilience Facility

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Abstract. *The COVID 19 pandemic is a phenomenon that has had an impact both on the health system and human health, as well as on the national economies of all the states of the world, implicitly on the EU member states. From this point of view, both the public sector (central and local public administration institutions, but also the supreme audit institutions) and the private sector (companies and even entire industries) were affected.*
With the outbreak of the COVID 19 pandemic, the world had to adapt to a new reality, based on digitization, in the context in which social distancing became a new lifestyle. This article aims to analyze the adaptation of supreme audit institutions to the new reality imposed by the health crisis, through digitization. The article also examines the role of these institutions in the context of the Recovery and Resilience Facility, the main pillar of the new temporary financial instrument NextGenerationEU set up by the European Union.

Keywords: digitization, public sector, Recovery and Resilience Facility, supreme audit institution, European Court of Auditors, COVID 19, national recovery and resilience plan.

JEL Classification: M10, F36, H12, H83.

Introduction

The COVID 19 pandemic, an unprecedented crisis that took everyone by surprise, has, in addition to health effects, quite serious economic effects. Basically, this epidemic is the first of its kind to manifest itself today, after the Spanish flu 100 years ago.

The economic effects, although not immediately seen, are beginning to appear. After thousands of businesses were affected in the private sector (tourism, aeronautics, small and even medium-sized businesses), also the public sector was severely affected by this unprecedented crisis. The damage to the public sector took place in the context in which, in the absence of adequate preparedness for governments, the COVID 19 pandemic produced a number of negative effects, both on the health system and on national budgets. With regard to the health care system, it is clear that, since no country in the world expected such a scale of pandemic disaster, it was quite severely affected, especially in countries where such systems were already underdeveloped.

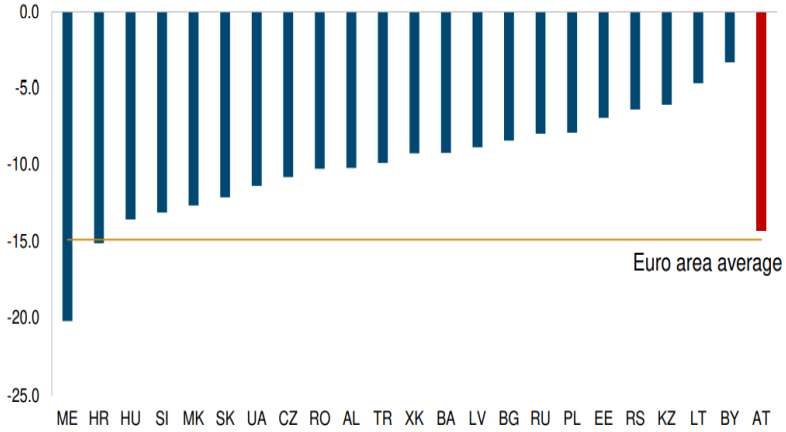
From the point of view of national budgets, they have been affected by a number of unforeseen expenditures in the budgets projected for 2020, especially in the area of health. Also, with the outbreak of the crisis, most countries rushed to stock up on what was needed to deal with the humanitarian disaster.

1. Public sector adapting to the new realities imposed by the COVID 19 pandemic

In addition to the fact that the public sector has been affected in terms of health, by the inability to adapt quickly to the crisis caused by the COVID 19 pandemic, which has led to massive loss of lives due to lack of facilities and effective treatments against the new coronavirus, it must be emphasized that the impact of the crisis has fully manifested itself on national budgets. Thus, the massive expenditures in the health system, the granting of state aid to the private sector in order to support a number of industries affected by the crisis, the allocation of amounts in the form of unemployment benefits to people who have lost their jobs in the cause of the coronavirus crisis, the lack of tax collection due to the inability of large taxpayers to pay the amounts due, as well as other unforeseen expenditures in the 2020 budget, have affected public budgets quite severely.

According to a study developed by the *Vienna Institute for International Economic Studies*, the countries of Central, Eastern and South-Eastern Europe were less affected than those of Western Europe, despite the restrictions imposed by the COVID pandemic 19 [1]

Chart no. 1. *Evolution of real GDP in the second quarter of 2020*



Source: *No Quick Recovery in Sight, with Coronavirus Risks Looming Large*, The Vienna Institute for International Economic Studies (November 2020).

According to the data presented in Chart no.1, we note that the real Gross Domestic Product decreased in 2020 in most countries of Central Europe, Eastern and South-Eastern Europe, but most of these decreases did not exceed the euro area average, with few exceptions (Montenegro and Croatia, the latter slightly exceeding the euro area average). On the other hand, the study notes that the countries most affected are those with an economy based on tourism and foreign trade, given that these sectors have been most affected by the COVID pandemic 19.

Adapting the public sector to the COVID 19 era has been quite difficult. Some of the public sector institutions have not been sufficiently prepared to meet not only health problems, but also organizational challenges, given the pandemic's restrictions on social distancing. Practically, most public sector institutions have been put in a position to carry out, where possible, work at distance, either by working from home or by limiting interaction with citizens and maintaining contact with them through the electronic means.

It has been shown that, for countries that have ignored those necessary investments in what we can call *"dynamic public sector capacities",* the crisis caused by the COVID 19 pandemic is a real challenge [2]. Even the International Monetary Fund states that the COVID-19 pandemic could deal the biggest blow to the global economy since the Great Depression of the 1930s [3].

One of the institutions that has been involved in the digitization of the public sector since 2019 is the World Bank, by launching GovTech, an approach to modernizing the public sector, which promotes simple, efficient and transparent governance, with the citizen at the center of reforms, by promoting the use of technology for transforming the public sector, improving the provision of services to citizens and businesses and increasing efficiency, transparency and accountability [4].

Regarding the use of technology internationally, the Microsoft Vice President mentioned that in April 2020, 200 million users of the Microsoft Teams platform were observed in a

single day, which generated over 4.1 billion minutes of meeting. Data for April 2020 also showed over 75 million daily active users of the Teams platform worldwide, with over 183,000 educational institutions using this platform [5].

Behold that, with the unfortunate evolution of the COVID 19 pandemic, not only the public sector had to adapt to the new conditions that require social distancing, but also the private sector, by adopting new tools, based on digitization, to facilitate the work at a distance, without greatly affecting the activities carried out.

2. The Supreme Audit Institutions in digital age

The role of supreme audit institutions in managing the crisis caused by the COVID 19 pandemic is crucial. They supported national governments' response mechanisms and contributed to maintaining financial discipline, transparency and accountability in the use of public funds during the crisis.

At the level of the Organization for Economic Cooperation and Development, a new platform was created, called *Auditors Alliance*, with the purpose to facilitate collaboration between internal and external public auditors, in order to exchange best practices in audit, exchange of views, case studies and other tools used in the audit activity [6].

The Moscow Declaration, adopted on the occasion of the XXIII Congress of INTOSAI (International Organization of Supreme Audit Institutions) in Moscow, also encouraged the use of data analysis, advanced quality methods, the use of artificial intelligence tools and other innovative information technology tools [7].

As part of the public sector, the supreme audit institutions also had to adapt to the new conditions imposed by the COVID 19 pandemic. Their main activity, external public audit carried out on public entities suffered some transformations in the COVID 19 era, in order to adapt to the new realities imposed by this pandemic.

These transformations were organizational in most cases. Where permitted by law on organization and operation, the supreme audit institutions have conducted real-time audits, and where this has not been possible, there have been requests for audits from national parliaments on public sector risk areas (towards for example, the area of public procurement in the health field) [8].

Of course, the changes generated by the pandemic on the supreme audit institutions were not limited to these. Some of the supreme audit institutions have introduced the concept of remote work (Portuguese Court of Accounts [9], European Court of Auditors [10]), others have modified their annual work program in the context of the needs imposed by the new coronavirus pandemic (Portuguese Court of Accounts, European Court of Auditors, Slovenian Court of Auditors [11]) and others have carried out audits on governments' response to the threats of the COVID 19 pandemic and their preparedness for risks (the National Audit Office of the United Kingdom [12], the Court of Audit of Poland [13] and the National Audit Office of Estonia [14]).

Like any activity, digitization comes with a number of positive aspects but negative effects are not excluded. Among the positive aspects of the digitization of the external public audit, we can mention the speed of information transmission from the audited entity to the auditor, by electronic means, which somewhat facilitates the work of the auditor, but this comes with a high degree of skepticism from him regarding the veracity of the data presented by the entity. Also, the rapid processing of information and data using the analysis programs used in the audit is a great advantage in terms of digitization.

On the downside, the hurry of digitization in the public sector has led to security breaches and vulnerabilities, which need to be addressed urgently. Basically, the security of information in the public sector is an extremely important aspect, because the information with which it is operating can be personal data, financial data, contracts, classified information, etc., whose security is vital.

There are also risks in the case of the supreme audit institutions regarding the digitization of the external public audit activity. Thus, it is quite difficult to analyze the veracity of some documents (contracts, invoices and other supporting documents that are normally physically analyzed, on paper), of some databases generated by certain computer programs of the entity, but also the communication can be deficient, if the audited entity knowingly delays the transmission of documents, thereby affecting the auditor's activity. Also, the existence of cyber vulnerabilities in the transmission of information (often confidential) from the audited entity to the external public auditor is a negative point, if the transmission network is not fully secured and encrypted.

At the same time, working from home changes some processes in conducting audits, such as the wider use of online meetings, the use of VPNs to access electronic files remotely, more reliance on documentation at the expense of direct observation, more reliance on audited entity statements. Although quality control can be maintained in these processes, there is a risk of a decrease in the quality of such processes, if there is no proper management of this control.

Direct observation of certain audit activities is also preferable to obtaining information only in digital format. The auditor's personal interaction with the audited entity is most often preferable to online communication, because much more information can be obtained through the technique of direct observation, with the auditor directly examining a direct process on the spot.

In the same context, in the case of certain audit missions, on-the-spot inspection is required, another audit technique that requires the presence of the auditor to certify the existence of a fact (e.g. the reality of the work performed under a public procurement contract). This requires the mandatory presence of the auditor, as it is not possible to carry out this activity through electronic means.

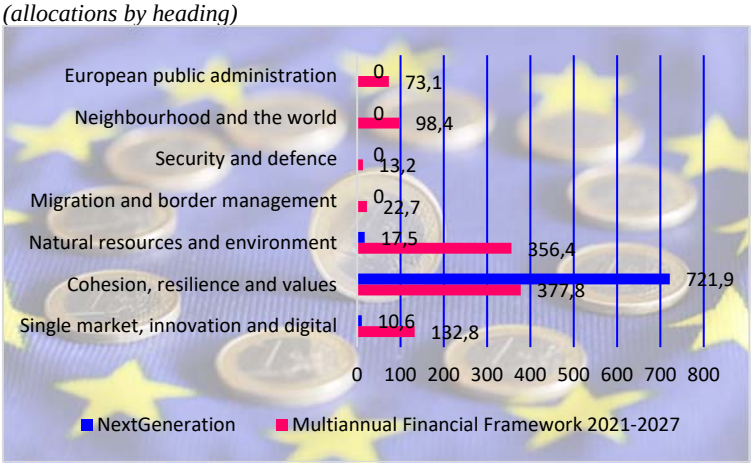
3. The role of supreme audit institutions in the Recovery and Resilience Facility

The European Union has launched a series of initiatives to limit the effects of the health crisis caused by the COVID 19 pandemic, initiatives aimed at supporting Member States in the fight against the new coronavirus and managing the economic consequences resulting from this unprecedented health crisis in the last 100 years. These initiatives include *NextGenerationEU*, a temporary financial instrument set up by the European Union, whose main pillar is the *Recovery and Resilience Facility*.

The NexGeneration instrument, with an estimated value of EUR 750 billion, aims to repair the financial and social damage caused by the COVID 19 pandemic, with the proposed results of a green, digitized and strengthened Europe for similar future challenges [15].

At the European Council meeting held on 17-21 July 2020, the conclusions presented referred to the **Multiannual Financial Framework 2021-2027**, which will be supported by the NextGeneration instrument, in order to recover and combat the effects of the COVID 19 pandemic, the broken down amounts being presented in Chart no. 2 [16]:

Chart no. 2. *Multiannual financial framework for the period 2021-2027 (allocations by heading)*

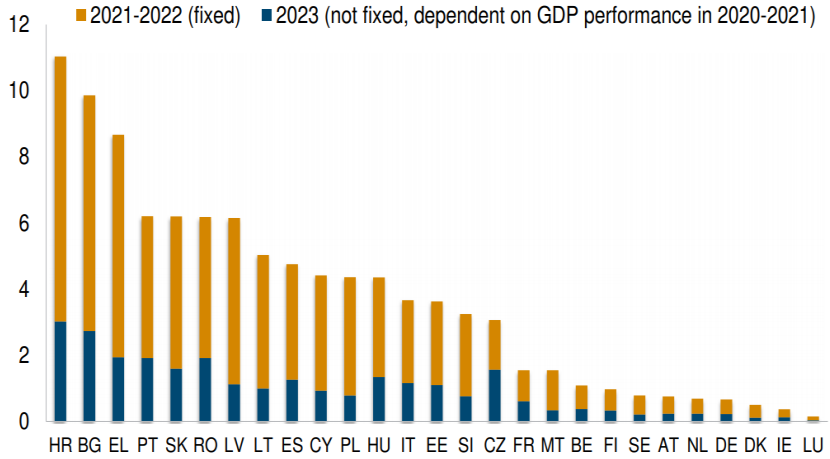


* All amounts in € billion, in constant 2018 prices.

The total amount of the long-term budget allocated through the 2021-2027 multiannual financial framework and through the temporary financial instrument NextGeneration amounts to EUR 1.8 trillion, according to information presented by the European Commission [17]. With these sums, the European Commission expects Member States to be able to limit the negative effects of the coronavirus pandemic and build a more prepared Europe to meet the new challenges.

Chart no. 3 shows the amounts allocated through the Recovery and Resilience Facility (the central pillar of the NextGeneration instrument), for each Member State, as a percentage of GDP, for the period 2021-2023, the amounts for 2023 not being yet established, these depending on GDP in 2020-2021 [1]. Under this Facility, to Romania is allocated 30.5 billion euros (13.8 billion euros in grants and 16.7 billion euros in loans) [18].

Chart no. 3. *Amounts allocated through the Recovery and Resilience Facility (2021-2023), in% of GDP*



Source: *No Quick Recovery in Sight, with Coronavirus Risks Looming Large, The Vienna Institute for International Economic Studies (November 2020).*

Vienna Institute for International Economic Studies (November 2020)

In the context in which Member States will use this facility, it is necessary to implement it at the level of each Member State, through *national resilience plans*, national strategic documents to ensure that the amounts allocated are used in accordance with the European Union's cohesion, sustainability objectives. and digitization. In addition to the amounts obtained through the Recovery and Resilience Facility (through grants and loans), some amounts are also needed for the co-financing area, coming from the national budgets of each Member State. In practice, each Member State will have to provide the co-financing element from amounts from the national budget.

The external public audit was involved from the beginning in the European Union's efforts to establish effective instruments for recovery, with the European Court of Auditors issuing an opinion on the proposal for the establishment of the Recovery and Resilience Facility, drawing attention to the fact that the audit within the Facility must be realized by the European Court of Auditors [19].

The role of supreme audit institutions as "guardians of public finances" in the Recovery and Resilience Facility will be extremely important. They will need to ensure that the amounts allocated through the Recovery and Resilience Facility are used in accordance with the established terms and conditions, as well as the assessment of the impact of this Facility in the Member States. In practice, through these actions, the supreme audit institutions of the Member States will assist the European Court of Auditors in its audit of the Recovery and Resilience Facility.

Although the Recovery and Resilience Facility has been appreciated by most EU Member States, there have also been critical voices saying that the financial impact of this instrument will be felt by future generations [20]. The German Court of Auditors has criticized this facility, in view of the German federal budget, which may be affected by the

fact that, for the first time, Member States are jointly responsible through their contributions to the EU budget for debts entails the risk that, in the event that some Member States do not pay their debts, the other States will have to intervene financially. The institution also considers that this Facility can weaken the European Union, even jeopardizing the stability of economic and monetary union.

4. Conclusions

The crisis generated by the COVID 19 pandemic had implications not only at the health and social level, but especially at the economic level, affecting both the public and private sectors and bringing about the adaptation to the new realities imposed by this crisis, by increasing the degree of digitization, social distancing, work from home, etc.

Digitization has become an extremely used process, both in the private sector and in the public sector, generating real discussions about its advantages and disadvantages. What is certain is that, as a result of the new reality imposed by the COVID 19 pandemic, the demand for the use of certain online communication platforms has increased rapidly, being absolutely necessary in certain activities.

The European Union, seeing the magnitude of the disaster caused by the health crisis, reacted quickly by establishing financial instruments to help Member States recover in the context of the crisis. With regard to the use of these financial instruments, it is clear that monitoring the efficient and effective use of funds allocated to Member States is mandatory, given that these amounts must be used in such a way as to achieve the objectives set by the European Union. In this context, the role of the supreme audit institutions is vital in supporting the audit carried out by the European Court of Auditors.

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Health recovery by renewing the management style in the sanitary field

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Abstract. *Through the attributions conferred by law, the Public Authority responsible for ensuring health designs an approach to the management style, especially in the field of health, meaning that not limit to dealing with the consequences of an event, because it does not alleviate the causes, but to understand what led to the event. In the context of 2020, the public authority responsible for ensuring health has initiated a series of normative acts that regulate both work during the pandemic and growth access to health services through the use of telemedicine services, as innovative and inclusive solutions, which are related to telemedicine and contribute to reducing inequities in access to health services for vulnerable populations in isolated communities, in terms of increased efficiency and quality. In Romania, telemedicine, this type of service is a challenge, which is primarily related to the creation of secured medical communication platforms that ensure confidentiality and security of information related to the health status of patients throughout the collection, processing, use and storage of personal data procedures and respect the fundamental rights and freedoms regarding the protection of privacy and personal data, medical data, in in accordance with the legal provisions in force.*

Keywords: health system, health ensurance, health, medical services, health sustainability, health services, public health care, good practice, specific actions, responsibilities, public authority, telemedicine, communication platforms.

JEL Classification: M12, I13, I18.

Introduction

Studying risk management within health field requires a change in the approach of the management, in the sense that it should not be limited to addressing the consequences of an event, but to address the causes that led to this event. Thus said, the consequences do not improve the causes, but only the effect, the health risks already materialized means not to occur in the future.

This type of management is considered the key function within an organization, which aims to identify, analyze, control the causes and effects of uncertainty in an organization.

An important aspect debated during the pandemic was the way in which the members of the organizations adapted to the conditionalities and working methods specific to the pandemic, in the sense of the understanding degree of the need for changes imposed by the current pandemic climate within the organizations.

Also, a special impact had the field of telemedicine that has evolved in recent years in Romania, with applications in the emergency health care sector and, more recently, with testing the collaboration between primary health care in rural areas hard to reach and specialists in the outpatient clinic, by using mobile telemedicine equipment that incorporates innovative technological solutions.

Methods and research

Given the approach of a new kind of management, the managers of the health units, under the coordination of the Public Authority responsible for ensuring health, must adopt a kind of reactive management that designs and implements measures susceptible to mitigating health risks. Because managers are not prepared to approach a kind of proactive management, it focuses on planning, by creating structures and systems to protect you against possible health crises.

In some European countries, the risks that have manifested, but which are not properly managed, may arise in the future, but we must not limit ourselves to reactive management, which is insufficient for an efficient management.

Analyzing several aspects, it is very important to identify possible threats before they produce unfavorable consequences on the objectives set. In other words, we can adopt a proactive management, which is based on the principle of prevention.

In this sense, the Public Authority responsible for ensuring health, among the objectives established by the National Health Strategy for the period 2014-2020 had as objective the prevention in the field of health, respectively the coordination of the National Health Programs on Prevention.

Also, the general objectives are consistent with the mission of the entity and are translated into specific objectives, so that the level of activity support each other, by informing the population and identifying levers to prevent disease and awareness of prevention in diagnosing diseases.

At the same time, risk management must be subordinated to the objectives of the entity that forms a coherent integrated system.

Another management approach is the way to adapt the members of the organization to the conditions and working methods specific to the pandemic, which implies the organization's ability to ensure a working environment that provides members with pandemic-specific safety, and social distance from both members and with the people who come in contact.

In Romania, by GD no.1028/2014, Annex 1 to the National Health Strategy – chapter S. 6.2. "*Increasing the access to health services through the use of telemedicine services*", the following were introduced [1]:

- rural telemedicine information system;
- the telemedicine information system of the Emergency System 112
- defense telemedicine information system
- private telemedicine information system

To achieve this goal, the Public Authority responsible for ensuring health provided remotely medical services, using information technology and modern communication systems, between the offices of family doctors in rural areas and specialists in county hospitals / health institutions.

In this sense, we are talking about medical documents, from files, to photographs, imaging, MRI analysis and everything that can be a concrete medical result. They can also be uploaded and sent by the patient to a doctor or by a doctor to another doctor. This is an asynchronous communication, as it is not necessary for the sender and the recipient to be present at the same time. Everything can take place on secure medical communication platforms, where data confidentiality is strictly maintained. Each specialist can provide medical services without direct contact with the patient, can send diagnostic and treatment recommendations back to the one who requested it. In this way they can have access to specialists including people who cannot move, but also those who are in isolated areas.

Case study based on research

Given the approach of a new kind of management, solutions are being designed so that healthcare professionals to provide telemedicine services to patients, which involves lower costs than the costs of outpatient and healthcare facilities.

In this sense, remote monitoring is performed, which allows health professionals to keep an eye on the patient at a distance, using various technological devices. Remote monitoring is also very practical and economical for patients with chronic diseases. Blood pressure sufferers, those suffering from diabetes, congestive heart failure, chronic lung disease and others can benefit from the definite benefits of remote monitoring.

Moreover, remote monitoring is more effective than a visit to the medical office and with infinitely more benefits for both the doctor and the patient. Another important aspect is that investments in remote monitoring equipment are accessible to anyone. Thus, the total costs

of medical services are low, compared to the quality of medical services they provide and the time in which a medical problem is solved.

The financing of these telemedicine services is made from several sources, respectively from the state budget through the Public Authority responsible for ensuring health, from private investment funds, accessing programs through European funds and from funds allocated from the budget of the Authority responsible for managing the Single National Health Insurance Fund.

The public authority responsible for ensuring health, by adopting legislative provisions, has regulated the fact that consultations, including remote consultations that can be carried out by any means of communication, which can be provided by family doctors and specialists from the outpatient clinic, on the period of emergency, for symptomatic patients, for clinical manifestations suggestive of COVID-19, are included in the payment on duty. Moreover, their settlement is made by a fee expressed in points, at a rate equal to that of consultations in the package of basic services provided at the medical office for acute, subacute and exacerbations of chronic diseases in primary care, respectively in care outpatient medical specialty for clinical specialties.

Given that 2020 was an atypical year, it was necessary to implement these services, due to the small number of doctors who remained in the country and can no longer meet the demands. The legislator, through GEO no. 196/2020, adopted in November the definition of telemedicine services, in the country there is already implemented teleconsultation. In this sense, it was necessary to introduce in the application rules of the framework contract for the next year for the telemedicine services, because it does not only mean teleconsultation, it also means tele expertise, tele pathology and tele monitoring.

Telemedicine also involves, among other things, the access of the medical service provider to the patient's electronic file, the settlement of these medical services, probably the issuance of electronic prescriptions and the interoperability of various information systems, including pharmacies and the Public Authority responsible for managing the Single National Health Insurance Fund.

In order to exemplify the funds allocated to the health field, we present the situation of revenues and expenditures allocated by the Public Authority responsible for ensuring health and by the Public Authority responsible for the management of the Single National Health Insurance Fund.

a) The situation of revenues and expenditures of the Public Authority responsible for ensuring health, for the period 2017-2019, is as follows:

Table no. 1

thousand RON

Indicator	**2017**	**2018**	**2019**
Operational income	7.584.172	9.522.374	9.608.683
Operational expenses	14.517.892	17.149.495	23.543.594
Result from operational activity	**-6.933.720**	**-7.627.121**	**-13.934.911**
Financial income	4.141	3.649	4.973
Financial expenses	4.505	4.511	5.973
Result from financial activity	**-364**	**-862**	**-1.000**
Extraordinary income	120	3.495	156

Indicator	2017	2018	2019
Extraordinary expenses	-23	1.326	35
Result of extraordinary activity	**143**	**2.169**	**121**
Total income	**7.588.433**	**9.529.518**	**9.613.812**
Total expenses	**14.522.374**	**17.155.332**	**23.549.602**
Surplus / deficit	**-6.933.941**	**-7.625.814**	**-13.935.790**

Source: Financial statements for the period 2017-2019, Authority responsible for ensuring health.

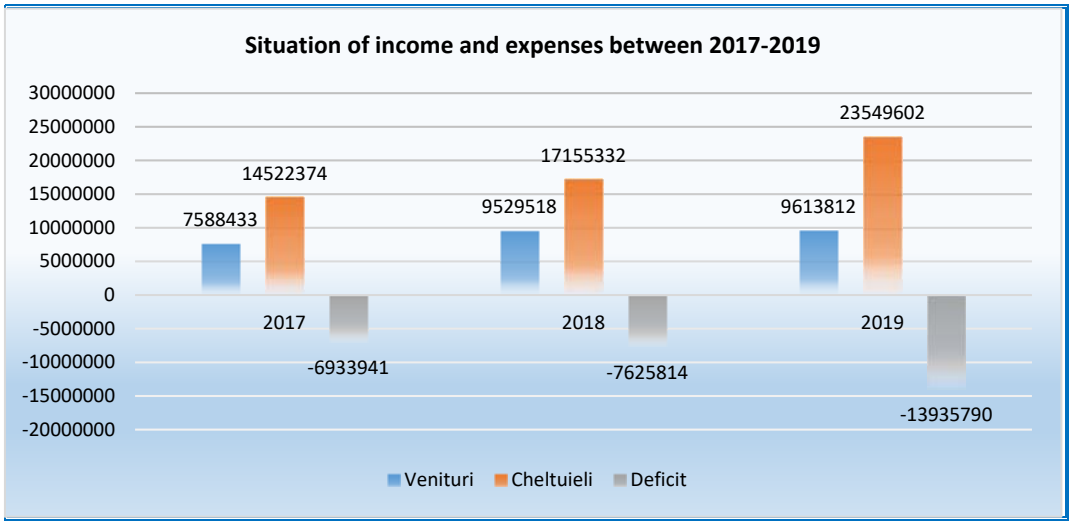
From the analysis of the above table, it results that the incomes registered an ascending trend, in the sense that in 2019 they increased by 2,025,379 thousand RON compared to 2017, respectively from 7,588,432 thousand RON to 9,613,812 thousand RON, by 79%, this increase was primarily due to revenues from economic activities and special purpose financing, subsidies, transfers and budget allocations.

Also, the analysis of the table above shows that the expenses had an ascending trend, in the sense that they increased by 9,027,228 thousand RON compared to 2017, from 14,522,374 thousand RON to 23,549,602 thousand RON, respectively by 61%. Within them, the largest share was the subsidies and transfers allocated to the Authority responsible for the management of the Single National Health Insurance Fund.

Regarding the data presented in the previous table, we mention the fact that there was an annual deficit, which increased from 6,933,941 thousand RON in 2017 to 13,935,790 thousand RON in 2019.

Thus, we present below the chart of revenues and expenditures related to the period 2017-2019 of the Public Authority responsible for ensuring health, as follows:

Chart no. 1
(thousand RON)



Source: Financial statements for the period 2017-2019, Authority responsible for ensuring health.

b) The situation of revenues and expenditures, in the period 2017-2019 of the Public Authority responsible for the management of the Single National Health Insurance Fund, is as follows:

Table no. 2
thousand RON

Indicator	**2017**	**2018**	**2019**
Operational income	29.022.572	34.176.282	41.878.288
Operational expenses	30.538.876	36.517.254	42.811.367
Result from operational activity	**-1.516.303**	**-2.340.972**	**-933.079**
Financial income	1.374	1.886	830
Financial expenses	5.080	3.439	4.619
Result from financial activity	**-3.706**	**-1.553**	**-3.789**
Extraordinary income	0	0	3
Extraordinary expenses	9	0	0
Result of extraordinary activity	**-9**	**0**	**2**
Total income	**29.023.946**	**34.178.168**	**41.879.121**
Total expenses	**30.543.964**	**36.520.693**	**42.815.986**
Surplus / deficit	**-1.520.018**	**-2.342.525**	**-936.865**

Source: Financial statements for the period 2017-2019, Public authority responsible for managing Single National Health Insurance Fund.

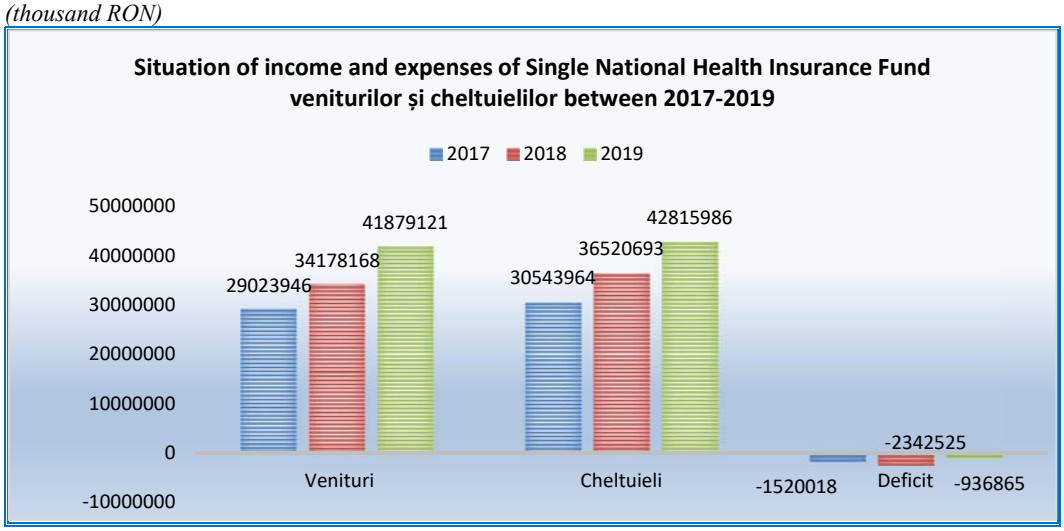
From the analysis of the table above, it results that revenues registered an upward trend, in the sense that they increased by 12,855,175 thousand RON, from 29,023,946 thousand RON in 2017 to 41,879,121 thousand RON in 2019, respectively by 69%.

Regarding the data presented in the previous table, we mention the fact that the expenses registered an ascending trend, in the sense that they increased by 12,272,022 thousand RON, respectively by 71%, from 30543,964 thousand RON in 2017 to 42,815,986 thousand RON in the year 2019.

Also, the Public Authority responsible for the management of Single National Health Insurance Fund registered a deficit, which had a mixed trend, this being covered by transfers and subsidies received from the Public Authority responsible for ensuring health, for balancing the budget of Single National Health Insurance Fund.

Thus, we present below the chart of income and expenses s related to the period 2017-2019 of the Public Authority responsible for the management of Single National Health Insurance Fund, as follows:

Chart no. 2
(thousand RON)



Source: Financial statements for the period 2017-2019, Public Authority responsible for the management of Single National Health Insurance Fund.

In order to apply the provisions of GEO no. 196/2020, the Authority responsible for the management of Single National Health Insurance Fund, reimburses the expenses of family doctors, respectively consultations, including remote consultations that can be performed by any means of communication, which can be provided by them and specialists. from the clinical outpatient clinic.

In the context generated by the pandemic, at the beginning of 2020, social distance suddenly became an essential criterion and it was necessary to respond as quickly as possible to the immediate medical needs of the population, but also to limit the risks of spreading the virus. among the practices quickly adopted by both private and state health service operators.

Progressively, in Romania, in line with the new and future regulations, telemedicine could be an important pillar of medical services, once doctors and patients become accustomed to this system and apply it on a large scale, when the specifications of each case will allow this. This progress would lead to a significant reduction in traditional doctor visits and at the same time increase the access of patients from rural areas.

This involves technological progress in communication and information sharing and revolutionizes fundamentally, a system with which we were all accustomed.

In this sense, we present the situation of doctors and health personnel (except doctors) in the period 2014-2017, compared to 10,000 inhabitants, as follows:

Table no. 3

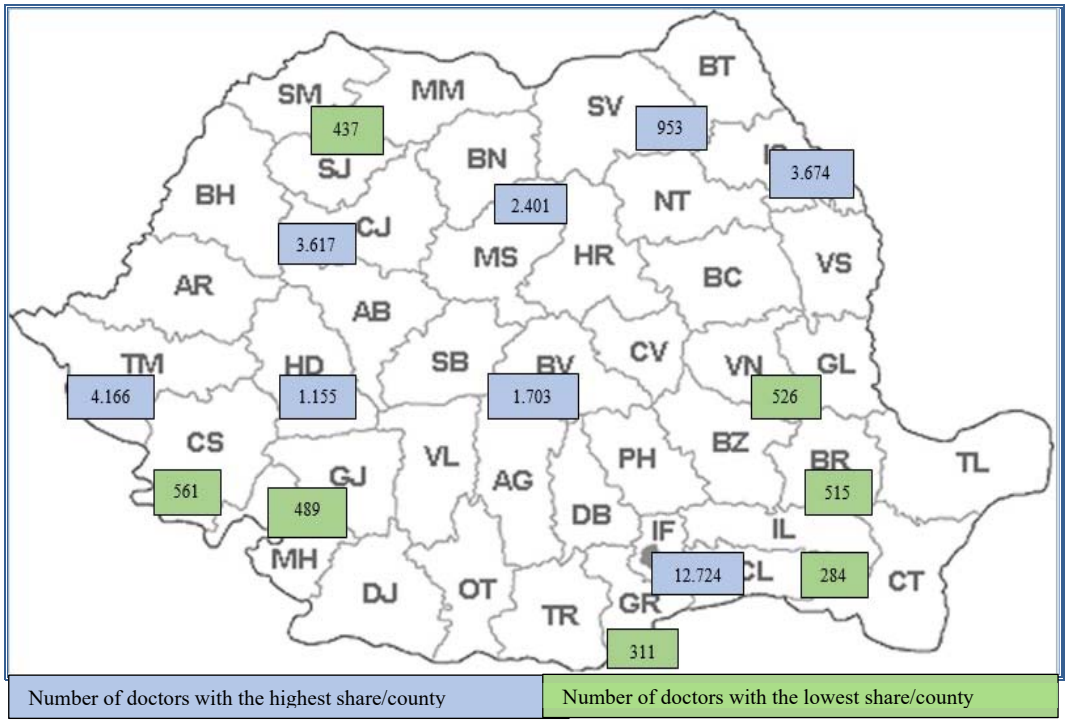
Years	Number of doctors[1]	Higher education medical staff (biologist, chemist, pharmacist)[2]	Secondary education medical staff[3]	Auxiliary medical staff[4]	Population*)	Doctors/ population per 10,000 inhabitants
2014	54.929	-*)	128.899	60.720	19.916.451	27,58
2015	56.110	17.749	133.173	62.857	19.822.250	28,31
2016	57.304	18.959	137.200	66.300	19.706.529	29,08
2017	58.583	20.164	142.103	69.353	19.588.146	29,91

[1] Doctor = person with higher education who practices medicine
[2] Health personnel with higher education = biologist, chemist, pharmacist
[3] Medical staff with secondary education = nurse
[4] Auxiliary staff = nurse, stretcher bearer, etc.
*) For 2014 there are no data from the National Institute of Statistics. Resident population on July 1, according to the National Institute of Statistics.
Source: Data taken from the National Institute of Statistics

Analyzing the previous table, it is noted that a population of 10,000 inhabitants in 2014 had 27.58 doctors, while in 2017 it had 29.91 doctors.

The figure below shows the share of the number of doctors distributed by geographical area:

Figure no. 1



Primary health care is provided by family doctors through medical centers or individual medical offices but direct access to a specialist is made in the case of certain diseases

through ambulance services or specialized outpatient clinics in hospitals, polyclinics, diagnostic centers.

Conclusions and proposals

In conclusion, the Romanian health system is financed both from the state budget and from the Single National Health Insurance Fund budget, as well as from other sources. Which is noted that the system remains an underfunded and fragmented system.

The expenses allocated to the health system, respectively of the Public Authority responsible for ensuring health in 2019 were in the amount of 23,549,602 thousand RON, and the expenses related to the Public Authority responsible for the management of Single National Health Insurance Fund were in the amount of 42,815,986 thousand RON.

In conclusion, most comparisons indicate that Romania spends less on health than other European countries. According to official figures, Romania spends less than 6% of GDP on medical services (public and private) compared to the European average of 8.5% and the European Union average of 9.8% (all Member States)[(1)].

We mention the fact that the Public Authority responsible for ensuring health allocates funds for the National Health Programs for Prevention, for investments and medical equipment, as well as granting subsidies and transfers to the Single National Health Insurance Fund budget to balance the budget, and the Public Authority responsible for managing Single National Health Insurance Fund reimburses the value of medical services and medicines, as well as National Curative Health Programs.

The value of the medical services related to family doctors is reimbursed from the budget of the Public Authority responsible for the management of Single National Health Insurance Fund. In 2019, the value of medical services related to family doctors was in the amount of 4,898,000 thousand RON, respectively 16.81% of payments with materials and services of a medical nature, and 11.43% of total expenditures allocated to the budget Single National Health Insurance Fund which amounted to 29,135,000 thousand RON.

Considering the evaluation of the territorial coverage of the medical staff according to medical specialties, as well as the analysis of the shortage of medical personnel by specialties, it was noted that the distribution of specialists at national level takes into account primarily staff regulations and health public unit structures, approved by normative acts. The largest share of medical staff is found in university centers and especially in county emergency health units where there is a diversity of specialties.

In conclusion, with the introduction of telemedicine, as mentioned above, as well as with the approval of specific regulations, there has been a change in the management of the Public Authority responsible for ensuring health, which has analyzed existing risks and addressed not only new models and techniques, but also tried to change the attitude towards the risks, an aspect with implications in the organizational culture that is formed over time and not a result of imperative rules.

For the implementation of an efficient management of the Public Authority responsible for ensuring health, the assimilation of the basic concepts of management will be considered, the contacts with foreign experts will be facilitated, through the unitary approach of language, making possible a real transfer of knowledge and experiences and will allow access to specialized literature in the field, to deepen some aspects of detail.

Implementing a kind of proactive management in the health system will create the feeling of more effective control, a planning that allows how to control and how to lead, in the sense of identifying the best way to prevent things before they occur.

By approaching a new kind of management, it presupposes that proactive managers have the capacity for a positive morale, this being a priority over staff, always looking for better ways to lead, influences of idealization, as well as gaining loyalty and stimulating efficiency and effectiveness to develop the organization.

Note

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The importance of the leader's negotiation skills

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Abstract. *Since we live in a competitive world and all relationships, all activities are built on the basis of negotiations, it was expected that one of the primary qualities of a leader would be in the area of negotiation. Leadership studies summit its resonant impact on the quality of the organization's performance by: sharing the same vision, understanding the roles played and the complexity of interactions between members of the organization. The heterogeneity of the work carried out by the leader of an organization visits the assumption of a whole series of roles determined by the specifics of his activity, and among these roles is that of negotiator. The leader's ability to negotiate is an essential condition for business success, especially in the current context, when the business environment is constantly changing due to the pressure of "global challenges" to which it is subjected. No business can exist without profitable contracts that are obtained only with the help of leaders who have the ability to persuade. Any vision that a leader would have, if he is not convincing and does not know how to pass it on to others, will not be able to achieve performance.*

Keywords: leadership, leader, negociation, skills, vision, organization.

JEL Classification: M12.

Introduction

In almost every circumstance in human life there is a time when one comes to negotiate a certain thing, be it an action or an object. Because of this, negotiation is a common practice in which people participate even though most of the time they may not even be aware of it. In terms of business, negotiation is the key to success, because no business can exist without profitable contracts that are obtained only with the help of leaders who have negotiation skills. Negotiation can be an art through which new opportunities can be gained with which to maintain relations with the negotiating partner for as long as possible. The leader of an organization exercises a multitude of roles in close dependence on his personality and in order to achieve the set objectives.

The art of negotiation – a necessary skill for modern leaders

For the proper functioning of organizations, leaders are needed in all its hierarchical levels, but especially at the top level. Ideal for the proper functioning of the organization, it is for the position of manager to coincide with that of leader. Moreover, a good leader will always be accepted and recognized by others as a leader, especially because of his very rare quality of recognizing the main goals of the organization and causing others to succeed him in trying to achieve those goals purposes. This feature is an indispensable criterion for the organization.

Leadership is a process by which the leader convinces or induces a group to pursue the goals held by the leader or shared by the leader and his followers. From here it is highlighted that in order for the followers of a leader to follow him, he needs the ability to negotiate, to be convincing, persuasive, just for others to follow his path (G. Goethals et all, 2014). In addition to this trait, John Adair believes that one of the main qualities of a leader that distinguishes him from others and makes him stand out in an organization is trust, a trait that refers primarily to trust in his own strengths. However, it is true that a leader will have other characteristics, but confidence in his own strength is the most important and absolutely necessary. If it is large and strong enough, the leader will inspire others, and they will believe in the leader as firmly as he believes in himself, or even more (J. Adair, 2014). The impact of leaders can be defined as the ability to gain the attention and active involvement of team members, employees from the earliest stages of the relationship, quickly becoming a recognized reference point and obtaining their maximum possible contribution to achieving common goals.

Starting from the definition of negotiation, this is a process in which there is interdependence but also divergences and consists of two or more parties that opt for cooperation voluntarily, in order to reach a mutually beneficial agreement (Vasile, 2003). This definition is a complex one because it includes the main elements of a negotiation, namely: interdependence, divergences and agreement between two or more people. Pierre Leber (quoted by Tatiana Segal, 2009) believes that negotiation is specific to all ages, all social categories and all civilizations, which is used daily and acts in a natural way such as breathing or life. It is a simple definition that emphasizes that negotiation is present in everyday life like breathing.

At the same time, negotiation is represented as the totality of ways in which we transmit information about what we want, what we expect from others, but also the way in which information about the desires and expectations of others is received. But, as George H. Ross (2007, p. 19) says, negotiation can be seen as "a process in which people learn to accept an existing compromise as a satisfactory substitute for what they thought they really wanted." This author also emphasizes that "negotiation means compromise and creativity". This definition emphasizes compromise and creativity. Compromise because when the parties involved in the negotiation process want to reach a common denominator they are willing to compromise. And the term creativity appears because in a discussion based on a negotiation, creativity is needed in order to move the discussion in the desired direction to achieve the goal. Another approach to the characteristics of negotiation was developed by Gheorghe M. Pistol (2002) who is of the opinion that the negotiation process is a form of communication, of social interaction in which two or more people participate in order to obtain expectations. According to Arnaud Stimec (2011) negotiation is the dialogue that focuses on solving a problem by finding an agreement that is accepted by both parties.

Indeed, the negotiation is carried out on the basis of a dialogue in which two or more persons participate, seeking to find a mutually beneficial solution for achieving the objectives. Negotiation involves the existence of skills that are important for making business agreements. This ability to negotiate is extremely valuable to business people, as these skills developed through the practice of negotiation skills can develop critical thinking skills and effective communication skills. Hence another definition for this concept, namely, negotiation is a way to resolve conflicts or disagreements between two or more parties that are done voluntarily by free choice (Ilana Zohar, 2015).

Negotiation includes five fundamental elements that manifest the dynamics of the negotiation process, which Christophe Dupont (Dupont, 1994) considers to be the following: the object, the context of the negotiation, the stake, the balance of forces and the rational dynamics. These elements were also analyzed by Puiu Nistoreanu (Nistoreanu, 2005) who considers that the object is not easy to identify because it depends on the field in which it manifests itself (social, interpersonal, commercial), it is more or less complex, quantifiable, separable from the moments of negotiation and the degree of objectivity of the negotiator. The context of negotiation manifests itself in the form of concentric circles starting with a global context of negotiation. The stake is an important element in a negotiation and refers to a set of interests, requirements, concerns, risks and constraints felt by each negotiator. Regarding the balance of forces, the author says that it highlights the confrontation of the partners that leads to the establishment of a balance of forces that may or may not be favorable for one of the partners. And last but not least, the rational dynamics of negotiation is that which settles and develops between negotiators and results from the behavioral confrontations of the partners.

According to Claude Alavoire and Caroline Estieu (2015), the main important points in a negotiation remain: the strength of the negotiators, the level of trust between them and the nature of the stakes at stake. At the same time, this negotiation process is not done at random, but on the basis of defining stages. These stages in Gheorghe Pistol's conception

(Pistol, 2002) are the following: pre-negotiation, actual negotiation, post-negotiation and protonegotiation.

a) Pre-negotiation - the stage in which the partners imply that they would be interested in addressing one or more issues.
b) The actual negotiation - this stage starts with the official declaration of the interests of the parties for the joint solution of a problem, in order to achieve common objectives, but after a first simulation of the negotiations that will follow.
c) Post-negotiation - this stage begins at the time of signing the agreement and includes the objectives aimed at implementing the provisions and resolves issues that may arise after signing the contract. It is also time to analyze the real results of the operation, and the conclusions can be a starting point for new agreements.
d) Protonegotiation - consists in the reactions and actions of the parties manifested by unilateral acts. The framework in which protonegotiation takes place has a special role in blocking or ending discussions.

Negotiation is a complex activity that includes several participants who have different interests, objectives and needs. At the same time, participants have different expectations that will produce a gain or an expected effect. It is a process based on strategy choices, each participant sets his goals and decides which are the most appropriate ways and techniques to achieve the goals (C. Alavoire and C. Estieu, 2015).

Most leaders negotiate all day, with customers, employees, friends and family. And the most successful negotiators remain fair and attentive to the wishes of others, while doing their best to get what they want. One of the main skills of a leader to achieve his goals is the ability to know how to negotiate skillfully with everyone. An effective leader fully understands the true value of negotiation skills. Good negotiation skills allow all parties to express and assert their interests and concerns and work towards mutual agreement. The main characteristics of a successful negotiator that the leader should develop in order to have a profitable business are (I. Popa, 2005):

- Resistance, which protects against negotiators trying to tire you out in a long negotiation;
- Resursiveness, which uses creativity and flexibility to find another approach if the current one does not work;
- Sensitivity, which allows you to appreciate the views of others, to build trust and long-term relationships;
- Patience, which requires time for the correct preparation and conduct of negotiations;
- Correctness;
- Tolerance for other points of view;
- Character, essential for successful negotiations and long-term relationships.
- Honesty.

Leaders have a vision of what can be achieved in the future and will then communicate this to the people they interact with to develop strategies for achieving the vision. They also motivate people and are able to negotiate to attract resources and other support to achieve the organization's goals (M. Preda, 2006).

Conclusion

In conclusion, leaders and their leadership skills play an important role in the development of any organization. Leadership refers to the process of influencing people's behavior in a way that they willingly and enthusiastically strive to achieve the group's goals. That is why it is necessary for the leader to have the ability to maintain good interpersonal relationships with followers or subordinates and to motivate them to contribute to the achievement of organizational goals. Being a leader involves constant communication with members of the organization, and the art of negotiation can be either an asset or a barrier to building a relationship, solving problems and facilitating a process, and reaching an agreement. The leader's ability to negotiate can be translated into finding a satisfactory compromise for all parties. A solution-oriented approach, creativity and innovation are key strengths that future leaders must have, along with the ability to negotiate. In a business environment burdened by the specific challenges of change and in search of increasing autonomy in work, the main qualities of a good manager or leader are related to the ability to negotiate, this being one of the essential skills. Because, most of the time, there is not just one way to achieve organizational goals, using the capacity of the people in the team, encouraging them to come up with solutions and contribute are some skills needed by a leader, and all of these are ultimately court, and the negotiating area.

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Communication in public administration in the Covid-19 pandemic. Measures, advantages and challenges

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Abstract. *It's already common knowledge that public administration is very resistant to changes. The bureaucracy is very complex and complicated, a sensitive subject, especially in the context of digitalization. Communication and transparency of public institutions are fundamental elements for spreading the change we all want in public administration. In the age of technology, communication seems to be much easier for public institutions. Citizens' access to the necessary information is much easier, by accessing official websites or by e-mail. The pandemic has limited people's access to interaction with public institutions, which has increased the need to use online communication through the use of digital tools. Thus, the process of digitalization and the process of modernization of the public administration were hastened. This has given rise to new types of social behaviors that have produced negative effects in terms of the use of digital tools by public entities. One of these behaviors is communication through social networks. One of the disadvantages of digital communication, ie in the online environment, mostly through social networks, is misinformation. Misinformation spreads quickly online, especially on social media platforms. Misinformation in a pandemic can have serious consequences: it can lead to ignoring official health advice and risky behavior, or it can have a negative impact on our democratic institutions and societies, as well as on the economic and financial situation.*

Keywords: public administration, pandemic, communication, public organization, misinformation.

JEL Classification: H10, H12, O10, O38.

Introduction

In the age of technology, the process of communication seems to be much easier to achieve for public institutions. Citizens have access to the necessary information more quickly, by accessing official websites or by e-mail.

Communication in public administration falls under the same theories and practices of communication as any other type of organization, although the public environment involves different actors involved in the communication process.

The pandemic has limited people's interaction with public institutions, which has increased the need to use online communication through the use of digital tools. Thus, the process of digitization and the process of modernization of public administration were accelerated.

When there are restrictions and economic and social activities become more digital, citizens and businesses rely on the internet and connectivity. Thanks to the digital infrastructure, we can continue to learn, socialize and work.

Observance of the managerial communication process in public institutions can lead to the improvement of the services provided, to the increase of their quality, to the increase of the efficiency and effectiveness of the civil servants, as well as to the improvement of the image of the public administration. Also, managerial communication increases the degree of transparency in an institution, thus solving the problems in the citizen-civil servant-politician relationship, determining a better understanding of the decision-making process. However, the communication process during the pandemic encountered many obstacles, especially in the digital environment.

Submission of false causes of the spread of infection, promoting medicines as effective treatments against SARS-CoV-2 without scientific foundation, launching various assumptions about the starting point of the pandemic outbreak become unmanageable problems for government and security apparatus of the State (Perțea, 2021).

The most difficult form of communication or the one that raises the biggest problems is, as a rule, direct communication between the civil servant and the dissatisfied citizen. On the other hand, dialogue is the most appropriate way to disseminate and gather information at the same time, but also to address the specific needs of each employee and to overcome the personal barriers specific to each person involved (Luță, 2003: p.75).

Aggression against those who do not comply with the rules imposed by the authorities, discouraging innovation and censoring free will are specific features of authoritarian regimes rather than democracies. A rally to such principles becomes a threat to the democratic foundation, which can be speculated by various state or non-state actors.

However, during the pandemic and restrictions, dialogue is being tested.

State of the arts

Mass communication is a form of public communication, achieved through the media, so through a set of different media channels, from books and print media to television and the Internet. Mass communication was defined by John B. Thompson as "the institutionalized production and widespread dissemination of symbolic goods and the transmission of symbolic information or content" and is characterized by a low role of feedback compared to other forms of public communication. Lately, this field has been given a special importance, being dedicated to studies and research and implicitly a rich literature. Mass communication has a profound impact on social life in all its aspects (Lesenciuc, 2017: p. 60).

Communication in public administration requires legal and ethical coordinates alike (the legality of the content of the public message, the objective through excellent ethics of the forms of public communication, because the public interest is always served) (Rădulescu, 2009: p. 56).

It is very important that public institutions, regardless of the nature of their activities, use precisely the essential elements necessary for effective communication, especially in the institution-citizen relationship.

The citizen must be informed about the existence and functioning of public services, he must be listened to when he expresses his dissatisfaction, his wishes and needs must be taken into account.

Challenges during the pandemic

It has become very easy now to fall victim to false news. The phenomenon of fake news was amplified by a series of factors increasingly present in social life, after the end of the twentieth century. Consumer society and new communication technologies have increased the appetite for information. Journalism has become increasingly based on opinions and comments, and the news has focused on meeting consumer expectations and profit, to the detriment of the quality of information provided (Bunescu, 2021).

The COVID-19 pandemic was accompanied by an unprecedented "infodemia", an avalanche of information about the virus, often false or inaccurate and spreading rapidly on social media platforms. The pandemic generated a double crisis that tested the ability of states to respond. Infodemia has spread because in such a context the level of uncertainty in society increases simultaneously with the need to consume information, and the population becomes vulnerable to suggestions (Bunescu, 2021).

The reason why false news about COVID-19 continues to be accessed is closely linked to social psychology. During this period, individuals are more connected to news programs and the online environment. Modern means of communication remove spatial barriers and turn users into a homogeneous mass (Bunescu, 2021).

The writer Jon D. Lee claims that from one epidemic to another, the news reported by both traditional media and those circulating online are recycled. During the SARS 2003

epidemic, some news reports that the virus was the result of vibrations transmitted to the population through microwaves or audio waves (Lee, 2014).

In this context, the health crisis has shown us that it is necessary to make a clear distinction between the various forms of false or misleading content that "infodemia" has highlighted and to calibrate appropriate responses. To this end, it is important, first of all, to distinguish between illegal content, as defined by law, and harmful content which is not illegal (European Commission, 2020a).

The effects of misinformation in the pandemic and the many faces it takes

Misinformation can have serious consequences: it can lead to ignoring official health advice and risky behavior, or it can have a negative impact on our democratic institutions and societies, as well as on the economic and financial situation.

Misinformation about the COVID-19 pandemic is particularly damaging, as any wrong measures can pose a serious risk to public health, leading to the exponential spread of the disease and accidental death from it (Sharma et all, 2020).

As a result, it is extremely important to identify and limit the potential for the spread of misinformation as close as possible to its point of origin (Sharma et all, 2020).

Since the beginning of the pandemic, search engines and social platforms have had difficulty matching the right information to the right person at the right time. For example, searching Google, Facebook, Twitter, or YouTube for "Where can I be tested for coronavirus?" returned various information – or worse, fake news, a predatory scam or malware (Donovan, 2020).

Fabrication, a form of missinformation, refers to news that does not have a solid basis, is published for the purpose of misleading, and claims to be authentic. In this case the intention to misinform is explicit. To be credible, they associate themselves with true stories and use either legitimate platforms or platforms that offer the appearance of legitimacy to the public (Voinea, 2021).

Not only written content can be fabricated. Visual information, such as pictures, videos or audio, may be tampered with in order to mislead the public and create a false basis for the story. The Deep Fake phenomenon is such an example, a modified audio-visual material can be easily confused with a real one.

The embezzlement is another form of missinformation and involves the use of misleading content, false context or false connections (Voinea, 2021).

Propaganda includes information created in order to influence public perception for the benefit of a particular entity. In contrast to certain categories of fake news or misinformation, propaganda is much more transparent in terms of purpose and focuses on stories that hide much broader strategic goals (Voinea, 2021).

Trolls and bots can also spread misinformation. The activity of the bots, whether by exploiting security vulnerabilities or by posting links in a forum or comment section or those accounts specifically created to appear credible and to be controlled by a third party,

is uncertainty spreading effect. On the other hand, trolls, those people who use a social platform and intentionally seek to aggravate a situation, annoy, disrupt, attack or offend, manage to trigger the emotional engagement of other users, suppressing reason and restricting the ability to discern those involved (Voinea, 2021).

Thus, misinformation occurs much more easily in social networks, which are much more sought after and more accessible to the masses than official sources.

According to an official document made available to all stakeholders by the European Commission (European Commission, 2020a), misinformation takes many forms that we have encountered online during this period. These are:

- the information circulated includes dangerous pranks and erroneous health information, with false messages (such as "hand washing is useless" or "coronavirus is a danger only to the elderly");
- in order to counter conspiracy theories that can endanger human health, harm the cohesion of our societies and lead to public violence and create social unrest, it is necessary to strengthen the commitment of society as a whole, including the competent authorities, the media, journalists, fact-checkers, civil society and online platforms and should take into account, for example, prompt action of disclosure, demotion, possible removal of information;
- illegal hate speech (for example, as a result of misinformation claiming that a particular ethnic or religious group is responsible for the spread of COVID-19 has led to a worrying increase in racist and xenophobic content in connection with COVID¬19) are subject to the rules on the removal of illegal content by platforms and authorities and the actions of competent authorities under the criminal law of the Member States;
- consumer fraud (eg selling "miracle products" without proven benefits) is illegal and should be sanctioned by consumer protection authorities and online platforms;
- cybercrime (such as hacking/phishing that uses COVID-19 links to spread malware) requires direct action by law enforcement authorities as well as public awareness campaigns.

Similar to this pandemic, misinformation was widespread in the early years of the HIV epidemic. Many people continue to argue that HIV does not exist or does not cause AIDS and that the therapies used are not good for human health. All the arguments proposed by these deniers have been rebuked by a multitude of scientific publications and debates (Mian, Khan, 2020).

Theories and hypotheses about COVID-19 are currently spreading at almost as fast as the spread of the virus. Headlines such as "5G technology promotes SARS-CoV-2 infection" or "US military launched the virus intentionally in China" flooded the Internet and generated reprehensible perceptions, emotions, feelings or behaviors among the recipients of this fake news (Perțea, 2021).

The influence of these false arguments can be so infectious that it can influence government policy, which has the potential to be fatal. It is important to learn from past mistakes, and the media has an important role to play in this. (Mian, Khan, 2020).

Researcher Sergey Sukhankinde of the Jamestown Foundation (https://jamestown.org/) says that the messages used by state actors in fake news can be grouped into three broad categories, tailored to the profile of the target audience (Perțea, 2021). The first category includes the simple ones, which target the masses of the population with a low level of education or reduced access to the media and among whom there are already feelings such as anti-Westernism or technophobia. The messages sent often also use the emotional factor to amplify the effect. The second category promotes conspiracy theories and are usually put forward by pseudo-specialists or alleged centers of expertise. These messages target middle-class people with an average level of culture or information. In the last category includes more elaborate messages, which aim to form beliefs at the level of intellectual environments on macropolitical, macroeconomic or macrosocial issues, such as restoring the world geopolitical order or the distribution of financial resources in the post-COVID-19 period.

The first category includes the simple ones, which target the masses of the population with a low level of education or reduced access to the media and among whom there are already feelings such as anti-Westernism or technophobia. The messages sent often also use the emotional factor to amplify the effect.

Methodology

The authors tried to validate the main research hypothesis, that the communication process of the Romanian public bodies during the pandemic, focused exclusively on the online environment, which determined the occurrence of a problem such as misinformation, by analyzing the public data offered by the European Commission, by the national press and by the reports and articles published so far.

By analyzing official communcation on official websites and even social media of public institutions dudring the pandemic inducted crysis, the authors wish to assess that, in this time of incertitude only deepened the need for digital proper communication in public institutions.

Other public and official materials were used as well in order to complete the overview by being processed through critical analysis so that one may understand the way in which particular elements contribute to the current social and economic context of communication in a pandemic.

Results and discussions

From a psychological point of view, when individuals are faced with new situations, characterized by the difficulty of distinguishing between safe and uncertain information, they become permissive towards false stories, particularly those that fold on their system. of beliefs and on one's own filter of thought. Moreover, the constant flow of distorted information about COVID-19 can lead to harmful behaviors for both oneself and others (Perțea, 2021).

Since the onset of the COVID-19 pandemic crisis, clear and accessible communication and accurate information have been essential to protect the health of citizens. In addition to national information channels, the EU has played a role in this, through its institutions, multipliers and networks in the Member States, in its neighborhood and beyond.

Effective proactive communication efforts have been made to promote reliable and verifiable health information, to inform third-country nationals and partners about the EU's efforts to combat the crisis, and to raise awareness in public opinion, on the risks of misinformation (European Commission, 2020a).

Measures and actions taken within the European Union

The European Commission's digital strategy is gaining new importance in the pandemic, as digital tools are used to: monitor the spread of the virus, research and develop diagnostic methods, treatments and vaccines, ensure that Europeans can stay connected and benefit safety in the online environment (European Commission, 2020b).

Representatives of online platforms, cutting-edge social networks, advertising and the advertising industry have agreed on a Code of Good Practice for Self-Regulation to address the spread of online misinformation and false news (European Commission, 2020c).

The Code of Good Practice was signed by online platforms such as Facebook, Google, Twitter and Mozilla, as well as by advertisers and parts of the advertising industry in October 2018. The signatories then presented their roadmaps for implementing the Code. Microsoft joined in May 2019, while TikTok signed the Code in June 2020 (European Commission, 2020c).

The signatories of the Code of Good Practice provided five sets of reports on their action to combat misinformation during the COVID-19 pandemic. These reports acted as a measure of transparency, ensuring the responsibility of the signatories in combating misinformation. In general, the reports show that the signatories of the Code have intensified their efforts to combat misinformation, compared to the actions taken in the first year of implementation of the Code's commitments (European Commission, 2020c).

Organizations such as FullFact and Snopes are also conducting studies on the credibility of social media posts (especially those on Facebook and Twitter), while the Conversation news site offers tips on quickly identifying fake news (Perțea, 2021).

In Romania, the authorities have taken measures to combat the false news that appeared with the onset of the pandemic. The Strategic Communication Group set up at the level of the Ministry of Internal Affairs said that the sites that distribute false articles about COVID-19 will be blocked. Since declaration of an emergency by 15 April, in Romania were closed six pro-Kremlin sites that distribute false news (Bunescu, 2021).

Another measure taken by the Romanian authorities was the launch of the „stirioficiale.ro" platform, meant to provide only information from official sources, in order to combat false news about COVID-19 (Bunescu, 2021).

Conclusion

Social media will not disappear. Its presence has grown and will continue to grow as technology continues to advance. Social platforms offer the ability to share posts and videos from one platform to another. It is safe to assume that the presence and penetration of social networks will increase only in the coming years.

It seems that, in an attempt to increase the number of spectators, the big media organizations create dramatic headlines, but instead they stimulate panic among the public. While health professionals are still learning about the virus, the media has already begun to speculate about the potential health impact the virus may have, and by publishing the worst potential effects of the virus, it only serves to fuel panic in the virus. among the general public (Mian, Khan, 2020).

In the context of the emergence and development of the information society, IT / communications technology has known new values, significantly impacting the social context and generating mutations in the philosophy of the economic, political and cultural environment with immediate repercussions in the daily life of the citizen.

The sharp increase in the implementation of IT solutions in almost all component parts of society has as a direct consequence the change of daily life in all its aspects.

Online traffic and audience became more important than the truth because they were more profitable, as noted by communications specialist Nicole A. Cooke. In this context, a type of false news is developing, with an economic function, focused on satisfying the need for consumption and obtaining financial income. False news is sensitive to the needs of consumers, who are influenced by their behavior. In a world of post-truth, consumers are tempted to access false news that strengthens their emotions, legitimizes their prejudices and solves their needs, being less interested in the truth (Cooke, 2018).

False news has the same capacity, reflecting the emotional needs, desires and fears of a society as well as rumors. In addition to the economic function, false news also fulfills a tactical function. They can act in the form of a manipulation technique associated with misinformation and propaganda (Sadiku et al, 2018: p. 188).

Turning fake news into a manipulation technique involves spreading false in formation specifically designed to harm a person, organization, competitor, or state (Sadiku et al, 2018: p. 188). The proliferation of false news in the context of the health crisis is a threat that can jeopardize the extended security of the state, through the potential impact on several sectors necessary for its proper functioning (Bunescu, 2021).

Cooperation with social media platforms is a key element both in developing a comprehensive assessment of the challenge of “infodemia” and in responding effectively to it.

Online platforms have reported that they have changed their policies to address the threat of misinformation about COVID-19. They promoted accurate and well-documented information about COVID-19 issued by WHO, national health authorities and professional media channels. Online platforms have downgraded content that has been found to be fake

or misleading after verification and has limited ads that promote fake products and services. In line with the standards of their user community, online platforms have removed content that could harm the health of citizens or public safety.

People need relevant local information about COVID-19 in a timely manner. Also, the institutions involved are overwhelmed by the situation and must use mass communication to reach everyone. Any communication strategy must use redundancy by obtaining the same information through as many different channels as possible.

Therefore, the best mechanisms for counteracting fake news remain the careful selection of sources of information about COVID-19 and the documentation regarding the degree of trust that can be given to media platforms that support information other than that broadcast by authority.

In the face of a pandemic, it is important that governments are transparent and provide the public with clear and honest information. Public confusion leaves citizens unprepared to fight a public health crisis. In addition, it is dangerous for politicians to politicize this pandemic. At such times, the message of government leaders must be consistent so that the public regains confidence in civil servants (Mian, Khan, 2020).

Governments and media personalities should use the knowledge of experts, especially from the CDC and the WHO, to provide accurate information so as not to incite panic among the public. If health bodies properly manage, educate and address people's concerns, there is an opportunity to reduce the level of mistrust that has arisen from anti-science movements in recent times.

As a result, this article shows the importance of a proper communication proces in public institution in a pandemic. The result of poor public communication skills is misinformation, which caused several problem during the pandemic.

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Analysis of the impact of Covid-19 about the use of the internet of things in Romania

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Abstract. *Romania ranks 26th out of the 28 member states of the European Union according to the Digital Economy and Society Index in 2020. The aim of this paper is to obtain a set of information relevant to the degree of knowledge by end users, of the use of the Internet of Things (IoT). To achieve this goal, a questionnaire with 19 questions was launched to obtain the views of the 1,300 respondents, during December 2020. The results show their considerations on the degree of IoT use, in a year marked by the COVID-19 pandemic, produced of the SARS-Cov-2 virus.*

Keywords: analysis, impact, internet, DESI index, positive effects, negative effects.

JEL Classification: C83, D12, R10.

Introduction

The invention of the phone opened the way for rapid personal communication worldwide. The Internet allows a person to communicate with millions of people around the world without paying too much (Friedemann and Floerkemeier, 2010: pp. 244-245) and opens the door to a vast amount of information. The virtual world, like the real world, presents a number of risks just like the use of the Internet which has advantages and disadvantages. A very serious problem for many minors and for ordinary internet users is the lack of the ability to know how to distinguish between the real and virtual worlds. On some occasions, the virtual world, thanks to the incredible advantages it brings, can become even more attractive than the real one. So the internet (Atzori et al, 2017: pp 110-111) has come to stay and occupy a place in our lives so much that we do not understand our society without it or the devices that incorporate it. This has changed the way we communicate with other people, look for things, share information, make friends. Without the internet, we are left out of society, because now everything goes through the network to such an extent that if we do not have a mobile phone, we are not part of this world (Serrano and Martinez, 2003: pp 114-116). All this use has some advantages, but also disadvantages, and we need to be aware of them every time we use this technology. The Internet of Things (IoT) is a developing technology that tends to be part of everyday life, marked by about 1 year of the COVID-19 pandemic. The many aspects of IoT, as well as the growing number of devices, technologies and platforms in this field, have favoured IoT being an expanded technology in many areas.

This article presents the effects of the COVID-19 pandemic on the use of IoT, as well as the disadvantages of using the Internet of Things. The logical sequence of parts of this work is: introduction, literature review, research approach, research methodology, research results and conclusions.

In conclusion, all entities will start implementing IoT technology if they want to survive in the long run. They will also need to implement strategies that respond to the many risks associated with the Internet of Things.

Literature review

The Internet of Things is a technology that will allow entry into a new economic era (Gubbi et al, 2013: pp 1653-1654) for the entire globe, affected by the COFID-19 pandemic, for more than a year. IoT is a concept that defines a world in which all objects (machines, home appliances, lighting systems, mobile devices, portabledevices, etc.) are connected to each other via the Internet (Aijaz & Aghvami, 2015: pp.105-106). The Digital Economy and Society Index is calculated at European Union level. This is a composite index that measures digital advances based on 5 fundamental elements: connectivity – namely fixed broadband, mobile broadband, speed and broadband prices; human capital - the degree of use of the Internet by the population; the basic digital competences of the population; Internet use – the use of information accessible on the Internet, by citizens, communication, online transactions; integration of digital technology; digital public services – E-government.

A careful analysis of the data provided by the National Institute of Statistics in the period 2007-2019 (Annex 1) shows that the share of household goods increased from 13.1% in 2007 to 23.4% in 2019. In 2007, the first place in the online purchases of people between 16 and 74 were books, magazines and newspapers (47.5%), followed by movies and music, software, then clothing, footwear, sporting goods, electronic equipment, travel arrangements, etc. On the last place in 2007 were the tickets for various events, manifestations, shows. After 13 years, the behavior of online shopping has changed, the first place being occupied by the purchase of clothes, shoes and sports items in a percentage of 72.6%, electronic equipment 15.5%, travel and accommodation 13.8%. On the last one are the video games with 3.6%, a decreasing evolution in the period 2017-2019.

On the two environments – urban and rural, if the largest share was in 2007 books and movies (over 85%), in 2019 on the first place are the purchases of clothing, clothing, footwear 70.9% (urban) respectively 75.8% (rural), on the last place being the acquisitions of video games 4.5% (urban environment) and 1.8% (rural environment).

Table 1. *Evolution of internet shopping, in the period 2007-2019*

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total	Household goods (%)	13,1	9,1	9,1	11,6	13,3	12	18,8	15,9	15,3	13	23,4	22,6	23,4
-	Movies, music	46	43,8	31,4	35,4	31,8	21,9	20	15,1	9,4	8,7	10	5,9	5,7
-	Books (including e-books), magazines, newspapers	47,5	57,6	47,2	50,4	47,2	36,4	38,5	25,2	21,1	20	14,7	18	9,1
-	Clothing, footwear, sporting goods	18,9	20,8	37,9	35,7	52,8	53,4	54,4	57,9	66,7	71	75,4	72,7	72,6
-	Software products	31,6	27,9	29	32,4	31,4	12,2	15,5	:	:	:	:	:	:
-	Hardware products	13,9	10,8	17,8	15,1	16,6	8,2	6,7	11,2	7,3	9,3	4,8	5,1	6,3
-	Electronic equipment	14,2	12,4	19,7	16,8	22,3	18,7	16,3	20,9	21	23,1	15	15,1	15,5
-	Travel and/or accommodation arrangements	14,3	19,4	34,2	28,6	40,5	33,4	29,6	20,9	21,6	2,2	16,8	14,3	13,8
-	Tickets for various events, manifestations, shows	6,4	12,3	18,6	24,4	27	18,1	18,7	18,1	16,7	14,4	15,4	10,1	9,2
-	Video games	:	:	:	:	:	:	:	8,5	7,4	5,6	9,3	4,5	3,6
Urban	Household goods (%)	13,2	9,6	9,5	11,7	13,8	9,6	20	14,6	15	13,4	23,6	21,8	25,7
-	Movies, music	46,5	44,6	31,8	37	31,8	21,8	21,2	16,8	9,6	9,5	11,1	6,7	6,8
-	Books (including e-books), magazines, newspapers	49,5	59	48	50,8	48	35,9	37,4	27,7	21,8	22,9	16,1	21,1	10,6
-	Clothing, footwear, sporting goods	21,1	20,1	37	36,1	53,9	54,3	54,6	27,5	67,3	70,9	75,5	73,4	70,9
-	Software products	29,4	28,6	29,3	33,6	31,3	13,6	17,2	:	:	:	:	:	:
-	Hardware products	14,4	10,7	17,8	16,8	17	9,2	7,4	12,6	7,9	10,2	5,2	5,7	7,5
-	Electronic equipment	15,3	12,6	21,3	17,8	23,1	19,9	17,3	22,6	23,7	24,2	14,6	16	15
-	Travel and / or accommodation arrangements	15,4	20,8	36	30,2	42,3	36,3	32,4	22,7	23,2	25,3	17,9	17,1	16,4
-	Tickets for various events, manifestations, shows	6,4	11,8	19,9	26,2	28,6	21,2	22	21,1	18,6	16,2	18,2	12,9	10,9
-	Video games	:	:	:	:	:	:	:	9,6	8,4	6	10,9	5	4,5
Rural	Household goods (%)	12,7	5,5	5,6	10,6	7,9	23,9	12,7	20,6	16	11,8	23	24,6	18,8
-	Movies, music	42,8	37,7	26,9	23,1	31,9	22,6	13,9	8,6	8,7	6,5	7,3	4,1	3,5

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
-	Books (including e-books), magazines, newspapers	33,5	47,7	38,2	47,4	39,9	38,6	43,6	15,2	19	11,6	11	10,8	6,2
-	Clothing, footwear, sporting goods	:	25,8	47,9	32,4	42,7	48,7	53,7	59,4	64,7	71,6	75	71,1	75,8
-	Software products	46,7	22,8	25,5	23,6	32,3	5,2	7,3	:	:	:	:	:	:
-	Hardware products	10,9	11,5	16,7	:	13	3,3	3,6	5,9	5,2	6,6	3,7	3,9	3,9
-	Electronic equipment	6,6	10,7	:	8,7	14,6	13,1	11,5	14,4	12,3	19,8	16	13,2	16,5
-	Travel and / or accommodation arrangements	6,7	9,3	12,4	16,1	23,8	19,2	16,2	13,6	16,1	13,3	13,9	7,9	8,5
-	Tickets for various events, manifestations, shows	6,6	16,1	:	10,8	13,3	2,9	2,5	6,6	10,6	9,2	8,1	3,8	5,7
-	Video games	:	:	:	:	:	:	:	4,1	3,9	4,2	5,1	3,3	1,8

Souce: inss.ro

In total economy, in 2020 the average monthly earnings in June increased by 3.5% compared to May 2020, while the net salary increased by 3.7%, compared to May 2020. In June 2020, the gross salary was 5,369 lei, and the net one was 3,298 lei, compared to June 2019, when the average gross salary was 5,127 lei, and the net one was 3,142 lei.

The progress made in 2020 for Romania was modest and failed to catch up with other countries. The level of digitisation of the economy (Karkouch et al, 2016: pp. 59-60) as well as the digital skills of the population are still low and make progress in most DESI dimensions difficult. On the other hand, 44% of homes in Romania are subscribed to very high-speed broadband services, which is an untapped advantage (second in speed in the EU). Connectivity (García, 2007: pp 88) has improved in Romania, but there is still much to be done to meet the rapidly growing needs. Member States are working on the transposition into national law of the new EU rules adopted in 2018, with a view to promoting investments in very high capacity networks, both fixed and mobile. In 2019, 78% of households had a fixed broadband internet subscription, up from 70% 5 years ago, and almost the entire European population has 4G network coverage. However, only 17 Member States have already allocated a spectrum in the 5G 'pioneer' bands, 5 more than in 2018.

Demers of research

The overall objective of the study is to obtain a set of relevant information regarding the degree of knowledge about IoT (Internet of Things) of end-users (individuals). Aspects related to usability, attitude to IoT, consumer behaviour, and the benefits and disadvantages of IoT were analysed.

The specific objectives pursued are: identifying the time period of use of internet-connected objects, determining why respondents use the Internet of Things, using the Internet of Things is a daily activity, to what extent does the use of the Internet of Things (IoT) help in current activities, identifying the three most important benefits of using IoT, but also the three most important disadvantages brought by using the Internet of Objects? Information about the use of the Internet of Things was obtained by addressing a set of 19 online questions that have taken into account issues such as the type of devices owned, their connectivity, ways of using them, benefits and disadvantages.

Methodology of research

The research method used in this study was the sociological survey, which was carried out at national level, using the online questionnaire as a research tool. The research targeted people over the age of 16, live in Romania and use IoT personally or in their household and are directly involved in the decision to purchase and use IoT. 1,300 respondents responded online between December 2020. The stratification criteria used were: residence environment (rural or urban); age groups (16-30 years, 31-45 years, 46-60 years, over 60 years); level of education, pay, etc. The questionnaire had 19 questions, the most important of which are: Q1. How long have you been using objects that can connect to the fixed/mobile internet directly or via a router or mobile phone? Q2. What are the reasons you started using the Internet of Things? Q6. Do you think that using the Internet of Things has now come to activity that is part of your routine (whether daily, weekly or monthly)? What about the next two years? Q10. To what extent do you think using internet of Things (IoT) helps you with your current activities? Q17. What are the three most important benefits of using IoT? Q18. What about the three most important disadvantages brought about by using the Internet of Things?

Results of research

From the analysis of the answers given by the 1,300 respondents to the 19 questions, 6 of which are focused on the specific objectives of this research, it follows that: in question Q1. How long have you been using objects that can connect to the fixed/mobile internet directly or via a router or mobile phone? Most respondents indicated as a time period over 4 years, 32 respondents between 2-3 years and 24, less than 6 months, according to Table 2:

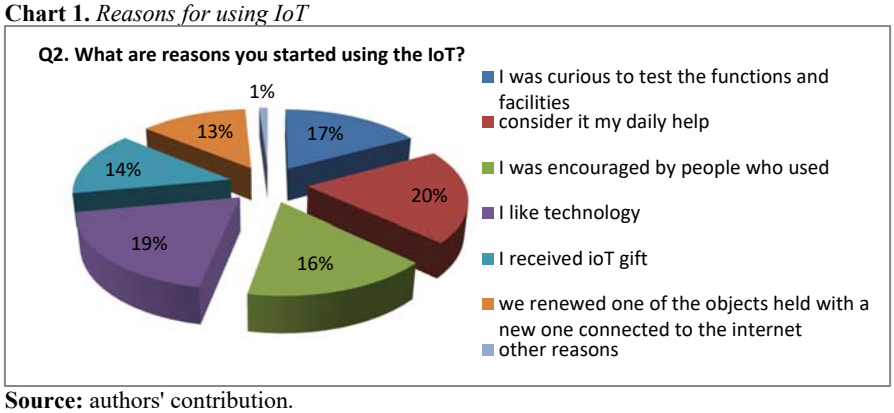
Table 2. *How long have you been using the internet?*

Q1. How long have you been using objects that can connect to the fixed/mobile internet directly or via a router or mobile phone?					
	less than 6 months	**about 1 years**	**2-3 year**	**over 4 year**	**do not Know**
mobile phone	13	8	9	69	1
computer/desktop	7	4	10	**77**	2
laptop/tablet	**24**	18	13	44	1
Tv	9	18	**32**	39	2
Household appliances	18	23	25	33	1
watch/smart bracelet	23	38	23	14	2
smart home- home sensor	14	31	31	19	5
smart meters	16	26	25	28	5
power plants finish/climatization	23	21	29	25	2
Car	17	26	20	35	2
entertainment devices	18	**46**	23	8	5
Equipment	14	33	25	26	2
other object	13	11	21	43	12

Source: authors' contribution.

Most respondents responded that they started using the Internet (Chart 1) because it's their daily help (20%), followed by the fact that they like technology (19%), they were curious to see how IoT works (17%). Using the Internet of Things has become an activity that is part of their routine (whether daily, weekly or monthly) for 82% of respondents.

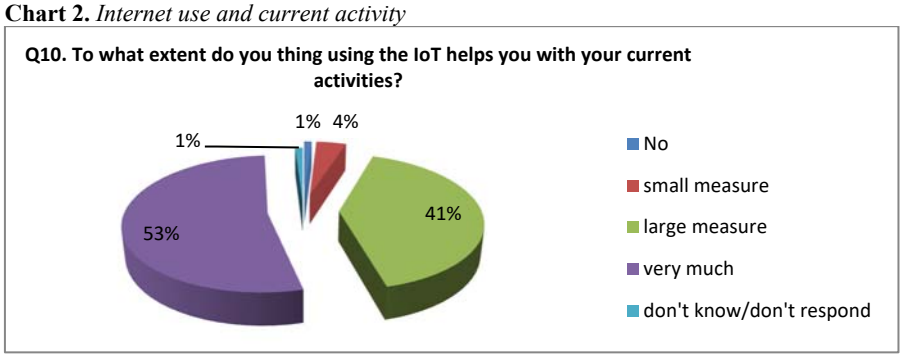
Chart 1. *Reasons for using IoT*



Source: authors' contribution.

To the question structured by income level of max. 3,000 lei answered a number of 95 that they were curious, from the income category 3,001-6,000 answered 75 that they considered it their daily help, and from the category of those with more than 6,000 lei, answered similar to the previous category a number of 81 respondents.

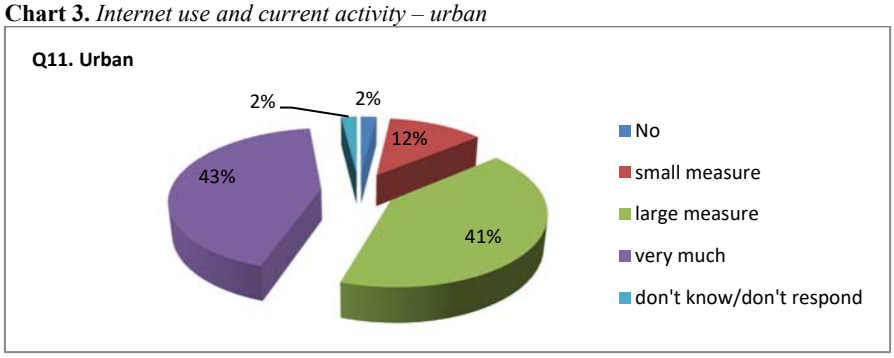
Chart 2. *Internet use and current activity*



Source: authors' contribution.

Respondents' answers by area of residence to the question "Q11. To what extent do you think the use of the Internet of Things (IoT) helps you in your current activities? were 43% – very much and 41% large measure. Therefore, over 80% of urban respondents consider the use of the Internet as a very useful activity.

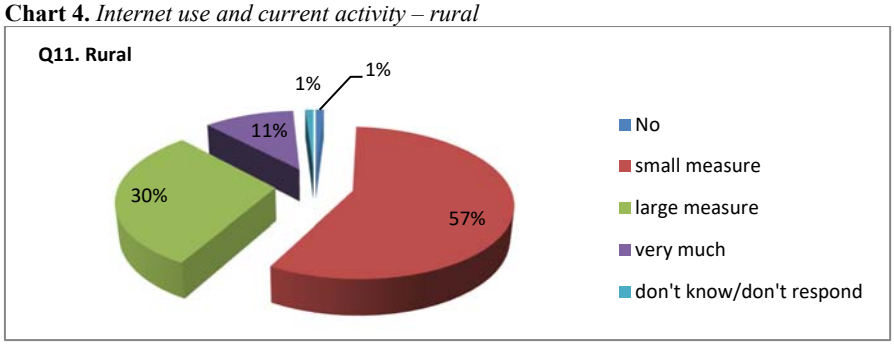
Chart 3. *Internet use and current activity – urban*



Source: authors' contribution.

The answers of the rural respondents are 57% to a small extent and only 41% answered to a large extent, as the current activity is affected, the differences between the residential environments being very visible.

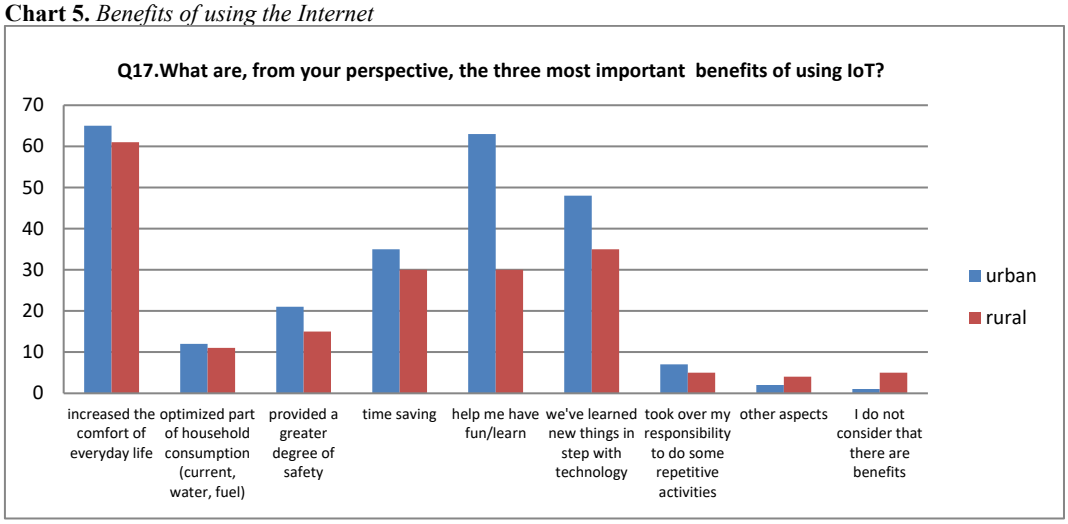
Chart 4. *Internet use and current activity – rural*



Source: authors' contribution.

On the primary education level, 69 responded that they were influenced by people who used IoT, and on the other 2 categories (secondary and higher) they answered in high percentages that they use it because it is useful in daily activity. The reasons by age categories are: curiosity at the range 16-30 years, daily help for most of the respondents of the ranges 31-45 and 46-60, and for the catechria over 60 years, the reason was the receipt of the gift.

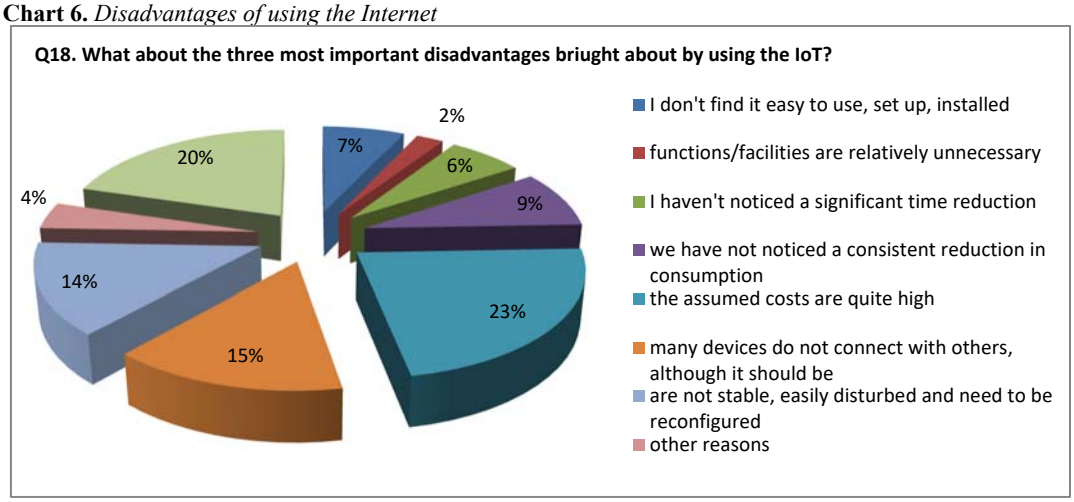
Chart 5. *Benefits of using the Internet*



Source: authors' contribution.

To the question of Internet use helps in the current activity, most have answered with "a lot" (chart 2), the answer corresponds to the urban residence environment, while for the rural residence environment, the answer is in "small measure". Differences also arise according to income, education and professional training level. The last 2 graphs highlight the advantages and disadvantages of using IoT and from here you can draw some conclusions about the effects of the COVID-19 pandemic on the use of IoT.

Chart 6. *Disadvantages of using the Internet*



Source: authors' contribution.

Conclusions

The Internet is probably the most remarkable novelty in the field of communication in human history. The empirical analysis of the evolutions of internet shopping, by residence environments - urban and rural - in the period 2007-2019 shows a fundamental change in the behavior of shoppers aged between 16 and 74, from books, movies, music, clothing and footwear to electrical and electronic equipment and video games. This can be seen especially in the last 12 months, when all sectors of the economies of the countries of the world have reinvented and adapted quickly to the new requirements imposed by the COFID-19 epidemic.

The positive effects of using the Internet during the pandemic are: provide immediate information through access to any information you want in seconds, generalize content, remove barriers and space (who does not study today from a distance?), increase and improve teaching; facilitates access to learning, enables online work, increases communication between people, enables globalisation, provides other forms of entertainment, creates new jobs and search forms, new ways to manage our purchases (all stores we have a click away, changed the way we access cinema ticket purchases or carry out banking and travel operations).

Negative effects of using the Internet in a pandemic: information privacy issues, low content accuracy, threats such as viruses or spam, addictive, encouraging a sedentary lifestyle, family communication getting worse, exposure to unwanted content, problems distinguishing truth from untruth.

Quantification of the influence of socio-demographic and economic variables on consumption of IoT users (correlations between variables) is the approach of future research.

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Implications of the EU transition to climate neutrality for Romania's industry

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Abstract. *The industry holds an important place in the Romanian economy, having a share of 22-25% in GDP in the post-accession period. The structure of industrial production has undergone transformations due to adaptation to international competition, foreign direct investment and increasing the technological level of production. The shrinking of polluting production capacity as a result of the massive restructurings of the 1990s has subsequently made it easier to meet the target of the Europe 2020 Strategy regarding climate change and energy. In 2020, the European Commission launched a new industrial strategy for Europe, aimed at the transition to climate neutrality and digital leadership. The paper presents current characteristics of the Romanian industry and the new challenges generated by the guidelines of European development.*

Keywords: industry, reindustrialization, technological level, new industrial strategy.

JEL Classification: 17G, 18D, 20I.

1. Introduction

Globalization has led to unprecedented economic interdependence in the world and has been accompanied by the process of deindustrialization in developed countries. Since the 1970s, many countries in the world have seen a decline in the share of manufacturing in GDP, and this decline has accelerated as China and other increasingly competitive countries in the Asia-Pacific region have steadily grown in world trade. Deindustrialization has generated anti-globalization reactions. It has even been hypothesized that deindustrialization has caused a slowdown in globalization for the world's countries (Callaghan, 2021), and the pandemic is an opportunity for policy change. In a hyper-connected world, the manifestation of the tendency towards protectionism and the re-evaluation of the functioning of global supply chains for economic and strategic reasons is observed in the large economies of the world.

Industry matters to Europe. Following the economic crisis triggered in 2009, it turned out that the industry is important not only for the share of processing activities, but also for the horizontal links in the economy. The economic importance was supported in 2014 by data according to which the industry occupied over 80% of European exports and 80% of research and innovation in the private sector. Almost one in four private sector jobs was in industry (European Commission, 2014).

The big challenge for the industry is the new industrial revolution, called industry 4.0., which reflects the pronounced trend of automation and data exchange in the processes specific to the manufacturing industry. In addition, it outlines industry 5.0, which is gradually materializing through the use of robots and smart machines allowing humans to work better and smarter. The development and integration of information and communication technologies (ICT) into production has an effect on supply chains and requires a holistic approach to the systemic changes needed to implement the new principles (Ghadge, 2020).

The challenges for industrial policy in Europe in the context of the new industrial revolution have once again called into question the support for infant industries and the adjustment of production structures as a result of increasing international economic integration. The more recent debate on the type of industrial policy has shown that under the pressure of the economic crisis of 2009 the role of the state in guiding the development of industry is being re-discussed. Moreover, the idea that industrial policy can exert influence on the path-dependent process of innovation and the diffusion of technology is outlined (Mazzucato, 2015). This debate has become more visible as climate change intensifies and countries counteract through the development of the “green economy”. The need to produce and disseminate new technologies, but also to promote the sustainable economy obliges Europe to continuous innovation in order to maintain its industrial competitiveness worldwide.

According to European options, the key factors supporting development are investment and access to finance, the development and assimilation of key technologies, including digital solutions, the adoption of more sustainable business models and the retraining of the European workforce (European Commission, 2017).

In this context, a new industrial strategy for Europe (European Commission, 2020) formulates two major objectives: climate neutrality and digital leadership. The document states that Europe has a global competitive advantage in that it produces high value-added goods and services. It also shows that the transformation to which the industry has been subjected has been done under the pressure of the need to reduce the depletion of natural resources. An important aspect is the vulnerability of the industry induced by the commercial channel better highlighted during the pandemic. This raises the issue of assessing the fragmentation of production chains due to Europe's integration into the world economic circuit. Reconsidering the role of European industry also means bringing the activities of the manufacturing industry back to Europe. If this happens, in line with the goal of climate neutrality, all industrial value chains, including the energy sector, will have to adapt to the restrictions imposed by reducing carbon footprints.

In the present paper the industry includes the branches of the extractive industry, the processing industry and electricity and heat, gas and water. The objective of the research is to highlight the more recent structural changes of the Romanian industry that resulted from the shock of the economic crisis from 2009-2010 and from its more accentuated integration in the European economy. The paper is based on the empirical analysis of statistical data for Romania over a relatively short period, respectively after the economic crisis of 2009-2010.

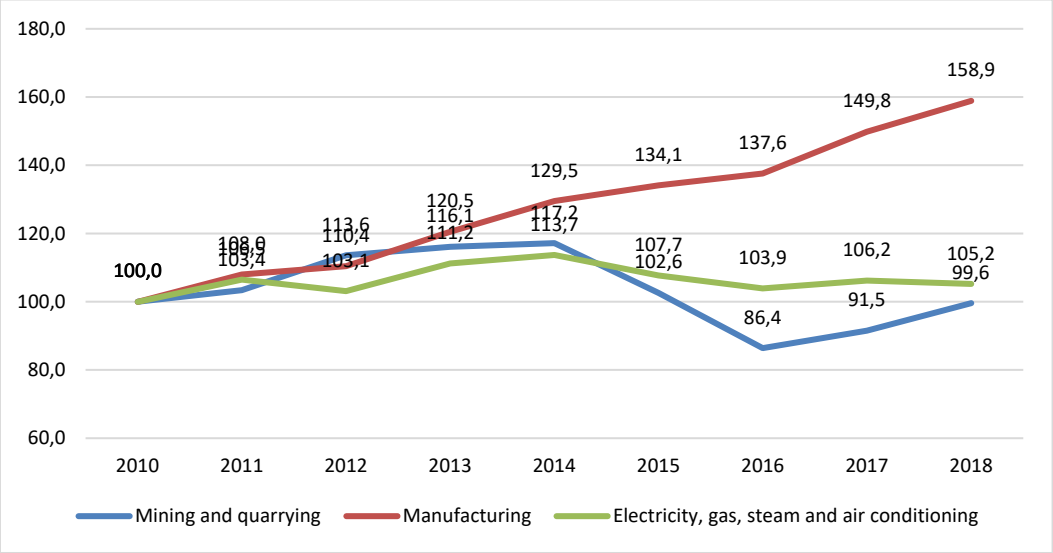
2. Recent trends regarding the level and structure of industrial production in Romania

The dramatic reduction of industrial activity in the 90s due to the restructurings that accompanied Romania's transition to a market economy started a deindustrialization process. However, in 2000 the industry still held 27.3% of GDP. After 2000, during the period of economic growth and then gradual integration into the EU, this share decreased, being about 22-23.5% in 2007-2019. The reduction in the relative importance of the industry was due to the significant growth of the services sector.

The economic crisis strongly affected industrial production, which decreased by about 5.6% in 2009 compared to 2008. However, the comeback of industry occurred in 2010, with a higher dynamics of gross value added in industry compared to GDP dynamics, gap maintained in 2011, which meant that the overcoming the crisis by the Romanian economy was strongly supported by this branch. In this context, new arguments have emerged regarding the need for reindustrialization in Romania (Voinea, et al., 2010).

Of the three main branches of industry, the manufacturing industry grew rapidly since 2010 (figure 1). This evolution was largely due to investments, as in the period 2008-2018 about 30-40% of the net investments at national level were in industry, mostly in the manufacturing industry, which gradually became attractive for foreign capital.

Figure 1. *Industrial production indices, by main activities in Romania (2010=100%)*



Source: Anuarul Statistic al Romaniei serii de timp 2019.

The increase of the industrial production took place in the conditions of the improvement of the technological level of the production. Thus, according to the classification used by Eurostat in 2013, Romania had an average annual increase in medium-high production of 12.7% in the period 2005-2011, mainly due to the automotive industry (table 1). Compared to the evolution of other Central and Eastern European countries (CEEC), this increase was significantly higher. However, the evolution of high-tech industries was much slower in Romania (1.7% average annual growth) compared to Poland (14.5%), Czech Republic (4.6%), Hungary (4.6%) and compared to the EU27 average (3.3%).

The analysis of the structure of gross value added (GVA) created in the manufacturing industry shows that after overcoming the fluctuations caused by the economic crisis 2009-2010 that tested the resilience of industrial activities, Romania was in 2018 below the share of high and medium high industries compared to average EU28 (table 2). An important aspect that cannot be deduced from these structures is the technological level of industrial products. Industrial products are part of a technological chain that in Romania frequently covers segments that involve lower added value and low level of innovative activity.

Table 1. *Industrial manufacturing production according to the technological level* in selected CEEC countries, annual average growth rates (%), 2005-2011*

	Technological level			
	High	Medium-high	Medium-low	Low
EU-27	3.3	1.0	-0.4	-0.7
Bulgaria	1.9	3.8	-0.1	-1.4
Czech Republic	5.4	7.3	1.5	-1.4
Hungary	4.6	4.0	1.0	-1.1
Poland	14.5	8.4	6.9	3.0
Romania	1.7	12.7	3.5	1.7

* *High technology manufacturing*: Pharmaceuticals; Computers, electronic & optical products; Air spacecraft. *Medium-high-technology manufacturing*: Chemicals; Weapons & ammunition; Electrical equipment; Machinery; Motor vehicles; Transport equipment excluding ships, boats, excluding air & spacecraft; Medical & dental instruments**.** *Medium-low-technology manufacturing*: Reproduction recorded media; Coke and petroleum products; Rubber and plastic products; Other non-metallic mineral products; Basic metals; Fabricated metal products excluding machinery; Ships and boats; Repair & installation machinery. *Low-technology manufacturing*: Food; Beverages; Tobacco; Textiles; Clothing; Leather products; Wood products; Paper products; Printing; Furniture; Other manufacturing excluding medical and dental instruments.
Source: Eurostat, High-technology and medium-high technology industries main drivers of EU-27's industrial growth - Issue number 1/2013, https://ec.europa.eu/eurostat/documents/3433488/5585612/KS-SF-13-001-EN.PDF/f68ec994-79d3-43f2-a7a9-787b73fdfe7e

Although industrial production increased in Romania, the population employed in industry gradually decreased, from 2.2 million people in 2007 to 1.77 million people in 2010, after which it stabilized until 2020. This evolution has had a positive impact on labor productivity. The reduction of the population employed in the industry compared to 2007 is a signal associated with the increase of the proportion of medium-high activities, especially by establishing a cluster of competitiveness in the automotive industry. Given the rapidity of technological change, there is a debate among researchers about the future impact of these major changes. The future of jobs will be marked by robotics. In Europe, more than 50% of the installed robots are in the automotive sector, and the highest concentration in this branch is in Germany (Fernández-Macías, et al., 2020). Although in Germany robotization in this branch has not affected employment (International Federation of Robotics (IFR), 2016), it is expected that in Romania there will be a major vulnerability of jobs in the future due to robotization insofar as repetitive activities are dominant.

Table 2. *GVA structure created in industry according to the technological level, in Romania, 2012-2018 (% of total industry, exclusive constructions)*

	Technological level		
	High	Medium-high	Medium-low
EU28 (2013-2020)			
2012	9,31	28,23	22,56
2014	9,55	29,60	22,41
2018	...	...	22,19
Romania			
2012	2,45	19,84	21,95
2014	3,15	18,24	29,69
2018	2,74	23,49	23,06

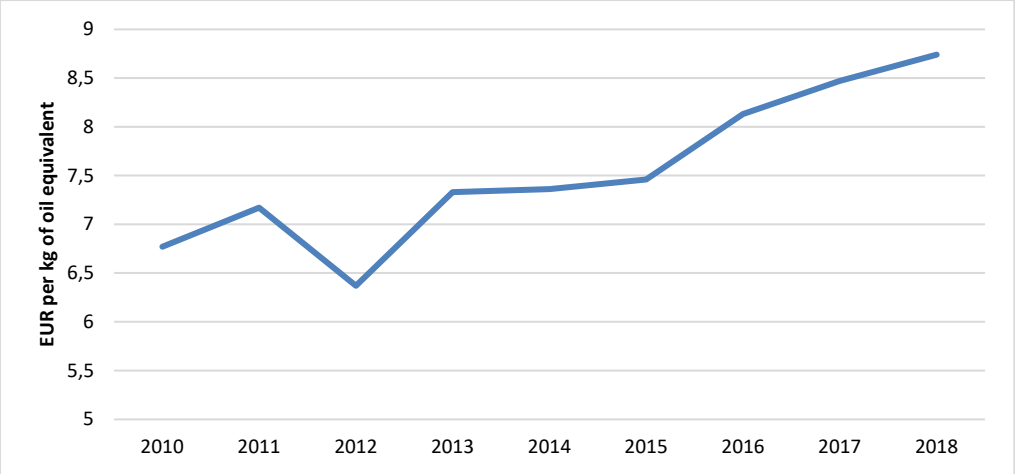
Source: Own calculations based on Eurostat data.

The transformation of the industry in the sense of its technological upgrade and of the fulfillment of the current European objectives supposes also the increase of the productivity of the material and energetic resources. Regarding the productivity of material resources,

Eurostat calculates the ratio between GDP and domestic material consumption (DMC). This indicator is significant because it makes the connection between the macroeconomic results obtained, on the one hand, and the total volume of raw materials extracted from the national territory plus the net import (import minus export), on the other hand. At the level of the entire economy, Romania has a resource productivity of 0.366 Euro per kg in 2019, compared to 2.32 Euro per kg EU28 average and 4.95 Euro per kg in the Netherlands (the best score in the EU28). This low level of resource productivity in Romania reflects the structure of production and its material-intensive character, comparable only to that of Bulgaria and significantly lower than Poland (0.766 Euro per kg) and Hungary (0.769 Euro per kg). Eurostat does not provide separate data for this indicator at the industry level. The fact that this practical indicator oscillated around the same values in the period 2005-2019 without registering an improvement trend shows us that the transition to products with a higher technological level is slow, even if from a statistical point of view the share of GVA created in industries medium high-tech has grown.

Figure 2 shows a positive trend of GVA per unit of final energy consumption in industry and construction, starting with 2013. However, in 2019, the level of this indicator was in Romania of 5.32 Euro per kg of oil equivalent, significantly lower compared to the EU 28 average level (8.74 Euro per kg), but comparable to that recorded in the Czech Republic, Poland and Hungary.

Figure 2. *GVA created in industry * per unit of final energy consumption in industry *, in Romania*



*including constructions.
Source: calculated based on data from the Statistical Yearbook of Romania 2019 time series and the average annual exchange rate published by the Romanian National Bank.

This positive evolution can be a result of the reduction of energy consumption through the consumption of alternative energies, but also through the use of superior technologies in industry that imply a low energy consumption.

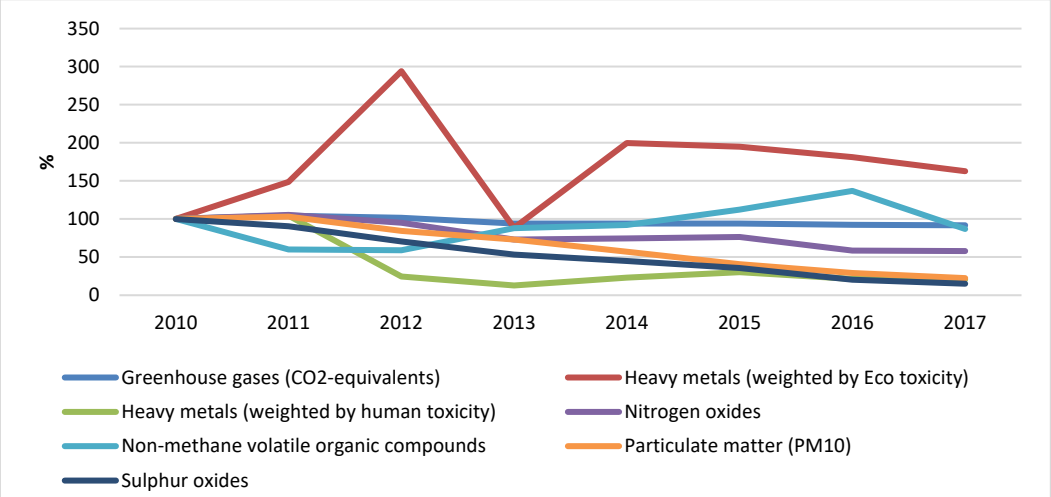
3. The impact of industry on the natural environment

The downturn of industrial activity in Romania in the first two decades after 1990 in energy-intensive and material-intensive branches with a negative impact on the environment have greatly improved the relationship between economic activity and the natural environment. To a large extent, the process of restructuring the economy has led to the situation in which Romania has reached and even exceeded the targets set in the Europe 2020 Strategy (Eurostat, 2019). Thus, regarding the environmental footprint of energy consumption, Romania has exceeded since 2017 the share of 24% gross renewable energy in final energy consumption and has maintained the level of primary energy consumption below the target of 43 million tons of oil equivalent. It also reduced its greenhouse gas emissions by 1.7% compared to 1990.

The industrial recovery starting with 2011 was achieved by maintaining the downward trend of air pollution. With the exception of the heavy metal component, all other factors that pollute the air were in 2017 below the level of 2010 (figure 3). A similar situation is found regarding water pollution (figure 4). Pollution in 2016 and 2017 was below the level of 2010 in all components, with a sharp reduction in heavy metal pollution (weighted by human toxicity and Eco toxicity).

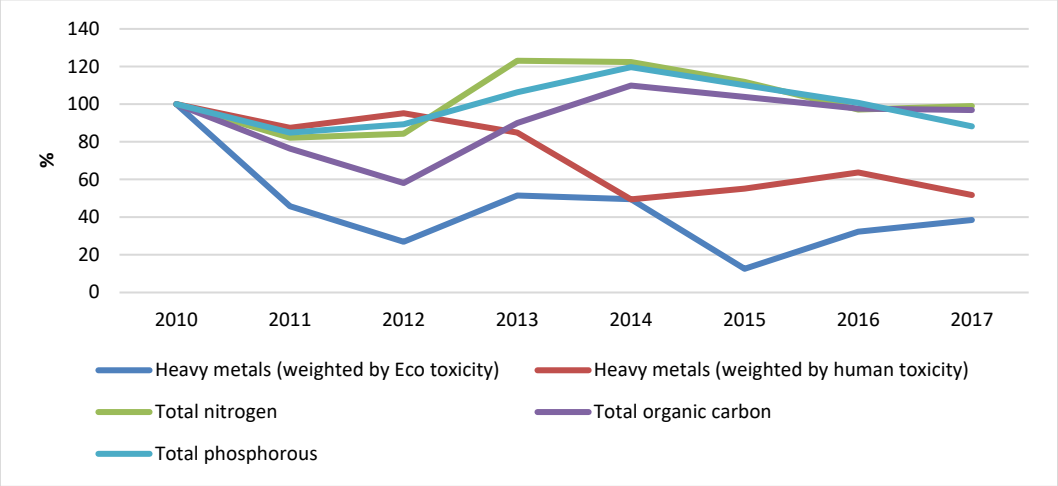
For the next period Romania has developed the 2021-2030 Integrated National Energy and Climate Plan (Romanian Government, April 2020), which was considered by the European Commission as insufficiently ambitious, among other things because it does not reflect the determination to disconnect from fossil fuels. However, the energy transition from coal to green energy means assuming the elimination of coal production with important local social consequences, but also with strategic implications related to not using an available internal resource.

Figure 3. *Industrial air pollution index in Romania, 2010-2017*
2010 = 100%



Source: Calculated relative to 2010, based on data from European Environment Agency, Romania Industrial pollution profile 2020, https://www.eea.europa.eu/themes/industry/industrial-pollution/industrial-pollution-country-profiles-2020/romania

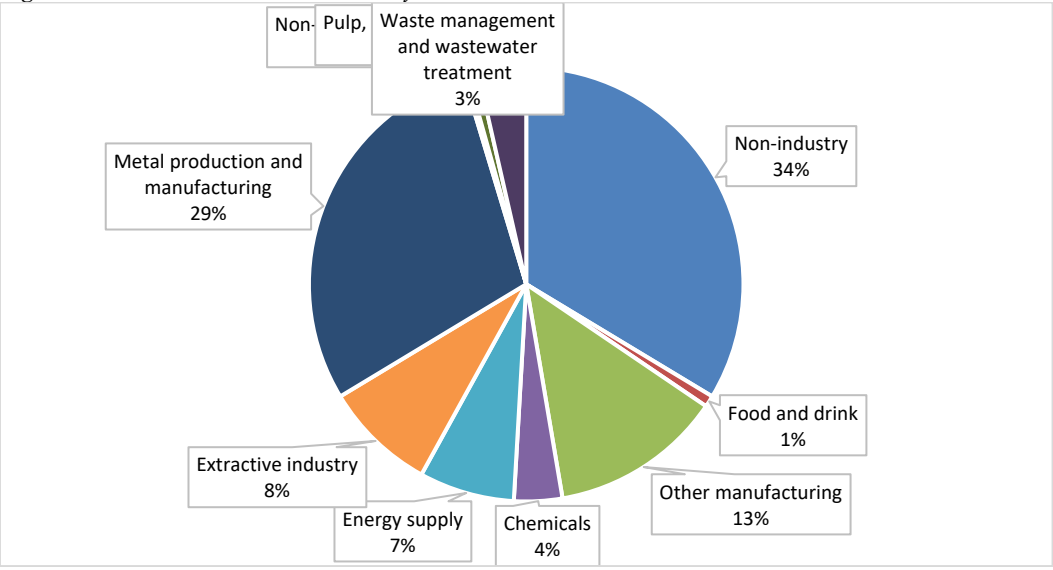
Figure 4. *Industrial water pollution index in Romania, 2010-2017*
2010 = 100%



Source: Calculated relative to 2010 based on data from European Environment Agency, Romania Industrial pollution profile 2020, https://www.eea.europa.eu/themes/industry/industrial-pollution/industrial-pollution-country-profiles-2020/romania

Alignment with the new European strategy means new targets set out in Romania's strategy: reducing domestic greenhouse gas emissions by at least 40% by 2030 compared to 1990; renewable energy consumption of 32% in 2030; improving energy efficiency by 32.5% in 2030; interconnection of the electricity market at a level of 15% by 2030. Achieving these targets depends not only on industry, and the cumulative effort of producers in all fields, but also on changing the consumption behavior of the population.

Figure 5. *Hazardous waste in Romania, by sources, 2016*



Source: European Environment Agency.

Environmental pollution is also due to production of waste, which can be hazardous or non-hazardous to public health and the environment. According to the latest data from the European Environment Agency, in Romania about 66% of hazardous waste derives from industry (figure 5), and the largest contribution has the branch Metal production and manufacturing, followed by Extractive industry and Energy supply. Non-hazardous waste (paper, plastic, glass, metal etc.) does not directly threaten public health because it is not of toxic nature. In 2016 about 70% of non-hazardous waste was derived from industrial activities, the largest contribution being from the Energy supply sector (32.7% of total non-hazardous waste), followed by Pulp, paper, wood (14.6%) and Waste management and waste water treatment (7.1%). However, the industry is not only a producer of waste, but also includes recycling activities. The waste management issue in Romania is also included in the 2021-2030 Integrated National Energy and Climate Plan within the dimension *Decarbonisation – GHG emissions and removals*, by promoting the transition to a circular economy.

Conclusions

Romanian industry underwent dramatic transformations in the 1990s as a result of specific restructuring during the transition to a market economy and then integration into the European Union. These stages marked the changes in the branch structure of industrial production. The industry has confirmed its potential as a source of development and as driving force to overcome the crisis of 2009-2010.

The manufacturing industry developed rapidly, showing a faster growth of medium-high technological industries compared to other industries. In the context of strong international competition for the creation and assimilation of new technologies, the low dynamics of high-tech industries in Romania and the keeping of a low level of productivity of material and energy resources are comparative disadvantages.

By reducing the material-intensive, energy-intensive and polluting industrial activity of the 90s and then implementing environmental measures after joining the EU, Romania has managed to achieve the goals set by the Strategy Europe 2020 on environmental protection. At present, the new EU strategy on energy and climate change requires not only higher efforts for continuous innovation and more pronounced development of high-tech activities, but also measures in all branches to reduce the impact on the environment.

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Smart City. Is Bucharest experiencing smart mobility?

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Abstract. *The world is facing now a massive increase in the number of people whose option is to live within cities. Due to the high dynamics of urbanization process all over the world, there are some negative consequences on the whole environment (including the natural and the one created by people). Governments and many NGOs (Non Government Organizations) are more and more aware about these negative effects and are looking for valuable, efficient & effective solutions to ensure a more sustainable environment within cities, as they are considered to host the largest part of the financial flows. Smart cities are offering alternative solutions to many of the problems and challenges caused by the increasing process of urbanization. This type of city is a complex long-term vision of an urban area aiming mostly to reduce the footprint on the environment and to induce an increase of the quality of life of its inhabitants. One important part of the concept of smarty city concerns the idea of smart mobility. This component involves the environment, financial resources, new technologies, but also its citizens behaviour. Smart mobility uses information and communication technologies (ITC) in order to optimize traffic flows, as well as for other applications or to identify and collect citizens' opinions manifested in line with certain topics of interest. The main purpose of smart technologies is to provide citizens with a more comfortable life and to support them, both from an economic and security points of view. Intelligent mobility services include local public transport and car sharing services, which are and are expected to be promoted as one of the main means of transport among near, mid-term and long-term future.*

Keywords: smart cities, smart mobility, smart ticketing.

JEL Classification: R41, Q55.

Introduction

Population growth has led to the concentration of people and companies in cities, and this leads to diversity, creativity, innovation and economic growth (Harrison and Donnelly 2011). The synergy between the different economic sectors leads to the creation of economies of scale that contribute favorably to the sustainable development of countries (AMETIC, 2012). The global economy is concentrated at 80% of GDP in cities, and this has led to high levels of pollution (Dobbs et al., 2011).

Cities around the world are constantly facing various challenges. One of these representations of citizens' behaviour regarding mobility in the city and the use of alternative mobility services, such as public transport or car-sharing. A new behavioural paradigm on mobility could help cities meet new challenges, such as pollution and heavy traffic (Schreieck et al. 2018b).

Smart mobility has become one of the most important topics on urban sustainability agendas. The concept of *intelligent mobility* has undergone an evolution, due to the digital evolution in the transport industry. Because of this, new information and communication technologies (ITC) have been used to increase the efficiency of the transportation network (Noy, Givoni, 2018). Smart mobility is considered to e an essential factor for the growth and development of smart cities (Guedes et al., 2018).

Information and communication technologies (ITC) as well as digital technologies have contributed a lot to the improvement of the concept of smart city (Falcao et al., 2017). Government agencies have begun adopting new information technology systems, such as applications for individual or camera use in monitoring and sensor systems. These systems aim for positive changes in daily life (Rao & Prasad, 2018). In this context, the use of ITC in the field of urban mobility is important for promoting efficient and sustainable transport (Mangiaracina et al., 2017). New technologies that are used for urban mobility may help a lot to improve sustainability, which is an important pillar for the local development of smart cities.

The popularity of information and communication technology (ITC) has grown significantly in recent years. In this sense, companies have developed new methods of interface with e-ticket customers, and this is an advantage for increasing operational efficiency and reducing costs. Electronic tickets that are used on various ticketing platforms reduce the need for paper consumption. They are safer and harder to counterfeit and lose. The creation of e-ticketing systems allows the consolidation of a better quality and satisfaction relationship with the clients, contributing as well as to their retention and loyalty.

Brief literature review

The rapidly growing population of cities, as well as high standards of the quality of life, have created a need to improve infrastructure in all systems found in cities (Talari et al., 2017). Urban population growth has led to pollution and congestion problems (Docherty, 2018). Urban mobility can contribute to solve an important problem of cities, by a step by

step transformation of these cities (Longo et al., 2019). In order to be successful in terms of transformation, we consider it is important to include a long-term vision that is represented by an urban mobility plan that includes smart solutions that might materialize sooner or later (Chen et al., 2017).

In terms of urban mobility, there is a need to promote sustainable, based on integrated and safe means of transport (Garau et al., 2016).

Smart solutions offer users more transportation options and promote energy efficiency and effectiveness by reducing dependence on private vehicles (Lyons, 2018). Due to the fact that over 20% of energy consumption in cities is due to transportation, and investments in new transportation systems have the potential to save energy (Chen et al., 2017), and this leads to studies related to sustainable and intelligent mobility (Noy, 2018). Urban mobility plans have to take into consideration also the use of high-level technology to improve system efficiency and effectiveness and to facilitate also users interactions.

Main methodology

In order to achieve the objective of identifying the stage of knowledge concerning concepts such as smart city and smart mobility, a synthesis of the specialized literature on a national and international level was carried out, through studying specialized articles and research reports.

Evaluating the activity of a smart city can be done through various indicators such as *Health & Safety, Mobility, Governance, Opportunities* (Work & School) and of course based also on sme relevant case studies.

In accordance with the purpose of this paper, the authors decided to present a case study, based on how smart mobility and smart ticketing are applied within Bucharest based on the practical experience of one of the author actively involved on *Societatea de Transport Bucuresti STB SA.* He decided to enlarge his vision by following a PhD programme in *Economis* whithin our Faculty-*Theoretical an Applied Economics Faculty*-at *Bucharest University of Economic Studies*.

This paper presents the main ways to purchase and pay for the travel. These ways represent an important prerequisite to increase the comfort of the citizens of Bucharest and a way to facilitate the transition of Bucharest to the status of a smart city. The main payment methods that the inhabitants have at their disposal for the payment of the trip are: *contactless card payments, bank card payments, SMS payment*s, payment through *BPay application*. These ways are contributing also as facilitating Bucharest to become a smart city.

The dynamics of urban development is mainly related to transformations of their form and structure, due to the increase in the number of people and the degree of land occupation (Yigitcanlar, 2019). Urban development and increased mobility are related factors that are improving simultaneously. ITC technologies are essential for the implementation of smart urban mobility strategies within cities (Rao, 2018), as they are the main tools recommended to remote management and control of the mobility system. These technologies integrate

different equipment and services that allow the creation, transmission, sharing or storage of different information (Lyons, 2018). The data collection process involves the real-time collection of various information related to mobility. ITC technologies are used in this regard and facilitate the whole mobility management process. Databases are needed to increase the efficiency of services, such as route analysis, demand and ticketing (Mantelero, 2015).

In the context of smart cities, attempts are being made to increase electronic ticketing systems, as they bring many benefits, such as avoiding waiting times to purchase a ticket. The electronic ticketing system has developed concomitantly with the Internet.

E-ticketing systems is the generic web portal application that helps people pay the price of the trip for the route they are traveling (Kevin, 2012).

This e-ticketing system helps to efficiently process the services, as well as a new marketing strategy. There are numerous ticketing systems, which have different advantages and disadvantages and are presented in table no. 1 (Jakubauskas, 2010):

Table no. 1. *Advantage and disadvantages of different Types of ticket*

Type of ticket	Advantage	Disadvantage
Paper tickets	Fast production process Low production costs	High risk of counterfeiting It is not multifunctional Low protection
Paper daily, weekly, monthly, tourist passes	Easy to make.	It can be counterfeited quite easily
Plastic/paper tokens/cards with magnetic strip single use	Better protected compared to paper tickets Very thick	High risk of malfunction, the magnetic stripe may become vulnerable
Smart cards	Multifunctional Application of smart cards. Easy validation. Allows route optimization according to the received data Providing passenger data	Relatively high price for introduction There are risks of smart card counterfeiting Smart card transaction times are longer compared to contactless ones
Electronic ticket (WAP page ticket, SMS ticket)	Safe payment No cash payment Convenient use	Many technical specifications for transport operators and passengers Relatively high price for introduction The charging system should be well maintained and organized

Source: designed by authors based on a synthesis of some of the main approach found within specialized literature and documentation from *Societatea de Transport Bucuresti STB SA.*

E-ticketing systems help to increase the comfort of passengers, as well as to reduce the time of purchase of a ticket, and in this way tickets can be purchased from anywhere without limiting time.

In addition to the advantages offered to customers, the e-ticketing system offers advantages to public transport service providers by constantly monitoring the behavior and routes frequented by passengers. The e-ticketing system is divided into two systems, respectively mobile ticketing and internet ticketing system.

M-ticketing can be defined as an order to purchase, deliver and use services or products using mobile technology, such as *Wirless Application Protocol (WAP)* (Skarica, Belani, & Illes, 2009). The mobile ticketing industry is relatively recent, and part of it is emerging

with the rapid growth of the commerce industry. M-ticketing allows customers to purchase a trip through various applications, and the trips can be stored on the smartphone. This method is more cost effective and environmentally friendly.

Main results and discussions

Case study – Bucharest

Bucharest is the capital of Romania and is the largest urban agglomeration in the country, where about 20% of the country's urban population and over 13% of Romania's population live. At the level of 2020, the resident population in the metropolitan area of Bucharest registers over 2.5 million citizens, but the real number of people is higher, because there are people who work, study or live in this region and are not registered.

The public passenger transport service in the Bucharest metropolitan area has the largest service area and a large number of users. It has been operating for over 110 years and is based on a high level of experience. *Societatea de Transport Bucuresti STB SA* is the main public passenger transport company in Bucharest and in the metropolitan area, with a complex network of trams, trolleybuses and buses. The company uses charging methods systems, based on contactless transport card technology, which have replaced the old paper tickets and cardboard subscriptions, since 2006. This decision was made because the old paper tickets were easy to forget.

There are several methods for paying for travel. The most used method is contactless cards. It can be loaded easily, quickly, from vending centers, vending machines or ATMs. Another payment method is the payment with the bank card, directly at the validator, in the means of public transport. This payment method is allowed only at contactless validators, which are of the latest generation and allow the validation of the transport card, the bank card, but also of various gadgets, such as smartphones, smart watches.

In addition to these methods, there is a pilot project, which has developed an application called *BPay*, where travelers can purchase their travel with the help of credit or debit card. This application is secure and efficient in terms of security of bank card information. The application can be installed on smartphones that have *Androir* and *iOS operating system,* to be connected to the internet. Through the application, you can purchase all types of travel, respectively urban, regional, express and tourist tickets. All butter prices clearly visible before making the payment. When purchasing travel documents (subscription/travel), the user will receive a payment/ transaction confirmation message. Upon confirmation of the transaction, the travel document becomes valid. The price paid for travel tickets is valid for the duration mentioned on the travel tickets, and any change in fare during their validity period will not affect the travel tickets purchased.

After confirmation of the transaction, the travel document must be activated to generate the QR-code, necessary for the control team. Passengers must ensure that the phone is sufficiently charged, and that the carrier cannot be held liable for the duration of the journey if you do not have a sufficient battery. If it is not possible to prove the possession of a valid

travel document, the passengers are liable to a fine or paid on the spot to the ascertaining agent the value of the travel surcharge.

Main Conclusions

Smart mobility is a topical issue and is present in sustainability agendas as responses to the impact of urban transportation systems. Smart mobility is considered one of the main key factors for smart urban development. Within smart mobility, an important element is ticketing. In this paper, the types of tickets in surface public transport in Bucharest were approached, by highlighting the advantages and disadvantages. It was observed that in the case of Bucharest, starting with 2006, the payment of travel has undergone substantial changes, towards digitalization. By eliminating paper tickets, which are the first way to pay for travel, which were unsafe and easy to counterfeit, contactless cards were introduced, which is the most used way to pay for travel. This option is a safe, easy to be carried out and difficult to falsify. Other payment methods are payment by SMS, which is easy for travelers, as they have a smartphone, but also payment by bank card. The newest way to pay for travel is by using BPay applications. In this way, you can purchase all forms of tickets (season tickets, tickets for urban, regional, express travel). This way facilitates the access of public transport to all travelers of the city.

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The role of communication in the prevention of organizational conflicts

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Abstract. *Internal communication plays a key role in the functioning of each organization. However, many managers consciously focus on building the external communication strategy, forgetting to have customers not only outside but also inside the company. Undoubtedly, communication is an integral part of every functioning organization. Most companies take care of the communication aimed at external groups of auditors, such as customers or suppliers, while giving less importance to communication with employees. Meanwhile, good internal communication not only that allows the implementation of the company's strategy and acceptance of management decisions, but it is also a very important element of motivation for staff. The role of communication as a process through which this flow is achieved is essential in the management of the organization. Employees should have their energy directed in the same direction as the top management. Moreover, they should know the company's goals and ambitions and be aware of their own contribution to the success of the organization.*

Keywords: communication, organization, manager, strategy.

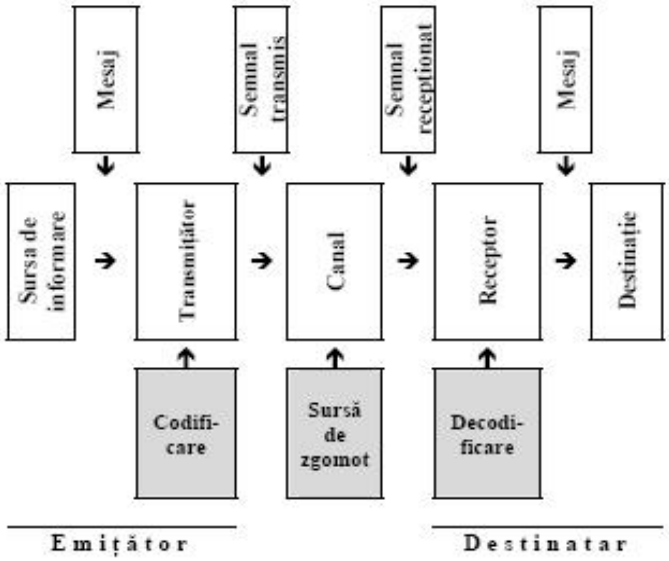
JEL Classification: M1, O3, P4, P5.

The act of communication aims at transmitting information in order to achieve knowledge and is an essential component of daily life. It can be considered a process by which messages are transferred between several participants.

Regarding the structure of the communication system, theorists of the field resort to the use of the general scheme of communicative processes, as conceived in 1949 by Claude Shanon and Warren Weaver, in the fundamental work The Mathematical theory of Communication.

As can be seen in Figure 1, the structure of the system consists of elements such as: Transmitting source/Message sender (EM), Transmitted Message (M), Transmission device/ Transmitter (T), Transmitted Signal (ST), Transmission channel (C), Received Signal (SR), Reception device/Receiver (R) and Message Recipient (DM).

Figure 1. *Schematic diagram of communication after Shannon-Weaver*



Source: http://www.scribd.com, 2016.

Starting from the definition of communication and establishing its nature, two important aspects can be suggested, namely the content of the communication activity and the procedural character, the interpersonal communication taking place permanently and continuously.

A first feature of communication is permanence and continuity. Communication is achieved through symbolic and conventional codes, performed in complex systems and languages, through gestures, attitudinal behaviors, etc. To form an individual system, the code must be memorized by each person through a process of active assimilation and selection, leading to the retention of what is essential, so that the communication process has a common basis for all interlocutors. The messages acquire communication value as long as each partner uses and masters the same common code, finally the messages can be coded and interpreted correctly.

Another characteristic feature of human communication is its symbolic character, emphasizing the arbitrary nature of symbols and bipolarity. The whole process of communication can only be conceived by the existence of two poles: transmitter-receiver, thus resulting in bipolarity.

Today, more and more organizations face a number of challenges. Only if we consider their need to adapt to change, the speed of reaction with which they can generate new functional configurations under the influence of a series of events, often uncertain, risky or conflicting, will we notice that there is a need to report, proactively, to what we have previously identified as communication management.

"...the introduction and use of new communication technologies is beneficial for organizational health, but there is also the risk of organizational and communication pathologies, in case of lack of balance between new and traditional forms of interaction, as well as if the changes are not prepared primarily at the level of employees, through information and development of new skills."(1)

For these reasons, a foray into the analysis of organizational crises is necessary, starting from what the complex, multidimensional process of conflict implies from the perspective of organizations.

The conflict is the interference of an agent's or group's calculations to achieve its goals by another person or group, so it can become a strategy for achieving higher goals by interfering with the progress of other parties.

Through the structure adopted within the companies, the potential for triggering conflicts can be controlled. The latter must be reduced, which is why the factors that contribute to the conflict (differentiation, interdependence and common consumption of resources) must be modified.

In the modern sense, conflict states that inevitably appear at the organizational level are treated as "crisis states". The latter are seen in two ways: functional and dysfunctional. "*How is this possible*?" Because, the functionality of the crisis state is explained by the very opportunities it can generate for the organization, if it properly uses the tools at its disposal. Moreover, specialists are unanimous considering that, from the perspective of the discipline called *"conflictology"*, this concept "...should not be seen as something malignant, which we must avoid, but as a natural phenomenon, inherent in social interaction, generated by the diversity of people and the uniqueness of each individual. Conflict must be seen, in this case, as a reality that represents, in fact, an opportunity and a chance to remove some dysfunctions, to make things go well. As a result, not all conflicts, like crises (n.a.), should be seen as dysfunctional. Some of them can have a functional character, fulfilling an important stimulating, competitive, dynamizing role of thinking and action."(2)

The conflict is the result of antagonistic attitudes and behaviors. Conflict therefore represents the interference of the intentions of an economic agent or a group in the efforts to achieve some objectives by another agent or group. It is assumed that the parties

involved have incompatible objectives, so that the achievement of the objective by one of the parties will be to the detriment of the other party involved.

The conflict can thus be seen as a *"strategy"* for achieving higher goals by interfering with the progress made by the other parties.(3)

If we refer to the role played by this concept at the organizational level, we will be able to highlight two points of view.

Conflict is perceived as a dynamizing element of the "unity and struggle of opposites" within the organization. The lack of this "ingredient" can determine the blockage of the organization's communication with its audiences, can lead to the impossibility of introducing innovation and change. At the same time, the positive aspect of the confrontation and disagreement within the organizational conflict is insisted on because there is a certain connection between the managerial, communication and conflict performances. It creates that "optimum" of the conflict, through which the managerial performance registers a continuous increase.

Once the optimal point is exceeded, the performance decreases by amplifying the conflict state. Thus, the positive and functional character can be highlighted, which can be attributed to the organizational conflictology. Gary Johns appreciates the motivating force of the conflict and considers it a strategic component for the organization, at some point.(4)

The perception of the conflict from the perspective of the "social actors" leads to the highlighting of a true typology of this phenomenon. *Positive (productive) conflicts* play a key role in changing existing situations at the organizational level. The nickname "positive" is not nonsense. On the contrary, we want to highlight the representativeness of this process considered to be "...the force that moves creativity and innovation" (Nightengale, 1976: p. 143) at the organizational level. This type of conflict is considered to help stimulate interest in the issues the organization faces at that time; prevent stagnation of the organization; identifies, implements, develops and monitors the proposed solutions.

"Positive conflict can test ideas, stimulate the generation of alternatives to a decision and prevent hasty decision-making, raise the level of understanding of issues, increase the involvement of group members, stimulate interest and interaction, creative thinking and therefore the quality of decisions and adherence to their implementation." (Cândea, 1998: p. 160)

Negative (destructive) conflicts reduce or eliminate team cooperation, produce violence and hostility within groups, can easily turn a risky or uncertain situation into a conflict or even a crisis.

Conflicts can turn from positive to negative, especially as a result of poor communication and wrong approaches within organizations. For example, "*non-action*" gives the organization a static character, generating a lot of reasons why the organization finds excuses not to intervene, such as: convenience or lack of responsibility on the part of those involved; non-recognition of the reality existing in the organization and outside it

("we have no conflicts"). To these is added the "*discretion*", common to employees and managers, seeking to avoid a direct approach to these conflicts.

However, this last approach does nothing but delay the onset of the conflict, prevents communication and a transparent approach with all categories of public. When the conflict starts, the degree of risk will be significant and the organization will face a series of much more serious situations such as: decreased credibility and deterioration of its image in the eyes of the public. The return to normalcy will be difficult, the time allocated to its recovery will increase considerably, while reducing the support of the organization by the public. Along with these categories of conflicts can be highlighted: *conflicts between objectives* - when the results pursued are incompatible; *cognitive conflicts* resulting from disputes of ideas, conceptions, decisions; *procedural conflicts*, when certain ways of achieving the objectives or components of the process become incompatible or are not clearly defined (eg different interpretations regarding the organization of a strike);[5] *internal/external conflicts* (depending on their location) etc.

Conclusions

It is very difficult to find in everyday life people who do not accidentally make mistakes. Ideally, each human being should learn from both personal mistakes and the mistakes of others.

Communication problems often occur due to misreading, misunderstanding, misinterpretation of the message or incompatibility of interlocutors.[6] The important causes that generate communication difficulties are the following:

- *Other people's opinions.* We often run into problems when it comes to business because it is inevitable, the most important goal is to know what decisions to make, who we take into account and who we listen to when making a final decision. Because many times, we meet in our lives people who just want to achieve their goal. We must be very careful to analyze the problem, not to rush and choose the most appropriate argument. We must also justify ourselves when we choose a person to guide us with optimal indications.
- *Initial impression*. In general, the first impression matters, but it is ideal not to limit yourself to just that. You don't have to project the person at first sight. No matter how talented that person is and trying to make a good impression on you, he needs to be put under a little pressure to see if he is really resilient and able to face challenges.
- *External image*. Often the image of a person reflects the way he chooses to dress, ranging from clothing colors to the style approached by each person. For example, when it comes to clothing colors, each one represents and expresses something; blue represents initiative, serenity, black reflects the person's character, a strong character, red means irritation, anxiety, white tends towards the feeling of peace, respect, etc.

Another example of clothing style: business people generally wear a suit, approach an office style, and influence business negotiations. According to the way a person dresses, sometimes we can identify the occupation or statute of that person.

- *Stereotypes, generalizations*. Most of the time we are prone to generalize some things, such as that men are more suitable for the management position, difficult integration of foreigners in the business environment or any other environment, etc.
- But sometimes these clichés make you lose hardworking people, with potential and who you could rely on with confidence. When we generalize we do not allow ourselves to know special characters and who could be good collaborators in business.(7)
- *Simplified perception of people*. Sometimes people tend to rush to form an opinion of someone. Sometimes a person has a wrong opinion about a larger number of people; group, for example the French and the Italians consider the Romanians to be robbers, thieves, due to the incidents carried out by the Romanians on their territory. Not all Romanian nationals have the same characteristics and the way of asserting oneself in society is different, here being added the level of knowledge or individual goals.
- The moment you notice a sad or happy person, you limit yourself to believing that this is his general condition and that it cannot be otherwise and you risk losing contact with potential successful collaborators.
- *Emotional situation*. There are many emotional states when it comes to a person, caused by several reasons. When someone is in a good mood, he is happy, he perceives things differently, all decisions and things go to optimism, connections with other people are sometimes better, or there is only the impression that this is happening.

In order to be able to fulfill our goals, we need to understand the basic elements of communication. Drawing a parallel with other sciences, the way we communicate can be compared to the exchange of particles from one part of space to another part of space, taking different forms such as: object, written message or idea.

If we were to frame communication as an exact science, its formula would be composed of several factors: cause + distance + effect + intention + attention + reproduction + understanding.

Through this “magic formula” one can understand the functions of all factors and by combining them one can understand more clearly the whole. In order to understand the importance of communication, it is necessary to deepen the state of knowledge in the field.

The fundamental factors from which the defining ideas start are framed in several models, such as: “elementary model of communication”, “extended model of communication” or “complex model of communication” explained by schemes or figures. Other concrete examples of communication between sender and receiver can be found in the examples given by Gongrand, who imposed himself through two types of models: the simple and the extended.

The communication is based on: structures and stages consisting of: the need for compatibility, elimination of errors, selection of a symbol, the decoding process; features and peculiarities such as: adaptability, character, continuity.

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Managerial communication and the manager in the knowledge society

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Abstract. *The most important factor, having the greatest influence on management, is communication. Without this feature, management cannot operate in any field. Due to the development of management, communication has acquired new forms, corresponding to management, forming the concept of managerial communication. Also, any experienced manager must approach a certain type of effective communication in the management process. A good example of the relationship between management and communication would be the interaction of the manager of an organization, both with the internal and external environment. When we say the external environment we refer to collaborators, clients or possible negotiations that it can have with them. Both at managerial and internal level, communication has a positive and effective influence on the manner the organization operates. Managerial communication is valid and used mostly by individuals working in the managerial department.*

Keywords: communication, manager, management, company.

JEL Classification: M11, M12, M14.

The communication is based on: structures and stages consisting of: the need for compatibility, elimination of errors, selection of a symbol, the decoding process; features and peculiarities such as: adaptability, character, continuity.

The functions of communication have a special significance in the knowledge of communication, these emphasizing in fact its role closely related to the environment, and the types of communication, which through the numerous classification bring into view its vital importance.

"Communication management is a holistic approach to meeting the communication needs of a company with internal and external intermediaries and target groups. Target groups and intermediaries are intradependent and interdependent."

If we refer to managerial communication, we can discuss several problems related to the communication activity within the company, a very important factor, from the point of view of the stimulation in the productive activity.

There are types of communication with scientific connotations and importance such as: advertising communication, financial communication and corporate communication.

From the point of view of significance as a model of work organization, or of strategy, communication is a basis for solving the achievement of the proposed targets.

Not all companies that have communication requirements follow strategies in communication management. A model of this statement is the one proposed by Ulrich(1). There are four managerial dimensions: material, social, value and communication, used by Ulrich.

Another communication model is proposed by Bleicher(2). He refers to the political, cultural and organizational norms of companies. A similarity between the two would be the point of view on communication seen as an important tool in terms of the role of facilitation rather than one of development or leadership.

Management as a definition can be framed as: "Communication management is a holistic approach to meeting the communication needs of a company with internal and external intermediaries and target groups. Target groups and intermediaries are intradependent in themselves and interdependent with each other." (Bălănică, 2003: p. 41)

From the point of view of this definition, communication management is a part of general or strategic management. There are three important terms used as concepts in business management: communication management as a function of strategic management, organizational communication as a function of operational management and organizational marketing as a process in strategic and/or operational management.

There are some observations on the management of communication and its strategic approach. It can be said that communication management was not seen as a discipline, most aspects being found in areas such as marketing (advertising, publicity, promotion), human resources (communication with and between employees), or finance (relationships with or between investors). This type of management has not been considered in terms of

approaches and planning processes and strategic control. There were strategic departments that dealt with these aspects of communication, inter-relationships being rare.

The role of the press department in its capacity as transmitter, intervenes when the strategy is finalized.

An independent communication management can be obtained by:

- Extending communication problems through globalization trends; a good example are the companies that globally have problems such as investor or employee relations that need to be addressed;
- Fragmentation of target groups: all sectors or areas of activity are influenced by fragmented groups, such as the adjustment of political communication exercised by non-governmental organizations (NGOs) or organizational communication;
- The emergence of a new electronic way of communication and the transformation of classical communication channels, which focus exclusively on the formal part of communication.

Creating and maintaining the relationship between the organization's strategy and the company's image and feedback management are basic objectives in communication management as shown in the following example. We can use employee participation programs in share ownership: "if a company continues to grow by granting shares as part or as an annual bonus, then its management must explain to employees the strategy in question. Thus, the feedback from employees, as investors, will show whether or not they understand and believe in the success of the proposed strategy. The image of a company includes many elements, but in this case it is important to see if the two cultures, the company and the investors coincide to the extent targeted by the company." (Bălănică, 2003: p. 41)

Communication, as a phenomenon of modernity, creates a mobilizing effect. This phenomenon builds a new image and a new vision of the corporation, supporting its efforts to fulfill responsibilities assumed at the level of a community.

Seen as a new approach through the set of development and management techniques and technologies, this is not a project with full autonomy. Instead, it integrates into the social sphere and intervenes at a certain level, that of relationships, depending on their structure and functioning.

Some specialists support the role of communication within companies by fulfilling three objectives:

- Building a strong company identity;
- Creating a new labor management;
- Active participation in the modernization of the productive activity of the conditions and of the production structures.

The "strategic communication capital" model is a new model of using an intangible asset that results from an organization's strategic communication system and is based on three main ideas:

"The first idea is that a sustainable competitive advantage derives mainly from an excellence in (a) the realization of products and services according to market requirements and (b) the superior quality of the business process.

The second idea is that the success of the realization of products and services and the business process is a direct result of the people involved: employees, managers, creditors, suppliers, customers, etc. The value that these people bring to an organization is represented both by individual capital (knowledge, experience, etc.) and by relational stock, which refers to their ability to interact and establish effective and lasting relationships with other individuals or other organizations.

The third idea is that the strategic communication system can be interpreted as an engine for creating, leading and disseminating organizational excellence in product development, business process and human capital management." (Bălănică, 2003: p. 41)

Organizations that use this strategic communication system should signal to the market the existence of this "intangible capital", resulting in the formation of a competitive advantage in gathering and maintaining the best resources that the market can offer (low costs, well-trained employees).

"Strategic communication within an organization is the way to integrate communication in the field of business issues." (Bălănică, 2003: p. 41) „Strategic communication implies the existence of a cause-effect relationship between communication activities and the fulfillment of the organization's objectives. This means that communication programs contribute to the strategic activities of the organization in a quantifiable manner."(3) The increase of the capacity of the internal actors of the organization to participate in the achievement of its objectives is given by the integrated nature of the strategic communication. P.A. Argenti considers communication as "the solution through which employees can become more productive, and the interaction created gives management greater credibility among employees".(4) (Argenti, 1998: p. 17)

The Strategic Communication Model proposed by Argenti, is a practical and direct application of real communication, through a collection of interrelated variables that render a continuous, cyclical process. The organization is the first variable of the process, which has the power to communicate and determine the credibility of the various agents. The desired messages and image are communicated by the organization using this information. Once the resources (temporal, financial and human) are well determined, the message can be created, taking into account the intention of the sender but also the characteristics of the audience or receivers.

By combining the analysis of the message and the audience we can choose the appropriate channel and psychology to carry out the communication process. Although the number of channels is almost unlimited, at the time of choosing the channel, the different capacities for transmitting information must be known and understood. Time, proximity and confidentiality are elements that must be taken into account when selecting the transmission channel of the message.

At the time of sending the message, another important decision is given by the psychology that must be taken either directly (exposition of the main idea followed by explanations) or indirect (explanations are presented, followed by the main idea). The psychology used must take into account the objectives of the communication and be based on a previous analysis of the audience.

Conclusions

The functions of communication have a special significance in the knowledge of communication, these actually emphasizing its role closely related to the environment and the types of communication, which through the numerous classification bring into view its vital importance.

Through the sphere of communication, the management can also be defined as:

"Communication management is a holistic approach to meeting the communication needs of a company with internal and external intermediaries and target groups. Target groups and intermediaries are intradependent and interdependent."

If we refer to managerial communication, we can discuss several problems related to the communication activity within the company, a very important factor, from the point of view of the stimulation in the productive activity.

There are types of communication with scientific connotations and importance such as: advertising communication, financial communication and corporate communication.

The most important factor, having the greatest influence on management, is communication. Without this feature, management cannot operate in any field.

Due to the development of management, communication has acquired new forms, corresponding to management, forming the concept of managerial communication. Also, any experienced manager must approach a certain type of effective communication in the management process. A good example of the relationship between management and communication would be the interaction of the manager of an organization, both with the internal and external environment.

When we say the external environment we refer to collaborators, clients or possible negotiations that it can have with them.

Both at managerial and internal level, communication has a positive and effective influence on the manner the organization operates. Managerial communication is valid and used mostly by individuals working in the managerial department.

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Learning methods and activities to stimulate creativity

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Abstract. *Creativity is one of the major components of contemporaneity and also one of the most fascinating, being the highest form of human activity. Creativity must be a defining attribute of the modern man, because we live in a constantly changing society, and the student must have the ability to select information, to organize what he has heard and seen, to manifest his attitudes. creative, originality in thinking, desires, emotional feelings. Creativity does not only mean the ability to make original, new products; in education, there is no question of forming creators of original values, as much as it is a question of forming and cultivating features that will allow creative manifestations; initiative, perseverance in the search for solutions, curiosity, originality in the stated points of view, etc. The definition of creativity is made by referring to the products of creation, which give the mark of creative personality. A product is valuable if it solves a problem, increases the adaptability to the environment of the creator or changes the conditions of its existence.*

Keywords: creativity, activity, learning stimulation.

JEL Classification: I2, O3.

There are currently hundreds of ways to define creativity. Psychologists generally claim that "being creative" means "creating something new, original and appropriate to reality." Creative is the one that is characterized by originality and expressiveness, is imaginative, generative, pioneer, inventive, innovative, etc. (Mihaela Rocco, 2004, p. 17). Al. Roşca is of the opinion that, due to the complexity of the phenomenon of creation, it is unlikely to reach a unanimously recognized definition, because each author emphasizes different dimensions. Thus, it is shown that according to some authors, "creativity is the ability or capacity to produce something new and valuable", and according to others it is a process by which a product is made (Al. Roşca, 1981, p. 16).

The concept of creativity is very linguistically and semantically close to the concept of creation, so that substitutions between the two notions are often unjustifiably made. The difference lies in the content of the two terms, creativity consisting in the production of ideas, new and original, while the creation aims at finalizing the idea and transposing it into artistic, scientific, technical work, etc. Creation succeeds the creative process. Creativity means boldness: everything that is new is uncertain and non-conformist. In order to venture into the unknown, the individual must have that inner freedom, that feeling of security, coming from the surrounding world. Creativity is an extremely complex phenomenon, with many facets or dimensions. Paul Popescu-Neveanu (1978, p. 152) captures this very well when he says: "Creativity has several meanings: specific procedural development, complex personality formation, psychosocial interaction, all intervening synchronously and being new generators." A number of psychologists have tried to capture the creative act in its process, to make it aware and to capture it in certain operational and functional models. Thus, some stages or phases of the creative process were outlined, as well as the elaboration of some models of the intellectual factors involved in the creative process.

Each EU country is responsible for its own education and training systems, with EU policy to support measures taken at national level and help address common challenges, such as: an aging population, a lack of skilled workers, technological developments or global competition. The cooperation framework in the field of education and training is called "Education and Training 2020".

In 2009, four common targets were set at EU level to meet the challenges facing education and training systems by 2020>

- realizing lifelong learning and mobility in practice
- improving the quality and efficiency of education and training
- promoting equity, social cohesion and active citizenship
- stimulating creativity and innovation, including entrepreneurship, at all levels of education and training, because in an increasingly globalized and knowledge-based economy, Europe needs a skilled workforce to remain competitive in level of productivity, quality and innovation.

In Europe, concerns for the development and coordination of national youth policies have intensified, especially in the last 10-15 years. The European Union's vision for youth is based on two approaches: investing in youth, which means allocating more resources to developing areas of youth policy that affect young people in their daily lives, and increasing the capacity of young people, which refers to promoting the potential that young people

have for the renewal of society and the contribution to the values and objectives of the European Union, special attention will be paid to young people with fewer opportunities.

The National Strategy for Youth 2015-2020 correlates with European approaches and aims as Culture and Non-Formal Education as the main field of intervention, which has the following specific objectives and directions of action:

1. Culture and Non-Formal Education
2. Specific objectives:

Ensuring access for all adolescents and young people to quality training and education, both formal and non-formal

- Improving the offer of non-formal education
- Stimulating the interest of young people to participate in non-formal education activities
- Ensuring a better practical relevance of the skills acquired through formal and non-formal education
- Facilitating the access of young people to the consumption of culture and quality cultural creation

Directions for action:

- Stimulating the interest of young people to capitalize on local cultural traditions (Romanian or ethnic minorities), including through training in traditional trades (artistic, artisanal)
- Stimulating the preoccupations for reading and for the literary creation in young people;
- Supporting and stimulating the creativity and performance of young people in various fields of the creative industries (advertising, visual arts, performing arts, research and development, software, etc.);
- Promoting, supporting and rewarding the performance of young artistic talents and in the field of technical-scientific innovation. Encouraging intercultural education, both by participating in training and learning courses in other countries, through youth exchanges, and by ensuring opportunities to learn about the culture of ethnic minorities in one's own country;
- Improving the financing of cultural activities

“School differently” is a national program whose purpose is to contribute to the development of learning competence and socio-emotional skills among preschool children/students. Teachers will design, test and evaluate effective approaches for the development of these skills and abilities. The national program “School differently” offers a space for experimentation in which both teachers and students are encouraged to show their creativity and combine in an attractive way the theory with its applications in everyday life, learning with individual concerns in a favorable context for socio-emotional development.

At the time of Counseling and personal development, special attention will be paid to the establishment of the personal learning portfolio, understood both as a learning process and as a product of students' learning. From this perspective, the establishment of the portfolio is a permanently integrated activity in all learning activities performed in the discipline of Counseling and personal development. The portfolio includes pieces resulting from the activities performed by students at each class, as a result of self-analysis of personal qualities and directions of their development through creative exercises and identification of elements of effective communication in real and virtual environments through art-creative exercises. In addition, the personal learning portfolio will be the main source for learning assessment activities in Counseling and personal development. Therefore, students will be encouraged and supported by the teacher to progressively build, review and improve their portfolio at each hour of Counseling and Personal Development.

The educational ideal of the Romanian school consists in the free, integral and harmonious development of the human individuality, in the formation of the autonomous personality and in the assumption of a system of values that are necessary for personal fulfillment and development, for the development of entrepreneurial spirit, for active citizen participation. social inclusion and employment in the labor market.

In the current context, we need a dynamic, formative education, centered on authentic values, and school education must be articulated with post-school education, inscribed in the context of full learning. The school's task is to train individuals who are able to adapt, to take on responsibilities, to express themselves creatively and to fight for the betterment of life. In a prospective sense, the purpose of the school will be to teach man not to guess his future, but to decide his future, contributing equally to the development of others and to his own development. The education of the future must be organized around four pillars of knowledge: “learning to know” (acquiring the tools of knowledge), “learning to do” (relating to the environment), “learning to live with others” (cooperation with others people, participation in human activities), “learning to be” (results from the others) (cf. Delors, J., in Cerghit, I., 2002, p.10).

To develop the student's creativity, the teacher will always consider:

- to create favorable conditions for the development of creativity (to provide students with general and specific means of stimulating creativity);
- to respect and encourage the creative personality of the student;
- to represent a model for students in terms of creative personality (to be creative himself);
- identify as many talented students as possible and direct them to special courses or schools;
- to motivate students to practice creative behavior;
- to create, in the classroom, a permissive environment, where each student can express himself creatively;
- to allow the existence of a democratic relationship between him and the students;
- to stimulate positive imagination and nonconformist behaviors;
- to respond to students' curiosity and spontaneity;
- to stimulate students' curiosity and desire to learn new things;

- direct the assessment towards highlighting the progress made by students and the positive aspects that manifest themselves in their behavior;
- to give homework to students that involves establishing relationships between elements, exemplifying the theory, formulating creative and ingenious answers and not reproducing the information that the teacher transmitted during class or that is in textbooks;
- to encourage the hobbies that students have.

The relationship between cooperation, cognitive development, behavior and social interdependence is theoretically based on:

- theories of cognitive development - knowledge has a social character, it is built through collective effort, to know, to understand and to solve a problem
- behaviorist theories - focus on the impact of group rewards and sanctions on the learner
- theory of school interdependence - groups are entities in which the independence between members varies, the essence of a group depends on the interdependence between members, and changes at individual or subgroup level produce changes at the level of another member of the group or another subgroup; a certain state of intrinsic tension within the group motivates the dynamics towards the achievement of the common goals pursued.

These theories highlight both the way of learning social behaviors and concrete aspects related to the process of socialization, formation and change of attitudes, influence and social control, communication, aspects that are found in everyday life in the classroom.

The processuality and dynamics of the relations between students and teachers in the classroom is strongly influenced by the types of relationships that are cultivated; competition, cooperation or conflict. In the last decades, the researchers have been dealing with the arrangement of the group as a learning environment, highlighting the high efficiency of the group of students who fulfill a common learning task. If students are involved in activities that involve cooperation, the atmosphere in the classroom is better.

Collaborative learning takes place when students work together, in pairs, in small groups to achieve a common goal; solving a problem, exploring a topic, producing - creating new ideas and solutions in a given situation.

Conditions that define the specifics of cooperative learning:

1. Positive interdependence with a constructive role can be achieved:
- by jointly setting learning objectives - interdependence of objectives;
- by dividing the work within the group - the interdependence of tasks;
- by sharing sources within the group - interdependence of resources;
- granting common rewards - interdependence of rewards.

2. Direct “face to face” interaction between students:
- through the behavior manifested in solving the learning tasks the students can express their positive interdependence.

3. Individual responsibility of each member of the group
- students cooperate by providing help and support and taking responsibility for what they do.

4. Students' ability to work effectively in groups and interpersonal relationships:
- management of the activity;
- decision making;
- mutual trust;
- open and honest communication;

• conflict resolution.

5. Analysis and evaluation of the efficiency of the group activity and establishment of measures for the improvement of the group work:
- develops attachment to the group, care for the other regardless of intellectual level, social class, ethnicity or religion;
- students must be helped to realize that it is to the advantage of each of them if the other colleagues learn well and is a disadvantage if the others do not learn enough;
- cooperative learning contributes to the development of students' ability to understand the other's perspective cognitively and emotionally to manifest their attachment, care for peers, helpful behavior of others; forming positive attitudes towards learning, towards educational objects and towards school; constructive relationships oriented towards solving tasks.

Conclusions

Learning never occurs as an isolated act. It is always based on the life experience and previous knowledge of the learner. Learning involves making connections between what students know, understand, believe and feel on the one hand and the content to be assimilated on the other.

Appropriate methods that enhance the functionality of the mind to stimulate its capacity for exploration and discovery, analysis and synthesis, reasoning and evaluation are effective action and procedural ways in relation to some precise objectives; stimulating and developing students' constructive and efficient critical thinking.

The stages considered specific conditions necessary to stimulate the thought process:

1. Evocation - students are instructed to remember what they knew in advance about an object or topic, to anticipate and set goals for their investigation.

Goals - consequences:
- effective active involvement of students in the learning process;
- students become aware of their own thinking and use their own language;
- stimulating interest and desire to participate.

2. Realization of meaning - students come into contact with the new contents of ideas through the text read, listen to a lecture and try to integrate these ideas in their own thought patterns to give them meaning and significance, to understand them.

Goals - consequences:
- maintains the involvement and interest established in the evocation phase;

- supports students' effort in monitoring their own thinking (understanding);
- allows the reporting of new information to pre-existing mental schemes which are thus restructured.

3. Reflection - students think about what they have learned by relating the new contents to the previous knowledge and through this reconstituting their cognitive schemes to integrate the new acquisitions. In this way students progress in knowledge and develop personally.

Goals - consequences:

- truly assimilating new knowledge and actively restructuring mental schemas; (authentic and sustainable learning);
- reformulation, in one's own words, of what has been learned; (indication of their understanding);
- exchanges of ideas between students, development of vocabulary and expressive ability; (the class becomes a learning community).

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Organizational culture – Input of effectiveness and efficiency of business activities

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Abstract.*This paper aims to identify the most effective and efficient methods and tools that a manager can find to create a functional organizational environment. Adopting an organizational culture from the perspective of human resources' qualities and perfecting the techniques of creating value may represent the key to the business activity's efficiency.*
In this paper was used analysis tools to create a model according with the answers to a series of questions centered on human resources. The employees represent the organization's soul and present a great diversity regarding the environment, non-formal and formal education, and manifest different degrees of empathy, intelligence, the tolerance that are transmitted in the activity carried out in the organization.
Identifying the determinants for organizational culture and boosting human resources performances in adopting this culture will promote managerial decisions and lead to sustainable economic growth and better social responsibility are the main fundings of this paper.

Keywords: organizational culture, effectiveness, human ressourse, employees.

JEL Classification: F62, O15.

Introduction

If we are curious to look in the Explanatory Dictionary of the Romanian Language, we find that mastery means “skill, special skill”, ie exactly those qualities that a man needs and, of course, a manager, in order to guide, “feed” and leads, at least satisfactorily, whether it is his own life or an organization.

Mastery is also interpreted as a profession. So, there are people for whom skill and skill become a kind of profession, a second nature. If we observe, analyze, compare, we will understand that, from a managerial perspective, the best results are obtained by people with such an attitudinal and behavioral profile. They are the ones pushing forward human society. But what makes the difference, in the current socio-economic context, between skilled and skilled managers? Have they all already guaranteed success or is there something that creates discrepancies? If so, what makes the difference between managerial performance?

These are questions to which this paper aims to find answers, and the authors' point of view is substantiated throughout the paper.

The objectives of the article are:
- identification of structural changes in human society, with a direct impact on the managerial act and organizational efficiency
- finding out new perspectives and concepts of human behavior and interaction
- obtaining practical solutions whose application will generate more efficiency and effectiveness of economic activity.

1. Literature review

As Antonio Momoc (2014) mentions, in recent years, spending time on the internet, using various search engines such as Google or Youtube or being active on social networks such as Facebook, LinkedIn or Twitter, has become normal.

Through a simple search or share, communication is activated, and Internet users can search for information about anyone or anything, anytime, from anywhere or can share their own content with others, wherever there is an online connection. The mobile phone has become a useful tool not only for conversations between people, but for information or communication or relaxation, as only TV or radio used to do.

Thus, new media generates new changes in human communication because people share, share with others and share information with others, extremely quickly and efficiently. The world has become connected, with everyone's behavior influencing everyone else. When we access the internet we open ourselves to the world, we gain new opportunities to learn, to experiment and to collaborate, benefiting from the wisdom of the crowd, but also from our universal library, which today is Google, our personal memory, of all (Momoc, 2014).

In other words, “we live more and more in a world where the state of connection is perceived as a condition of normality”, as Giovanni Boccia Artieri (2020) appreciates.

The virtual and the real take place in a unique space of our social relations, of our relations with the world of knowledge, goods, entertainment, etc. However, new technological opportunities also facilitate a new way of doing politics or business, more open and transparent. Companies can access information about the direct beneficiaries of their products and services much easier and faster.

Consumers, in turn, can interact online with companies. They can express their needs and dissatisfaction. This creates a connection between the two parties, which generates an increase in mutual trust. Today, companies and customers are building brands together, using trust as a bargaining chip that strengthens ever stronger bonds in an increasingly connected world.

Thus, ICT offers not only access, processing and storage of information at low cost of time, but is also an excellent tool for promoting products, services and even the image of companies, targeting, expanding into new market segments, growth of sales and notoriety, but also a wonderful management channel. In other words, as the Ministry of Foreign Affairs points out, digital technologies are changing both the way people communicate and the way people live and work (source: M.A.E. 2021).

For Europe, as the European Parliament considers, the evolution of ICT also means the emergence of the digital single market, namely a common market that aims to:

- removing unnecessary regulatory barriers and moving from individual national markets to a single EU-wide regulatory framework
- stepping up cross-border trade by:
  - greater variety and quality of offers of goods and services
  - facilitating access for consumers and companies to digital information, goods and services across Europe
  - better connectivity
  - reduction of costs per transaction
- a real data economy
- reducing the ecological footprint
- facilitating access to jobs and business opportunities

At the moment, as stated on the EU4Digital website (https://eufordigital.eu/ro), when digital technologies and the internet are transforming the world we live in, a Europe aligned with the digital age is a priority for the European Commission.

Thus, a single EU digital market:

- is estimated to contribute to € 415 billion a year in economic growth, as a result of stimulating jobs, competition, innovation and investment;
- generate more access for consumers and businesses to digital services and goods across Europe;
- maximizes the growth potential of the European digital economy.

Europe's digital decade estimates that by 2030:

- there will be 20 million more ICT specialists
- at least 80% of the population will have basic digital skills
- connectivity will exist everywhere, being facilitated by the existence of 5G networks

- the first quantum acceleration computer will appear
- the number of unicorn companies in the EU will double (startups valued at $ 1 billion)
- key public services will be digitized 100% online - 80% of citizens will use digital ID, etc.

As proof, according to the Official GPeC 2018 Report of the Romanian E-Commerce Market, published on 20/01/2019, Romanians ordered products online in 2018, 30% more than in 2017, respectively they bought worth over 3.5 billion euros.

At the same time, digital solutions, during the coronavirus crisis, were also used to:
- monitoring the spread of the virus
- research and development of new methods of diagnosis, treatment
- education or teleworking system,
- facilitating the continuation of life within limits other than the well-known but operational ones.

On the other hand, in a hyperconnected world, individuals or small groups can become a powerful force: social networks such as Facebook and Twitter have become perfect tools for communication and organization of protesters in Egypt, Tunisia or Libya, outraged people on the authoritarian regimes in their countries, but also tools for disseminating their story around the world.

Social networks can provide news accompanied by photos and witnesses who tell what they saw on the spot, uniting people from different parts of the world. This can become a problem for governments that, fearing the power of the Internet to take people out into the streets, can block Internet access.

So, technology not only interconnects us, but also makes us morally interdependent, good and evil now being in the hands of people who have to learn how to make the most of technology and its effects. It is up to us whether "we use the network as a resource, a means of sharing, simplification and acceleration, or as a refuge or a prison" as Manca M. (2020) appreciates.

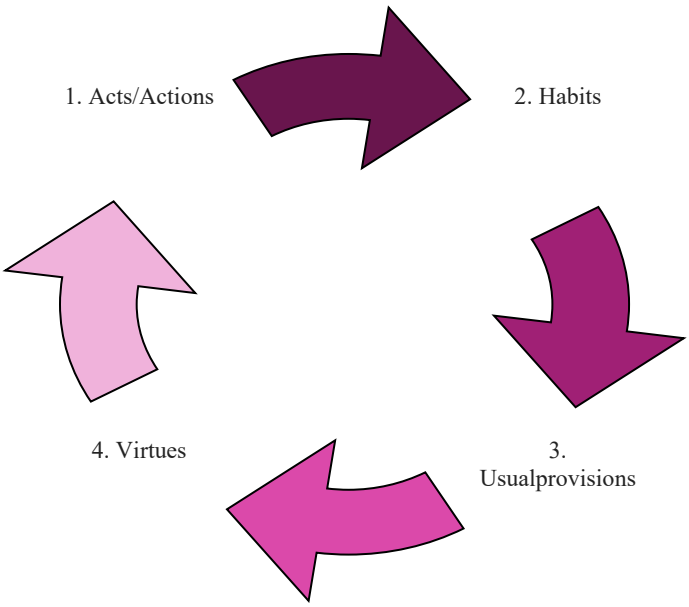
That is why, as Seidman D. (2015) mentions in his book, we need to anchor ourselves in what we know is immutable and will never change, respectively, in our values. This is why, now more than ever, people and organizations need to be based on sustainable values that guide us on a sustainable path to progress.

"No dictator is too big to fall", says Seidman D. (2015). So, trying to be as strong as possible so that no one can touch you is an insufficient strategy in a hyper-connected world. In this context, we should ask ourselves how we should structure our life and/or company, so that they are sufficiently sustainable! What are the virtues that a manager, an employee, a business partner, etc. should they own and apply them in order to develop harmonious relationships with those around them, while at the same time being effective and efficient?

How do you facilitate the supreme good in an organization, respectively how do you harmoniously combine the collective good and the individual good, considering also what Aristotle, in the Nihomahic Ethics, transmits to us over the millennia, respectively:

- the purpose of all our acts is happiness, interpreted as: pleasure, wisdom, honor (validates the value of the subject), well-being, etc.
- any option, decision, action tends towards a certain good,
- good is subjective and dependent on the way of life practiced,
- similar actions give rise to the usual provisions of the same nature,
- our documents shape our skills,
- the quality of our actions determines the quality of our skills,
- *"virtue is a habitual disposition, acquired voluntarily", by habit,*
- happiness is acquired only when the activities of the soul are in accordance with the virtues.

Figure 1. *Author's interpretation of Aristotle's opinions*



The four cardinal virtues (which allow the successful accomplishment of a social activity) described by Plato in the Republic are: wisdom, courage, temperance and justice.

But we can ask ourselves:

- what do all the actors involved in the managerial act have to do so as to avoid extremes, to find the middle ground between excess and insufficiency and to respect the measure in everything?
- what do managers have to do so as to transcend "command and control" management to "connection and collaboration"?
- how can a manager stimulate and manage the behavior of the people in the team?
- what is the sustainable way: to force people, to motivate them or to inspire them?

We have become accustomed to coercive leaders who assign tasks and expect subordinates to execute without guidance and who use punishment as a tool to generate

performance. Or with motivational leaders who activate the reward to drive the team to act according to well-established rules (Stegaroiu et al, 2020).

But the reward/punishment system is limited and cannot create a deep connection in this interconnected world that quickly exposes the true nature of our relationships. Nor can we write so many rules and procedures to get the behavioral response we want for every conceivable or unforeseen situation. In addition, motivation as a trigger for certain behaviors and connections is a rather expensive way, especially in situations where we do not have enough resources.

But how can we, as leaders, generate inspiration and not obligation and / or motivation? How can we relate, make deep connections, and collaborate with the team so that we can release the best of them? How can we create unity at the team level so that it consciously creates unique, authentic, wonderful experiences?

The solutions that inspire us, as Dov Seidman points out, are:

- sharing the vision and goal within the team (a grander goal than the actors themselves, worthy of people's involvement, commitment and dedication),

Two builders were working on a building and were asked what they were doing. The first builder said: "I put bricks" but the second one answered: "I am building a cathedral".

- *creating organizations and societies that reflect our deepest values, values that support human relationships and inspire us to see the world as a source of meaning,*
- *creating an organizational culture that:*
  - manifest humanity, not just to proclaim it,
  - value first and foremost people and behavior ("source of excellence and competitive advantage"),
    According to Dov Seidman, for long-term success, the determining factor is *HOW we behave as human beings.*
  - facilitate the emergence of inspired, creative and innovative behavior from all actors involved, regardless of their role and function,
  - offer and guarantee the freedom of people to be able to contribute to the fulfillment of the company's mission through their own creativity and uniqueness,
- changing the mentality: * WHAT or "HOW MUCH" should people do (task-based work) on: * HOW things should be done (mission based on values),
- communicating with others in a truly humane way,
- *The way we communicate our vision and the way we connect with those around us, directly affects the result.*
- gaining people's trust (through honesty, transparency) and co-opting them for a common goal.

The strong currency of success in this interconnected world, as Dov Seidman beautifully puts it, is given to purpose, transparency, trust, respect, reputation – vectors of productivity, efficiency and profitability.

So, "while coercion and motivation apply to us, inspiration happens in us" and, in order to benefit from the employees involved, as any manager wants, we need inspired people.

But, as Neale Donald Walsch says, “98% of the world's people spend 98% of their time with things that don't matter.”So it depends on us HOW we do it so that we can live our lives, develop and run businesses, doing things that matter. Everything is a choice. Let's learn to choose wisely!

2. Research methodology

The research methodology used by the authors of the paper in obtaining the results of the research undertaken focused on data analysis using different typologies of methods (Tabîrcă et al, 2019), such as:

- quantitative methods of analysis (based on statistics such as those published by the European Commission)
- qualitative methods of analysis (based on measuring observed behaviors)
- comparative methods of analysis (achieved by associating the similarities of the behaviors of living beings or the way of effective implementation of the managerial act in most structures of the organization)

The investigation method for conducting the research follows the PRISMA Statements methodology structured in five steps (Radu et al., 2021): (1) data search strategy, (2) data collection, (3) data screening and data filtering, (4) quantitative analysis, and (5) interpretation.

No difficulties were encountered in collecting and selecting the information, and the results are determined by synthesizing the previously identified statements.

3. Results

Analyzing the information shared above, we notice that:

- the boundaries of information or communication sources have been extended from television to devices that can be used online;
- looking for information or sharing what you know with others, using search engines or social networks, has become the norm;
- the level of communication and the speed with which the information is transmitted has increased exponentially;
- the world became connected, everyone's behavior influencing everyone else;
- the virtual and the real intertwine, bringing more transparency in politics or business;
- information technology has also become an excellent tool for promoting products, services and even the image of companies, targeting, expanding into new market segments, increasing sales and notoriety, but also a wonderful management channel;
- new connections generated by easy and transparent connection:
  - generates more mutual trust, consolidating stronger and stronger ties,
  - impacts and influences the way people live and work,
  - facilitates the emergence of new trade structures, such as the digital single market which creates a single EU-wide regulatory framework, ensuring the optimal framework for intensifying cross-border trade and an estimated economic growth of EUR 415 billion per year;

- ICT technology facilitates better management and monitoring of the crisis caused by coronavirus, but also an intensification of research and development of new methods of diagnosis and treatment;
- individuals or groups that make up a hyperconnected world can become a powerful force for mobilizing people and resources to destabilize political regimes, but they can also spread their stories in different parts of the world;
- now, more than ever, we need people and organizations to build on sustainable values that guide us on a sustainable path to progress.
- repeated acts/actions generate skills; skills generate habitual dispositions which, in turn, generate virtues;
- the four cardinal virtues (which allow the successful accomplishment of a social activity) described by Plato in the Republic are: wisdom, courage, temperance and justice;
- *coercive* leaders, who *use punishment* as a tool to generate performance, or *motivational* leaders who *activate the reward* to drive the team to act according to well-established rules are a thing of the past;
- the real leaders of the moment are the inspirational leaders, who know how to share in their teams the vision and goal that inspires them in their efforts to develop business lines, leaders who create organizational cultures that mirror the deepest values and put people first and behavior;
- it is a personal choice to be one of the 2% of people who spend time with things that matter.

Thus, achievements in technology and communications have metamorphosed the old world into a hyperconnected and hypertransparent world and generated a significant change in the way we live our lives and conduct our business.

In order to thrive in the world of the 21st century, we need to change. We, the managers. We, the employees.

It is time for a new kind of behavior. Of a new type of management. The world needs inspirational leaders who have the inner strength, enthusiasm and skill needed to mobilize people from the inside out, not from the outside in.

For sustainability is the attribute of values shared with vision, with confidence, with enthusiasm.

Conclusions

The research and results obtained by the authors of the article represent only one perspective from the multiverse of perspectives that characterize this process. That is why, through the generosity offered by the approached subject, it remains open to new understandings and approaches that both the current developers and the general public, thematic interest, can develop in the near future.

However, it should be noted that we are in the position of generations marked by chances. Why?:

- Because we have easy and real-time access to valuable information that can really guide our decisions in the most advantageous directions. Because we can express ourselves in the most creative forms, in front of a significant number of people who, in return, they can interact with us.
- Because, being a constituent part of a hyperconnected world, we can imprint it through our ideas and actions, oriented towards a higher good. Now, what we want to be known has the opportunity to be communicated in the most authentic forms.
- Because, as entrepreneurs, we can reach the target audience directly, in the fastest and most efficient ways. Because, in the absence of intermediaries, the information communicated is pure and expresses exactly what we have to say, thus creating the circumstances for the creation and development of mutual trust between the parties.
- Because we have access to services and products that were once inaccessible to us.
- Because now, clarity and promptness of information are our allies.
- Because, our good intentions can turn into a driving force.
- Because we have the chance to become leaders who inspire the souls and minds of those with whom we build the world.

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The behavior of employee with proactive personality related to an adequate motivation in uncertain economical conditions. Survey study on a sample of Romanian employee

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Abstract. *Certainly, in the actual context, we can say that both life in general and economical activity in particular are significantly influenced. There are important changes, with rapid steps, which are different from other recent crisis situation, and are felt on each individual both directly and indirectly by affecting the economical structure activity in which individuals are employed. This paper is focused on the perception of the current economical situation on each employee, and our purpose is to establish the Romanian employees' ability to adapt at rapid changes related with the proactive personality. We also made a research regarding the employee motivation appropriate to these specific condition.*

Keywords: motivation, proactive personality, co-create value.

JEL Classification: M12, O15, J01.

1. Introduction

The behavior of employees in various organizational positions, such as frontline, executive and lower, middle or top management as well as economical environment conditions, are some of the current topics in the specialized literature (Amin et al., 2020 see [1], Finsterwalder, 2018 see [5], Lin et al., see [8] and Shamim et al., 2017 see [10]). Moreover, according to Amin et al., 2020 (see [2]) the employees engagement influences both the behavior and the productivity. There are a large number of paper that treat the motivational factors that can be correlated with work engagement, including that of Van Beek et al., 2011 (see [3]) which expands the existing research in the field through the study of motivational correlates for engagement, workaholism and burnout. Van Beek et al., 2011 (see [3]) emphasize the importance of the intrinsec motivation related to avoid burnout and sustaining work engagement in a positive way as well as job well-being. Besides, in some situations, extrinsec motivation is excluded by the intrinsec motivation, the last one being able to even influence the choosing of a particular type of employer, such as private or public (Georgellis et al., 2011 see [6]).

Moreover, authors such as Lin 2018 (see [8]), have studied the mediating role of the organization based on self-esteem regarding the negative influences of job insecurity on both performances and affective commitment. Their research is done on Chinese employees at a relative young age, with a proactive personality from a certain telecommunications company and also, the authors provide us useful managerial implication for organizations based on self-esteem that are in this situation. Starting from the results obtained by Lin 2018 (see [8]), we developed a study concerning the influence and the behavior induced to the Romanian employees by the economical conditions of the current situation, conditions that can be assimilated to a crisis situation.

Our study treats Romanian employees in generally way, regardless of the organization type, the chosen sample comprising both employees of organizations based on self-esteem and not, or employees both from the public and private sector. One of our goals is to establish if the observed employees have a proactive personality and what can be their favorite motivational factor given the importance of cultural and regional background on the behavior of human individuals.

On motivation, we considered as a guidance line, the research of Amin et al., 2020 (see [2]) which deals with the motivation subject but in connection with the concept of co-create value for frontline employees. According with their study (Amin et al., 2020 see [2]) and with the actual specialized literature (Fedorenko and Berthon, 2017 see [4], Itani et al., 2020 see [7], Niemi and Paasivaara, 2007 see [9]) there are four motivational factors such as: financial, professional identity, recognition and career opportunities. As most current studies revel (Amin et al., 2020 see [2]) but also taking into account the Romanian managers perception, at present, the employees tend to have the financial factor as the preferred motivation. By placing ourselves in this context as well as in order to suggest to managers alternative directions regarding employees motivation, we aim to establish which of the other three types of motivation, namely professional identity, recognition or career opportunities, could be a substitute or an augmentation for the financial motivational factor.

In the following Section we provide the results obtained from the processing of our survey data. The third Section consists of the same motivational implications and the last Section refers to conclusions and further research directions.

2. A survey study on a sample of Romanian employee

In this section are presented the results obtained from our survey conducted in February of this year. The sample included 220 individuals from the Romanian employed population, with age between 18 and 67 years old, the average age being 40 years old.

For our survey, among of the total number of 220 individuals, 81 were men and 139 women, also a percentage of 70.9% were employees of companies with private capital and the remaining 29.1% were employees of companies with public capital. Also, our study results show that 93,6% of the surveyed individuals have a proactive personality and 6,4% do not.

Data obtained from our survey were analyzed and processed using IBM SPSS Statistics program package. One of the interest goal was to determine whether the current life conditions could induce insecurity on the individual, insecurity that could provoke influence on Romanian employees with proactive personality. The hypothesis tested was:

H_0: There is no association between the employee insecurity and the proactive personality.

The SPSS results for case processing and crosstabulation for those two variables considered in our study are presented by Table 1 and Table 2. Also, the outcomes of the chi-square test for hypothesis H_0, are shown in Table 3. The p_value obtained is 0,284 so we can say that our hypothesis is accepted which means that there are no association between employee insecurity and proactive personality for our study sample.

Table 1. *Case processing summary*

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
8) Given the current situation (pandemic or other factors), Do you feel that you are in danger of losing your position or even your job? * 5) Do you consider yourself a person who permanently search to improve his/her life? (see [8])	220	100,0%	0	0,0%	220	100,0%

Regarding OR – the estimated relative risk (Odds Rattio), the obtained value is 1,902 (Table 4) show that for people who consider themselves to be in job insecurity, the chance to have a proactive personality is about twice as high as those who do not consider themselves to be in job insecurity. Also, looking at the lower and upper values of the confidence interval for OR, we decided that, at the population level, there are no risk factor regarding the influence of insecurity on proactive personality.

Table 2. *Results of the cross tabulation with two characteristics of interest: insecurity and proactive personality*

8) Given the current situation (pandemic or other factors), Do you feel that you are in danger of losing your position or even your job? * 5) Do you consider yourself a person who permanently search to improve his/her life? (see [8]) Crosstabulation					
			5) Do you consider yourself a person who who permanently search to improve his/her life? (see [8])		Total
			1	2	
8) Given the current situation (pandemic or other factors), Do you feel that you are in danger of losing your position or even your job?	1	Count	89	4	93
		% within 5) Do you consider yourself a person who who permanently search to improve his/her life? (see [8])	43,2%	28,6%	42,3%
	2	Count	117	10	127
		% within 5) Do you consider yourself a person who who permanently search to improve his/her life? (see [8])	56,8%	71,4%	57,7%
Total		Count	206	14	220
		% within 5) Do you consider yourself a person who who permanently search to improve his/her life? (see [8])	100,0%	100,0%	100,0%

Table 3. *Results of hypothesis testing*

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1,150[a]	1	,284		
Continuity Correction[b]	,629	1	,428		
Likelihood Ratio	1,199	1	,274		
Fisher's Exact Test				,404	,216
Linear-by-Linear Association	1,145	1	,285		
N of Valid Cases	220				

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 5,92.
b. Computed only for a 2x2 table.

Table 4 contains information about both the value and the confidence interval corresponding to the relativ risk (RR). The RR value being approximately equal to 1, we can say, as a prospective conclusion, that there is no difference in terms of risk to affect proactivity, for those two classers of the insecurity characteristic of interest.

Table 4. *Estimated relative risk (OR). Relative risk (RR)*

Risk Estimate			
	Value	95% Confidence Interval	
		Lower	Upper
Odds Ratio for 8) Given the current situation (pandemic or other factors), Do you feel that you are in danger of losing your position or even your job? (1 / 2)	1,902	,577	6,263
For cohort 5) Do you consider yourself a person who who permanently search to improve his/her life? (see [8])= 1	1,039	,972	1,110
For cohort 5) Do you consider yourself a person who who permanently search to improve his/her life? (see [8])= 2	,546	,177	1,688
N of Valid Cases	220		

The results obtained from the data processing lead us to the finding that the Romanian employees, who generally have a proactive personality, do not seem to be influenced by factors such as position or job insecurity.

3. Managerial implication

Such a previous described employees survey can be of real interest to the manager when is being investigated the specific situation in which the manager wants to establish which is the most appropriate way for employees stimulation. For instance, analyzing the survey results obtained by us, we can reveal what is the motivating factor that animates the surveyed workers.

Figure 1 shows the distribution of the respondents according to their answer regarding the most preferred motivational factor. The individuals had a choice among of three answer options where the first answer option referred to the Personal identity motivational factor, the second option referred to Recognition factor and the third was for Career opportunity factor. The results shows that the most preferred motive was the Personal identity (143 from 220 total of respondents) followed by Recognition and then by Career opportunity. Also, Figure 2 revels the same results but in percentages.

Figure 1. *Distribution of employees according to the chosen answer to the survey question: "In addition to the remunerative reward, which of the following reasons would motivate you the most to make an further effort". First answer variant: "To learn, to improve personal skills in order to be prepared in front of new chalenges or opportunities", The second answer variant: "To recognize your value by teammate and management as a valuable, reliable employee", The third answer variant: "To be promoted".*

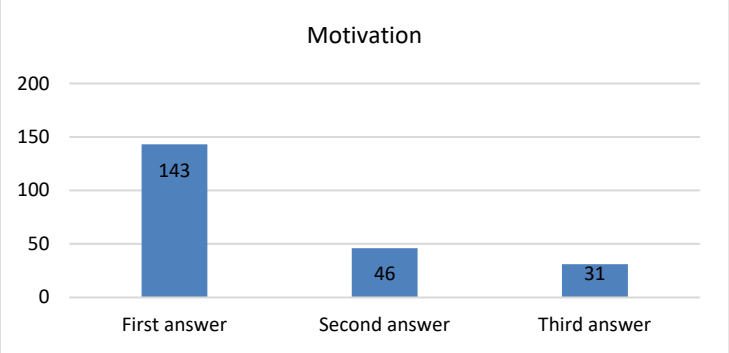
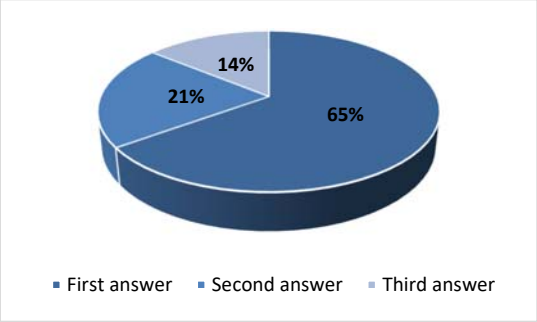


Figure 2. *Percentage distribution of individuals' answer to the survey question: "In addition to the remunerative reward, which of the following reasons would motivate you the most to make an further effort". First answer variant: "To learn, to improve personal skills in order to be prepared in front of new chalenges or opportunities", The second answer variant: "To recognize your value by teammate and management as a valuable, reliable employee", The third answer variant: "To be promoted".*



4. Conclusions and further directions

Our research provides details on how Romanian employees perceive current economical conditions, they generally seems to have a proactive personality that is not associated with position or job insecurity. Apart from financial motivation, they prefer professional identity motivation, to learn, to improve personal skills in order to be prepared in front of the rapid changes or new challenges and opportunities. From a managerial point of view, these results suggest that by a carefully strategies choosing, suitable for such employees, can be avoided possible negative effects from the present life and economical environment.

Also we are confident that there is the possibility that employees with a proactive personality to be strongly involved in achieving co-creative value, therefore, one of our future directions of research will be about the study of proactive personality employees related to this new concept.

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The new type of communication in public administration during a pandemic

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Abstract. *This article highlights the new type of communication that appeared in the communication process during the COVID-19 pandemic in public administration. How communication strategies, objectives, processes and tools within institutions have changed. How the pandemic changed the way we communicate.*
The rapid evolution of the new coronavirus has forced and still requires rapid measures, previously untested enough to reach a point of equilibrium, to communicate effectively.
Since the beginning of the pandemic, communication within the institutions, but also with the external environment and the public has faced major challenges. The circumstances of the Covid-19 pandemic crystallized two elements, crisis communication and change management.
The pandemic triggered by the new coronavirus has led to a rapid increase in digitization within institutions, accelerating new communication processes. Despite the geographical distance, the use of the new digital communication tools was auspicious, facilitating access to information for officials in public institutions, but also for the public. It has been an ongoing challenge for communication and digitization experts. The empirical results on internal and external communication are based on the studies of experts in digital communication.

Keywords: communication, digital, pandemic, evolution, management.

JEL Classification: C88, D83, L63, L96.

The term “digitization” is shaping the 21st century. In an attempt to define we speak of digitization when the provision of analog services is completely or partially replaced by the provision of services in a digital, computer-manageable model.

The year 2020 was one that will go down in history through the epidemic that developed and spread rapidly globally. Fear and uncertainty spread immediately, and bold decisions were made to stop the virus, such as closing schools and borders, working from home, closing non-essential stores and banning them from leaving their homes for a plausible, well-founded reason. People's freedom of movement was restricted, fairs were closed, and concerts and sporting events were canceled and postponed, respectively. So, socializing in the way we were used to has disappeared. These things have caused a new economic crisis by the collapse of the stock markets, but even worse, the loss of jobs, health and people's lives being at stake.

So, we tried to solve these problems in various ways including online communication and work from home. Online conferences and meetings were used, digital communication was intensified, practically starting a new era of communication. In fact, we can say that this COVID-19 pandemic has accelerated digitized communication, forcing, perhaps too suddenly, the entry into the new era of digitization. Therefore, we can say that the establishment of the direction was made on the basis of a momentary vision of the authorities in time of crisis, and the absolute priority was to overcome it and find the best solutions to return to normal.

Communication at the beginning of the pandemic was difficult, but along the way it improved through new methods tested in a very short time. Due to the epidemic with Covid-19, social communication was abandoned, face to face, with which we were accustomed, and digital communication was reached.

Step one was to analyze the situation, but also to continuously monitor this crisis. Step two was to develop a sustainable communication strategy. Step three meant implementing the strategy following the best communication channels.

Developments around the SARS-COV 2 epidemic continue to cause the entire public administration and beyond. Institutions face new major challenges, from reorganization, work from home, or work from a distance. These are just some of the issues that communication will have to deal with in the future.

The role of communication within the institutions has gained strategic relevance. In these pandemic times, digital communication has become a key factor, successful in providing and performing services in public administrations. Consequently, digital communication was based on new strategies made at the level of each institution according to their needs. The management of the institutions gave high importance to communication, which is imperative for success. Video communication has become vital, not only for the service, but also for socialization, digital channels gaining major importance.

Programs and video communication platforms such as Skype, Zoom, Meet, Microsoft Terms, but also integrated programs were used. The importance of these programs has been of real use to civil servants in public administration. They were not only used for formal

communication, in the interest of the service, but also for collaborations and socializations. This does not mean that the written form has disappeared. Not at all. Digital communication in written form has constantly evolved through various programs, E-mail, WhatsApp, Facebook, Signal or Telegram. In general, the emphasis is on video communication to convey strategic messages and decisions taken at the institution level.

Uncertainties and fears of civil servants about their future in the administration have increased significantly, not being accustomed to the new work schedule, but not to the new digital communication, and especially to the problems caused by the Covid pandemic-19.

What will the future look like in public administration? If until now working from home seemed an almost impossible thing, now this method (teleworking) is used as much as possible, digitalized communication being the basis of work results. Consequently, the public administration wants to expand and update digital communication channels. The communication between IT specialists and communication and HR (human resources) specialists will be quite close. It is important how digital communication specialists will meet these challenges.

Remote work and the home office have already been announced as the new normal. Communication will play an active role, being a good mix between analog and digital. The experiences of recent months have brought new perspectives on the strengths and weaknesses of communication tools in public administration.

Communication plays a key role. The Covid-19 pandemic showed clearly how important the emotional connection between employees is. The Covid-19 pandemic showed everyone how quickly working conditions can change.

For the public administration to function at normal parameters, it is necessary for the institutions to be open to change, to position themselves so that they can communicate in any situation, in a world characterized by speed, ambiguity and complexity.

The communication described thus includes all the communication processes that an organization needs to function properly and competently in the context of the pandemic caused by the new coronavirus.

Digitization requires the willingness to move from classical communication to modern, digitized communication, because it must react dynamically to its rapid speed of development. The digital transformation gives communication a new face. It materializes in a global network of billions and billions of devices, mechanisms and intelligent objects that are controlled by sensors and their corresponding applications, with humans and their environment.

Communication volume and frequency are increasing. As a result, time and space become less relevant as determinants of modernization.

Therefore, communication has evolved and is evolving considerably, 2020 being a reference year. But what is the price? The price paid is the sacrifice of time spent with people face to face, perhaps even the loss of the ability to hold a conversation in front of a wide audience, or in front of friends.

Conclusion

In conclusion, in order to keep up with new trends, with the imposing pace of change, public administration must make a comprehensive analysis of new communication situations, but also a comprehensive analysis of its own development potential.

The communication has taken a big step towards digitalization due to the pandemic caused by the new coronavirus, the current situation affecting the entire public administration. On the other hand, we can say that we needed a new beginning in terms of digital communication, new concepts and the development of new communication plans and strategies and the adaptation of institutions to new technological requirements.

Leaving aside the Covid-19 pandemic, we see the digitalization of communication as a constructive, necessary, future – oriented thing. As a result, the whole way of working changes according to the new futuristic trends.

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The effects of digitalization on economic growth

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Abstract. *Coronavirus pandemic across the globe has moved the society towards increasing the use of the internet, which has also influenced economies towards digitalization. However, in the context of Industry 4.0, a growing trend was observed in terms of digitalisation in the European economies even before the Coronavirus pandemic. In this paper, we will analyse the correlation between digitalization and economic growth in the EU-28 Member States. The digital performance is measured in terms of five dimensions, namely Connectivity, Human Capital, Use of Internet, Integration of Digital Society and Digital Public Service. The five dimensions of digitalization are integrated into the composite indicator Digital Economy and Society Index (DESI) that started to be calculated from 2014. The main aim of the study is to analyse how digital transformation affects macroeconomic aggregates. The article discusses the effects of digitalization on economic growth, and it suggests further applications of the research.*

Keywords: digitalization, economic growth, financial education, financial literacy, labour market.

JEL Classification: O33, O47, A29, G53, J40.

1. Introduction

Technology is part of our lives and it has generated fundamental transformations at the level of economy and society. In the context of Industry 4.0, a growing trend was observed in terms of digitalisation in the European economies in the years before the Coronavirus pandemic and which has been potentiated during 2020 due to the confinement measures. The Coronavirus pandemic has accelerated the transition towards the digital economy as technology made possible for companies from several sectors of activity to continue their activities, being able to comply with the pandemic rules and distance restrictions. However, digitalization has begun to be widely incorporated in companies even before the Coronavirus pandemic. Digitalization has triggered a significant change in economies, influencing production processes to move towards competitiveness by increasing productivity and reducing production costs. From the societal perspective, digitalization has influenced the citizens *inter alia* towards the use of the internet for purchasing goods & services, for carrying out a wide range of online transactions and for accessing digital public services. For this the basics of economic and financial education is needed.

The aim of this paper is to highlight the impact of digitalization on economic growth in the EU-28 Member States (including United Kingdom). For this analysis, we have used DESI for computing the level of digitalization in these countries. This composite index contains two types of dimensions: dimensions that reflect the penetration of technology in the economy and dimensions that consider the use of technology at the level of society (Kotarba, 2017). This study is structured in five parts. The first part contains the introduction. The second part of the paper covers the literature review of digitalisation and its impact on economic growth. The third part of the study outlines the research methodology. The fourth part of the paper highlights the main results and discussion. Finally, the fifth part draws some conclusions from the study.

2. Literature review

Some analyses of the process of economic growth are based on the neoclassical model developed by the Nobel Prize winning economist, Robert Solow. The theory of economic growth in the half of the twentieth century was marked by the studies of Solow who proposed two factors of production - labour and capital (Solow, 1956), and then, the third factor of production - technical progress - which has had a significant impact on increasing production per hour during the period 1909-1949 (Solow, 1957). Technical progress covers the contribution of all other factors of production, other than labour and capital.

In the context of technological progress, economists have shown the significant effects of technology on production. Therefore, some economists, such as Brynjolfsson and Hitt (1995), developed the production function, proposing technology to be considered as a production factor.

Nowadays, the entire world is in the process of digitalization. Following Cambridge dictionary, 'to digitalize' means to '*start to use digital technology such as computers and internet to do something*'. Digitalization produces transformative changes in industry and

society (Boston Consulting Group, 2016). Digitalization is often perceived as driver of the production process (Ahmad et al., 2016). Recently, the European Commission presented its digital strategy by 2030, which comprises the digitalization of citizens, infrastructure, businesses and public services (European Commission, 2021).

In the case of companies, the digitalization could offer the opportunity for small and medium enterprises to access a bigger market. Digitalized companies can make use of the remote work, having the possibility to employ a labour force that lives in a different geographical area, which offers them the opportunity to employ talented and highly skilled labour force. More than that, digitalization contributes to an increase in productivity, which represents a competitive advantage for digitalized companies and a necessity for the traditional ones as without digitalization, in the era of technology, companies can not survive.

The impact of Information Technology (IT) on economic growth has represented one of the main concerns of economists, starting with the end of the twentieth century. For example, although the rate of penetration of technology during 1980-1995 was low compared to the current period, Pohjola (2000) demonstrated that IT has strongly influenced the economic growth in the 23 developed OECD countries included in the study. Furthermore, during that period, the return of investment in technology was equal to twice of the return of investment value in the physical capital.

Moreover, in the context of continuous and rapid technological progress, technologies have been used in more sectors of activity. Numerous studies highlight that technology is one of the fundamental drivers of economic growth (El-Darwiche et al., 2013; Brekht et al., 2017; Broughel et al., 2019), meanwhile other studies mention that the contribution of increased use of robots to economic growth is substantial (Graetz et al., 2015). From the public sector's perspective, digitalization has influenced how governments engage with citizens through e-government (Zhao et al., 2015).

Economic growth is measured *inter alia* by the Gross Domestic Product (GDP), although some authors argue that GDP is a measure of production and not a measure of welfare (Ahmad et al., 2016). Another authors mentioned that an increase of 10% in digitalization at the country level triggers a 0.75% growth in the GDP per capita (Sabbagh et al., 2013).

However, a challenge for economists is to identify variables that measure the degree of digitalization of economies. For measuring the impact of digitalization on GDP, some authors have mentioned the use of three indicators: mobile subscribers, internet subscribers and broadband subscribers (Waqar, 2015; Habibi & Zabardast, 2020), or adding a fourth variable: fixed phone subscriptions (Bahrini et al., 2019).

3. Research methodology

In this paper, we have analysed the evolution of technological progress in the EU-28 Member States (including the United Kingdom) and, furthermore, the impact technological progress has on economic growth.

For this purpose, we have used descriptive statistics to compute the correlation between the real GDP growth rate and the real GDP per capita and the five components of the Digital Economy and Society Index (DESI). DESI is a composite index calculated annually by the European Commission since 2014 (DESI report for 2015 is based on data from 2014) with the aim to track the technological progress of the EU Member States in terms of digitalization.

DESI can reach values between 0 and 100 and it includes five dimensions:
1. *Connectivity*, representing 25% of DESI value;
2. *Human Capital*, representing 25% of DESI value;
3. *Use of Internet*, representing 15% of DESI value;
4. *Integration of Digital Technology*, representing 20% of DESI value;
5. *Digital Public Services*, representing 15% of DESI value.

Table 1. *Digital Economy and Society Index components*

Connectivity	Fixed broadband take-up, fixed broadband coverage, mobile broadband and broadband prices
Human capital	Internet user skills and advanced skills
Use of internet	Citizens' use of internet services and online transactions
Integration of digital technology	Business digitalization and e-commerce
Digital public services	e-Government

Source: European Commission Press Release (2020).

The analysis carried out in this paper comprises the analysis of DESI 2015-2020, meaning the calendar years 2014-2019. We have considered this period taking into consideration the data availability (DESI started to be computed since 2014) and the economic context, as the economies entered a recession since the second quarter of 2020 caused by the Coronavirus pandemic.

4. Results and discussion

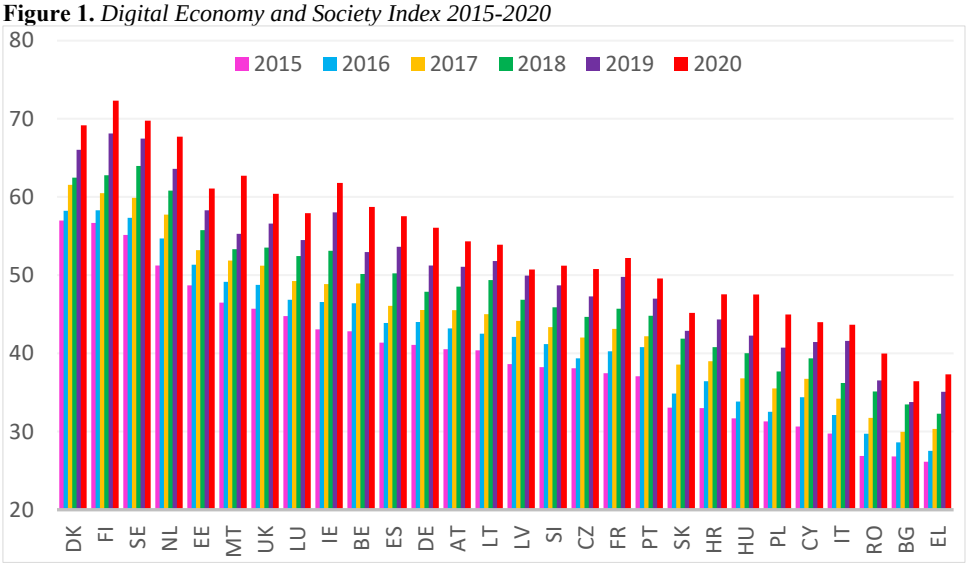
4.1. The digitalization of the EU-28

Figure 1 indicates that all EU-28 Member States registered more increased values of digitalization in DESI 2020 compared to DESI 2015.

The highest value of DESI 2015 is reached by the countries from Northern Europe, namely, Denmark, Finland and Sweden. In DESI 2020, these countries remain at the top of the hierarchy, representing the most digitalized EU countries, although the order of the three countries is slightly different compared to DESI 2015, this is to say, Finland, Sweden and Denmark. The last positions of DESI are occupied by Greece, Bulgaria and Romania.

The yearly evolution of DESI 2015 and DESI 2020 values for these countries is not very encouraging, DESI growth rates being similar or even lower than the rest of the analyzed countries. Moreover, Romania, Bulgaria and Greece remain in the last positions during the entire period analyzed.

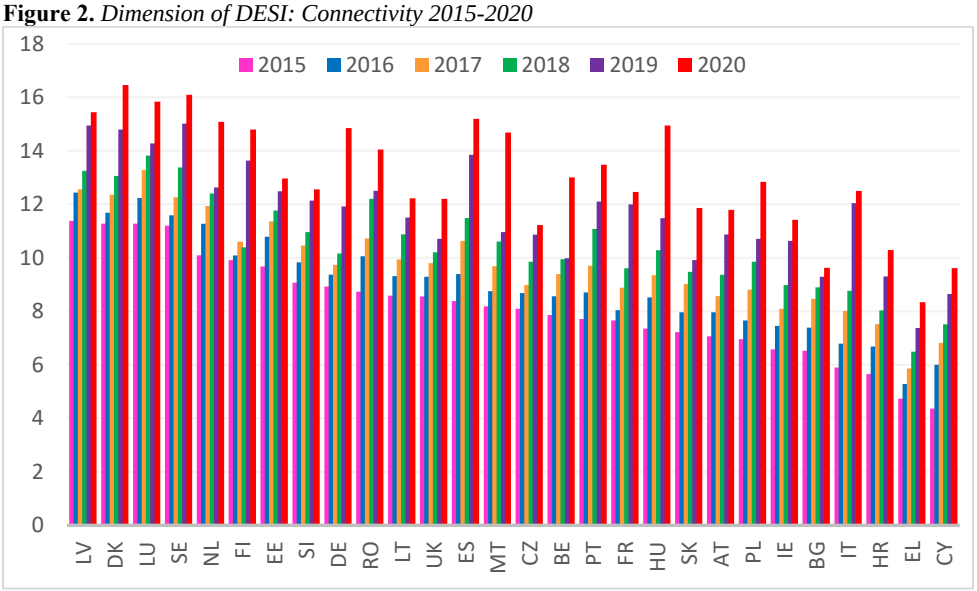
Figure 1. *Digital Economy and Society Index 2015-2020*



Source: Calculated by the authors based on Eurostat data.

The first dimension of DESI, *Connectivity*, is calculated as a weighted average of Fixed broadband adoption (25%), Fixed broadband coverage (25%), Mobile broadband (35%) and Broadband price index (15%). Analyzing the evolution of Connectivity, we observe that the connectivity of DESI 2020 has the highest growth rates of digitalization (Figure 2), compared with the values for the previous four years, but also with the other DESI dimensions.

Figure 2. *Dimension of DESI: Connectivity 2015-2020*

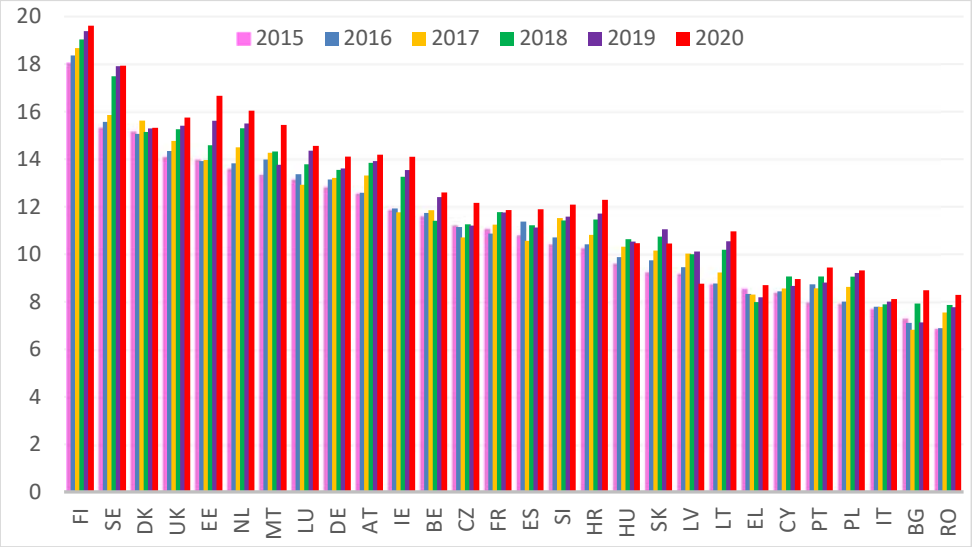


Source: Calculated by the authors based on Eurostat data.

At the opposite pole, with the lowest growth rate of digitalization, is the second DESI dimension – *Human Capital* (Figure 3). This is composed by Internet user skills (50%) and Advanced skills and development (50%). This slow evolution highlights the importance of establishing and implementing a strategy for the medium and long term. This strategy should be addressed to prepare individuals, including the labour force for the digital era.

During the entire period analyzed, Bulgaria, Romania are placed at the last positions in terms of internet user skills. In the case of DESI 2020, Bulgaria and Romania registered a score of 12.9 and 13.6, respectively. The values registered in these two countries represent less than half of the EU-28 average. The low levels of internet user skills in Romania and Bulgaria are explained by the low digital education in schools and the lack of adult digitalization programs in these countries.

Figure 3. *Dimension of DESI: Human Capital 2015-2020*



Source: Calculated by the authors based on Eurostat data.

Italy has the lowest value of the dimension Human Capital according to DESI 2020; this is to say 8.1 from the maximum 25. This is explained by the score of the sub-dimension Advanced skills and Development (12.4). Italy and Greece (11.2) and Portugal (11.9) reported the lowest values in EU-28.

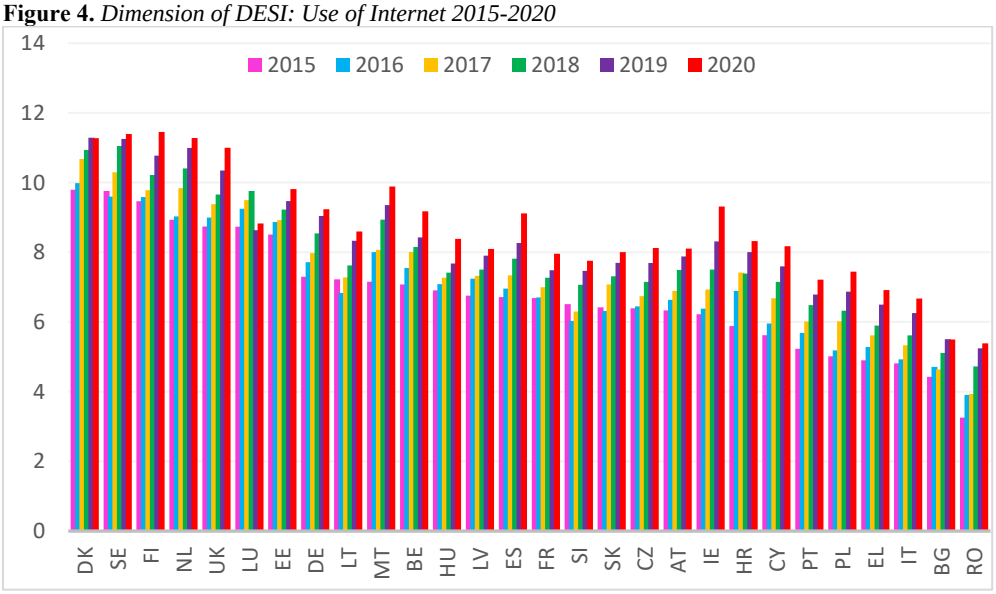
The *Use of Internet* (Figure 4) is calculated as the weighted average of Internet use (25%), Activities online (50%) and Transactions (25%). In Romania, even if the level of connectivity has one of the highest values of the EU-28 Member States (Figure 2), the use of internet has the lowest value (Figure 4).

These results show the imperative need for a national strategy oriented towards the development of digitalization and alignment with high performer countries in terms of digitalization.

The sub-dimension 'transactions', which is composed by banking, shopping and selling online has a very low value for Romania (approximatively 16 from 100), while the second

low value is for Bulgaria (approximatively 20 from 100). The highest value is for Netherlands (80 from 100), followed by Denmark, Finland, United Kingdom and Sweden.

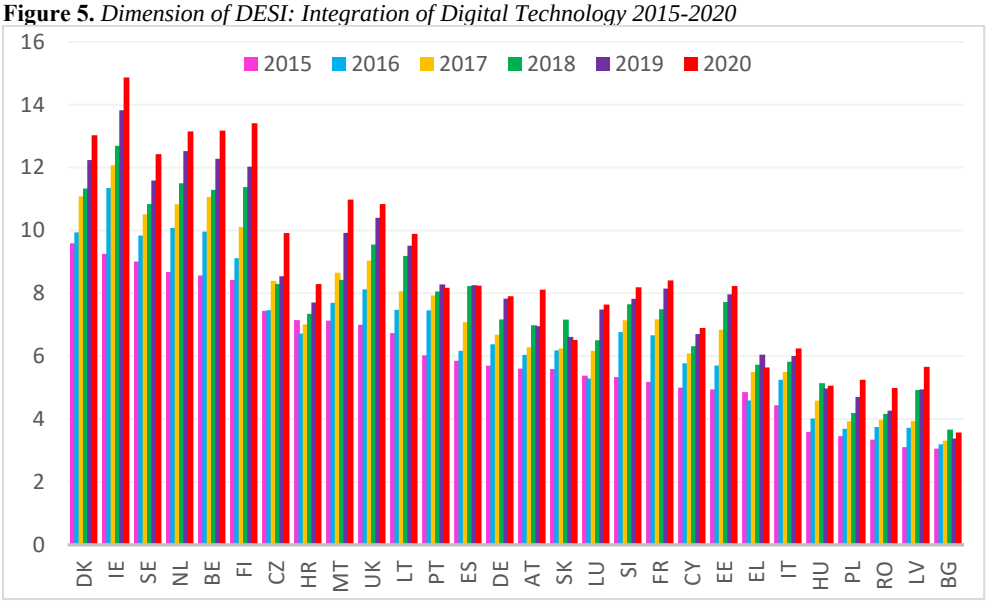
Figure 4. *Dimension of DESI: Use of Internet 2015-2020*



Source: Calculated by the authors based on Eurostat data.

The lowest use of digital banking is in Romania and Bulgaria, where the number of citizens who are using internet banking is eight times less than in Northern Europe. We consider that these results can be explained on the one hand by the level of digitalization skills and on the other hand by the level of financial literacy of individuals in each economy.

Figure 5. *Dimension of DESI: Integration of Digital Technology 2015-2020*



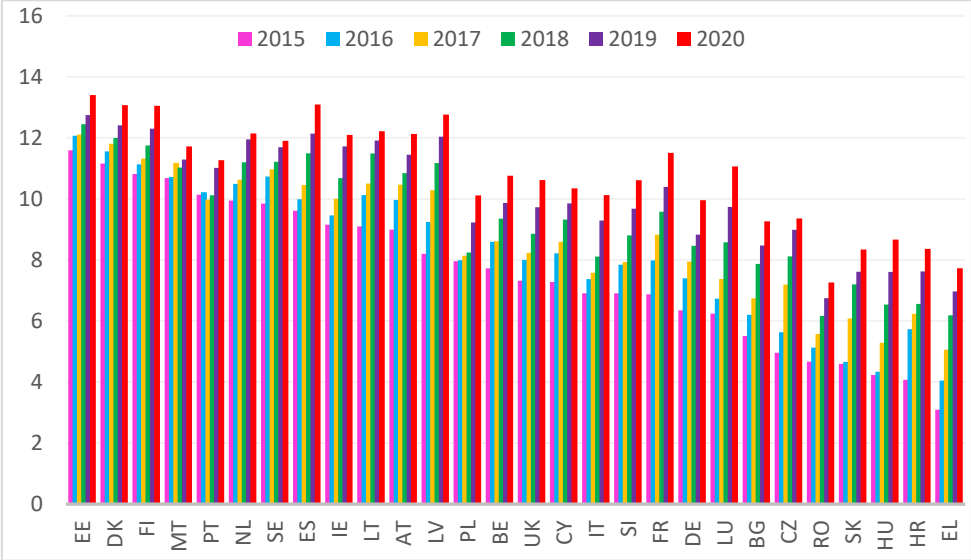
Source: Calculated by the authors based on Eurostat data.

The fourth dimension of DESI, *Integration of Digital Technology* (Figure 5), is composed by Business digitisation (60%) and e-Commerce (40%). In this case, a better evolution during the entire analysed period can be observed for the countries that are situated on the left side of the graph, which had a higher rate of digitalization compared to the EU average since DESI 2015.

Therefore, the gap between EU-28 as regards the level of integration of digital technology has been deepened from DESI 2015 to DESI 2020.

The fifth dimension of DESI is *Digital Public Services* (Figure 6) and it is represented by e-Government. We observe a high increase of the value of this indicator, especially for Luxembourg, France and Greece.

Figure 6. *Dimension of DESI: Digital Public Services 2015-2020*



Source: Calculated by the authors based on Eurostat data.

Although Romania was placed in the 23rd position out of 28 countries in DESI 2015, this country registered in DESI 2020 the lowest level of Digital public services in the EU-28. Therefore, a major need for transition towards the digitalization of public services exists in Romania.

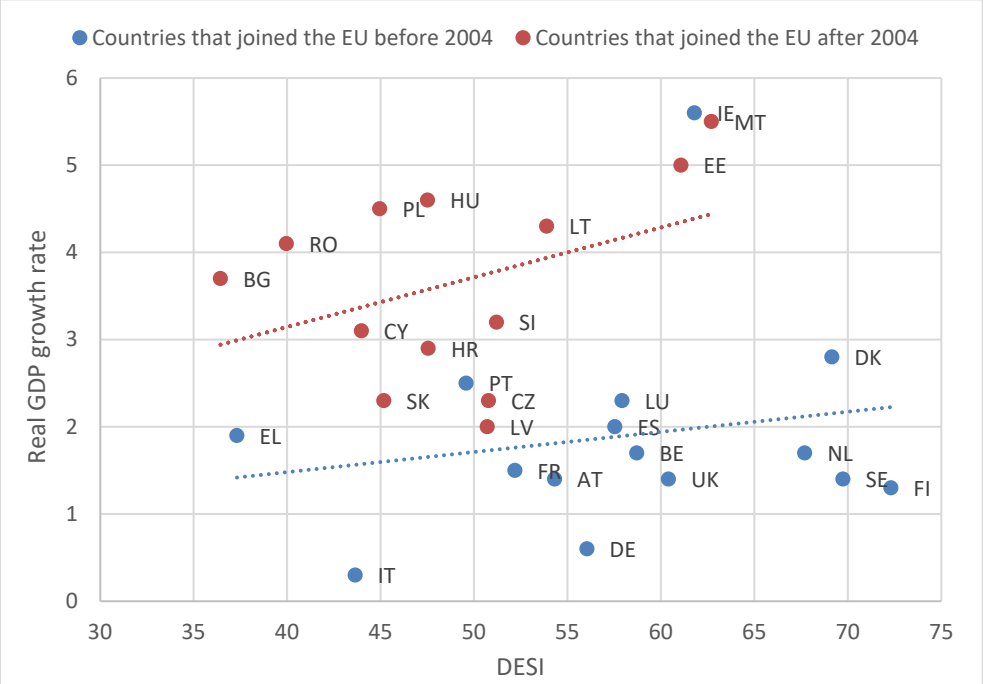
4.2 . The impact of digitalization on economic growth

In this subsection, we assess the relationship between the rate of digitalization (measured by DESI 2020) and the economic growth (measured by both real GDP growth rate in Figure 7 and real GDP per capita in Figure 8) for 2019.

Taking into consideration the level of development of EU-28 Member States, we divided the countries in two groups, according to the classification made in the report of United States (United Nations, 2020), in function of the year these countries joined the European Union. Therefore, the countries that joined to the European Union before 2004 (most

developed countries in the EU), are marked with blue, and the countries that joined to the European Union after 2004 (developing countries in the EU), are marked with orange.

Figure 7. *DESI (2020) and Real GDP growth rate for EU-28 Member States (2019)*



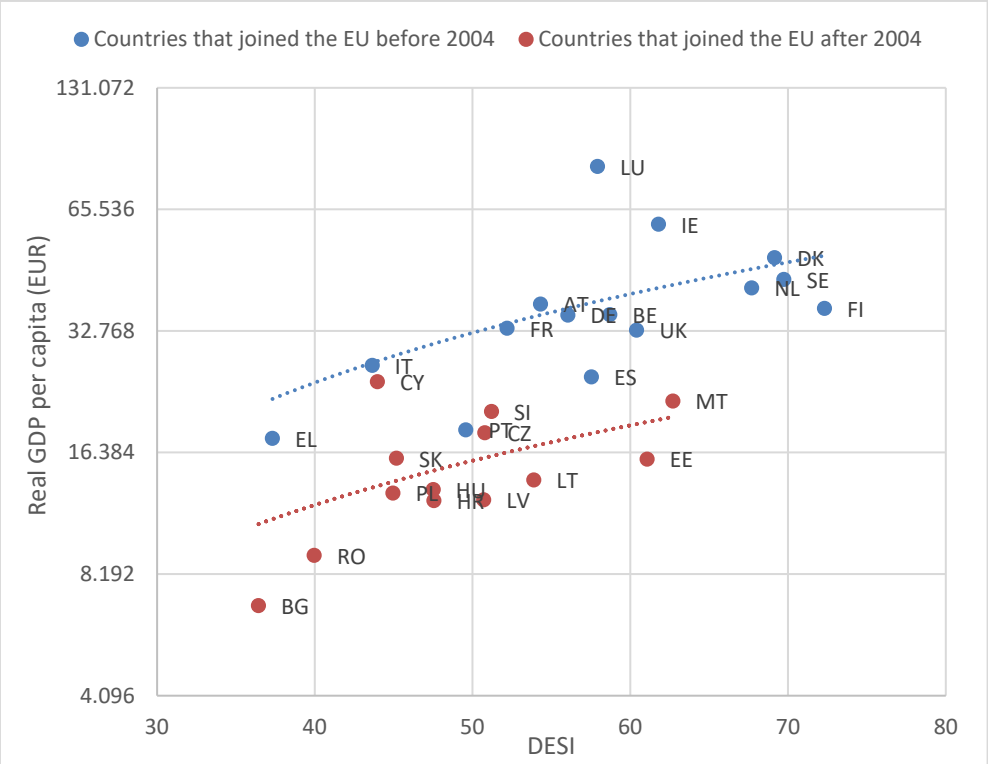
Source: Calculated by the authors based on Eurostat data.

Besides, Ireland, that had the highest real GDP growth rate explained by the relocation of economic activities due to low corporate tax rates, the rest of the countries that joined to the EU before 2004 registered in 2019 real GDP growth rates (Figure 7) between 0.3 in Italy, 0.6 in Germany and 2.5 in Portugal and 2.8 in Denmark. In the case of the countries that joined the EU after 2004, the highest real GDP growth rates in 2019 were registered by Hungary (4.6%), Estonia (5%) and Malta (5.5%).

The difference between the real GDP growth rates is explained by the convergence, as GDP per capita levels of lower-income economies tend to grow faster than those of higher-income economies. However, Estonia and Malta are also the most digitalized economies of the countries from the second group.

By analysing the relationship between DESI and the real GDP per capita for 2019 (Figure 8), we observe that Greece, Portugal and Italy registered rates of digitalization that stand at a low level with a DESI value below the average.

Figure 8. *DESI (2020) and Real GDP per capita for EU-28 Member States (2019)*



Source: Calculated by the authors based on Eurostat data.

Moreover, the EU-28 Member States that registered the lowest value of real GDP per capita are Bulgaria and Romania. These two countries, as observed in section 2.1 of this paper, do not align with the other Member States in terms of digitalization. Bulgaria counts with one of the lowest positions in all five dimensions of DESI, whereas Romania in four of the five dimensions, respectively.

Table 2. *Pearson's product moment correlation*

	Real_GDP_growth (2014-2019)	**Real_GDP_per_capita** (2014-2019)
DESI (2015-2020)	0.029 (p_value=0.7088)	0.559 (p_value<0.05)

Source: Calculated by the authors based on Eurostat data (2014-2019).

Pearson's product moment correlation between DESI and real GDP growth rate is positive, but it is not statistically significant (p-value=0.7088). However, when expressed as real GDP per capita, the correlation with DESI is also positive, but this time it is much stronger and statistically significant, having a p-value less than 0.05. Therefore, we consider that the negative and insignificant correlation between DESI and the real GDP growth rate appears because there are many countries that had a very small real GDP growth rate during this period. This is to say that some countries registered a real GDP growth rate close to zero or even a negative real GDP growth rate as, for example, Greece. Thus, in this study, we rely our conclusions on the positive correlation between DESI and real GDP per capita.

5. Conclusions

In this paper, we analysed the evolution of digitalization in the EU-28 Member States (including United Kingdom) and we calculated the correlation between their levels of digitalization, using the composite index DESI 2015-2020. This index refers to the period 2014-2019 and, in this paper, we correlated it with two variables that reflect economic growth: the real GDP growth rate and the real GDP per capita.

In general, in terms of digitalization at the EU level, on the first three positions are placed the Northern European countries, Denmark, Finland and Sweden during the entire period analysed. At the opposite pole, the last three positions of DESI are occupied by Romania, Bulgaria and Greece. The correlation between DESI values and real GDP growth rate is very weak, which is explained by the convergence. Even though the more developed countries registered lower rates of real GDP growth, which has led to a mismatch with the level of digitalization of their economies, there still exist significant differences between the value of real GDP per capita between the EU-28 Member States. Therefore, our analysis highlights a strong and statistically relevant correlation between DESI 2015-2020 and the real GDP per capita for 2014-2019.

According to our results, we consider that developing countries do not benefit from the economic growth that can be generated by the technological progress. One of the causes could be the low interest of countries in encouraging digitalization, despite the benefits that trigger and which are highlighted in numerous studies. Considering the developing countries, we believe that coherent strategies concerning digital economy development should be designed and adopted.

In conclusion, it is essential for economies to speed the investments in all dimensions of digitalization - infrastructure, integration and human capital, otherwise they will not adapt to the new trends of technology. In this way, developing countries will benefit from the advantages of digitalization, including the stimulation of economic growth and the convergence process will be accelerated. Otherwise, the economies of the developing countries become obsolete due to the technological progress that exponentially increases and the gaps between these countries and developed countries will be higher.

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