

## Analyzing youth unemployment and digital literacy skills in Romania in the context of the current digital transformation

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**Abstract.** *Recent developments in the labour market, on the global scale and inside the European Union, reveal that youth unemployment represents a significant societal challenge of the twenty-first century. In this general context, Romania has a high percentage of young unemployed people when compared with the national unemployment (16.9% versus 5.3 % in June 2020 – Eurostat data). Besides, at the same time, it ranks 27th out of the 28 EU Member States in the European Union, according to Digital Economy and Society Index (2019). Considering this particular context, our article investigates the youth unemployment issues in Romania, and it also assesses Romania's digital competitiveness using relevant statistic tools, such as the EU Digital Economy and Society Index and Women in Digital Scoreboard. A critical analysis will be performed to find out and explain the various causes of youth unemployment and propose solutions and recommendations to equip young people with the skills required for the jobs in the current accelerated digital transformation we face due to COVID 19 crisis. Also, a systematic review of the public policies concerning digital skills and skills for innovation in Romania will be made. Moreover, examples of private sector initiatives enhancing youth digital skills will be analyzed in order to prepare the ground for future relevant interventions in digital education, which can lead to better integration of the young people into the labor market.*

**Keywords:** Digitalization, Digital skills, Youth unemployment.

**JEL Codes:** E24, J24.

### 1. Introduction

Today's young generation is facing diverse challenges of social, cultural, and work integration kind. More than ever labour market became more European than national, new job opportunities arose in different EU countries, and working force mobility seems to be the best way to fill the job vacancies that cannot be occupied by local young talents. Besides, young workers are the most vulnerable category in terms of unemployment. On the other hand, the rapid migration to digital technologies driven by the COVID 19 pandemic will continue into the recovery (Mc Kinsey Digital, 2020). This is a new and demanding challenge for the young generation.

The International Labour Organization (ILO) mentions in the report “Global Employment Trends for Youth 2020” that the labour force participation rate of young people (aged 15–24) has continued to decline and the continuing decline in young people’s engagement in the labour market reflects not only the increasing enrolment in education but also the persistence of the youth NEET challenge, especially among young women. Current ILO statistics show that young people are three times as likely as adults (25 years and older) to be unemployed. Globally, the youth is considered as a significant potential supply for the labour market, with regional variation. Still, one-fifth of young people worldwide currently have NEET status, which means they are neither gaining experience in the labour market, nor receiving an income from work, nor enhancing their education and skills. The ILO report also shows the young people's concerns about the possibility of their jobs being replaced by robots and artificial intelligence, despite being early adopters of new technologies. Worldwide, the increase in the demand for skills caused by the emergence of new technologies is welcome, as are the rising educational attainment levels among young people. Both would generate increases in

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productivity. New technologies are disrupting labour markets across the world by both destroying and creating jobs.

Besides, according to the findings of a survey conducted on a significant number of young people, employers and post-secondary education providers across eight countries consider that the main reason for youth unemployment is not, as expected, the scarcity of jobs lack of skills required by the employers. It is as if employers, education providers, and the young lived in parallel universes, unable to connect with each other (McKinsey Center for Government, 2012). The conclusions of the survey are in line with what other studies we have found. For example, an EU report highlights the skill shortage in Europe and mentions the strategies of certain employers to address it: on-the-job training and hiring people with potential rather than certified skills (EU Skills Panorama, 2016).

Looking at the causes of youth unemployment, only a few consistent studies have been published in Romania, but the findings were in line with the McKinsey survey concerning the mismatch between young people skills and what employers are looking for. Romanian young people entering the job market perceived their skills and competencies as adequate based on the grades they obtained during the school years. They hardly accept the fact that employers are looking for different kinds of skills, more applied ones. (Epure, M., Vasilescu, R., 2016). Mostly, it is about increasing the demand for new kinds of digital skills. This demand is even higher in the context of the COVID 19 pandemic. On the occasion of World Youth Skills Day 2020, the role digital technologies can play to mitigate the effects of youth crisis was highlighted. "Digital platforms enable students to pursue online learning, entrepreneurs to engage in e-commerce, and workers to earn income through online freelancing and microwork. These remote opportunities are particularly beneficial for young women and other vulnerable youth who have been disproportionately affected by the crisis". (Robinson D., Sani A., Aminu Z.R., 2020)

## **2. Research objectives and methodology**

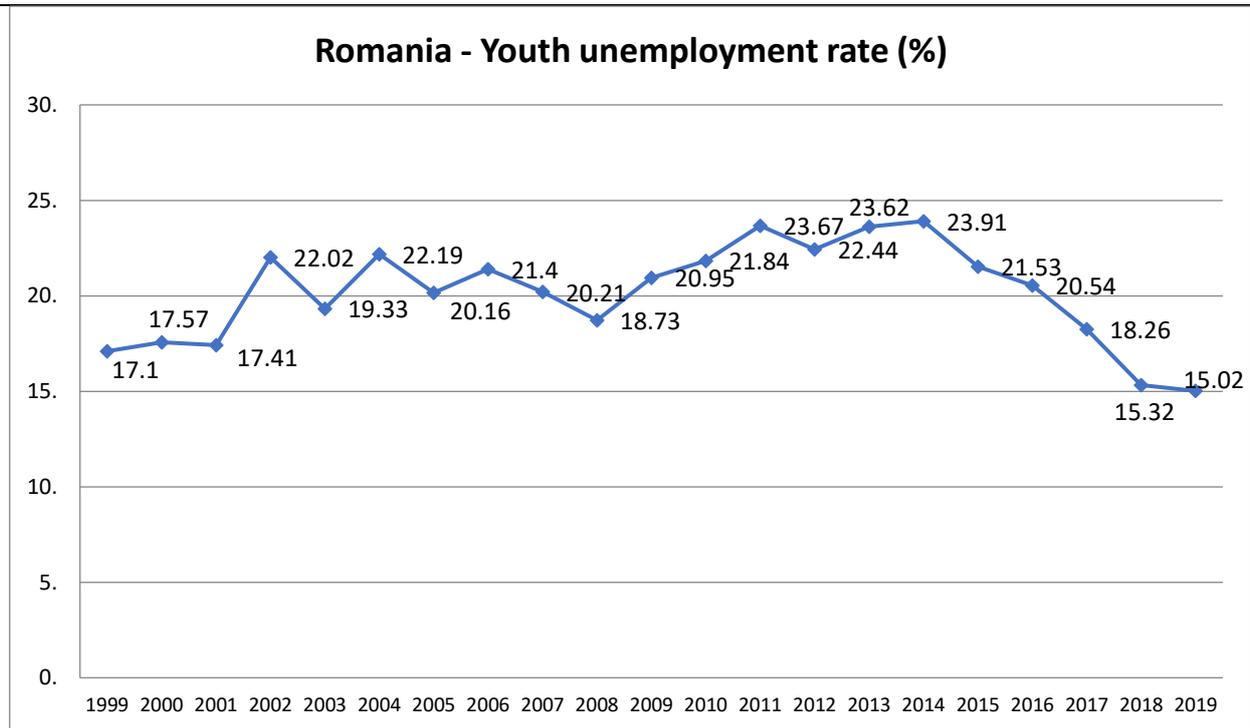
The first research objective of this article is to analyse youth unemployment issues in Romania as they have been identified by authors or highlighted by governmental institutions. A critical analysis will be performed to find out and explain the various causes of youth unemployment and propose solutions and recommendations to equip young people with the skills required for the jobs.

A second research objective is to assess Romania's digital competitiveness using relevant statistic tools, such as the EU Digital Economy and Society Index and Women in Digital Scoreboard. Also, a systematic review of the public policies concerning digital skills and skills for innovation in Romania will be made. Examples of private sector initiatives enhancing youth digital skills will also be analyzed to set the scene for future relevant initiatives in digital education.

The research methods that will be used are: initially, basic research focused on recent data collection concerning youth unemployment and digital skills, and finally, problem-oriented research will be conducted in order to understand the causes of the youth unemployment and the digital skills gaps in Romania and to propose relevant solutions and recommendations for enhancing youth employment in the context of the accelerated digitalization due to COVID 19 crisis.

## **3. Dimensions and causes of youth unemployment in Romania**

According to the most recent Eurostat data, in June 2020, the youth unemployment rate was 17.3 % in the EU, while Romania was slightly below the European average with a youth unemployment rate of 16.9%. As we can see from Figure 1, Romania is characterized by a decreasing trend of youth unemployment, starting with the year 2014. However, the youth unemployment rate remains still extremely high in Romania, when it is compared with the national unemployment rate (16.9% versus 5.3 % in June 2020 – Eurostat data).



**Fig.1 Romania- the evolution of the youth unemployment rate, period 1999-2019**

(Source: World Bank, Survey name: World Development Indicators, [worldbank.org](http://worldbank.org), released at Dec.2019)

In a recent analysis provided by Business Review (Melenciuc S., 2019), some important trends and phenomena concerning youth unemployment are outlined. For example, this analysis highlights the findings of a recent study of the National Institute of Statistics: "The rate young people neither in employment nor in education or training in Romania signal difficulties in transitioning from the education system to the labour market and the problems connected to employment for the young population, outside the education system" (NIS, 2019). Moreover, the analysis outlines that the unemployment rate among young people in Romania aged 15-24 years maintains at a high level despite widespread workforce crisis suggesting difficulties in the transition from the education system to the labour market. The situation is even worse, considering the young people in Romania aged between 20 and 34 years. In Romania, 21.4 percent of youth aged 20-34 years were neither in employment nor in education or training in 2017, and the rate is higher in the case of women. The rate of young people neither in employment nor in education or training shows wide variations between Romania regions. In 2017, the highest value of the indicator for the young people aged 15-24 years was recorded in the southern Transylvania / Center region (22.3 percent), followed by Sud-Est (20.5 percent) and Sud-Muntenia (19.6 percent).

Youth unemployment causes are various. We summarize below some of the most important:

- Low flexibility of the labour market;
- Low interest for higher education and the temptation to leave the country without a diploma;
- Lack of early work experience for young people entering the labor market;
- Education. In Romania, education seems to be part of the problem, not part of the solution when we are studying youth unemployment (Mărginean S., 2014). Romania has the lowest percentage of tertiary education graduates from the EU, with 26.3% for the age segment of 30 – 34 years (Eurostat, 2018).
- The available skills are not keeping up with the needs of the labour market and future work patterns.
- The lack of basic competencies among the Roma and people in vulnerable situations do not allow them to fully benefit from economic expansion and gain a foothold in the labour market (EU Commission Communication to the EU Parliament, 2019).

- Insufficient supply of skills (e.g., digital skills) which also contribute to determining the quality of work, above-all through its impact on wages;
- Youth salaries, which are likely to negatively impact youth employment in as much as, the higher are the relative salaries of youth with respect to those of adults, the more incentives there are to employ adults as opposed to youth.
- Migration. Young Romanians think that leaving the country is one way to fight unemployment. Approximately 3.4 million Romanians live abroad. For example, in 2015, Romania entered the Top 20 countries that became the source of migration at the international level (UN, 2016).
- The level of the aggregate demand - for example, a fall in aggregate demand will lead to a fall in demand for labour in general and consequently for young labour as well as adult workers.

Youth need specific preparation to enter the labour market and is not about the professional skills and competencies that schools/universities provide through educational programs but mostly about the twenty-first century: digital literacy, ICT communication skills, etc. Unfortunately, youth Romanians tend to solve unemployment seeing the migration to western developed countries as a solution. Migration generates shortages in the workforce in some industries; therefore, Romanian employers import workers from outside the EU, especially from Asian countries like Vietnam, Bangladesh, India.

#### **4. Romania in the Digital Economy and Society. Digital skills assessment.**

As in all the other European countries, also in Romania, a strong digital economy is vital for innovation, growth, jobs, and competitiveness. The spread of digital is having a significant impact on the labour market and the type of new skills needed in the economy and society. In June 2016, the European Commission published a new Skills Agenda for Europe to strengthen human capital, employability, and competitiveness and present some actions and initiatives to tackle the digital skills deficit in Europe. This agenda sets out to improve skills formation's quality and relevance to make skills and qualifications more visible and comparable and advancing skills intelligence, documentation, and informed career choices. The European Commission has been monitoring Member States' digital competitiveness with the Digital Economy and Society Index (DESI)<sup>2</sup> reports since 2015.

##### **4.1 Digital Economy and Society Index, Romania, 2019. Key figures.**

According to Digital Economy and Society Index (DESI) 2019, Romania ranks 27th out of the 28 EU Member States in the European Union. Although Romania shows slight improvements in performance in almost all of the DESI dimensions measured, its ranking remained stable, because the overall progress was slow. Romania performs best in the Connectivity dimension, due to the wide availability of fast and ultrafast fixed broadband networks (especially in urban areas). However, digitization of the economy is lagging behind, more than one-fifth of Romanians have never used the Internet, and fewer than a third have basic digital skills.

As regards the Human capital dimension, Romania ranks 27th among EU countries, well below the EU average.

Only 29 % of people aged between 16 and 74 have basic digital skills (57 % in the EU as a whole), and 10 % have advanced digital skills (against an EU average of 31 %).

Despite the increase in the percentage of ICT specialists from last year, they represent a lower proportion of the workforce by comparison with the EU as a whole (2.1 % against an EU average of 3.7 %).

When it comes to ICT graduates, Romania is performing well, as the country ranks 6th among the EU Member States, with 4.9 % of all graduates.

As regards female ICT specialists, Romania ranks 16th, as they represent 1.3 % of Romanian women in employment, which is just slightly below the EU average of 1.4 %. Romania has the third-highest share of

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<sup>2</sup> DESI covers 5G readiness, Above basic digital skills, At least basic software skills, Female ICT specialists, ICT graduates, People who never used the Internet, Professional social networks, Doing an online course, Online consultations and voting, Individuals selling online, Big data, Medical data exchange, and e-Prescriptions.

women among all ICT specialists (25.7 % in 2017, against an EU average of 17.2 %). Romania ranks 11th in terms of the gender pay gap, with a 16 % difference in pay.

Given that the number of ICT places at universities is limited and there is a lack of ICT graduates, there are several private companies investing in digital skills, offering IT specialization programmes. Several Romanian universities have started offering online courses (MOOC). The tax exemption provided for IT professionals in the country helps fill the high number of IT vacancies.

#### **4.2 Women in Digital Scoreboard, Romania, 2019. Key figures.**

Concerning gender balance, according to Women in Digital Scoreboard 2019, Romania is ranked 27 and scored 34.6 (EU: 50.0). Considering the use of the Internet and Internet users' skills, Romania is ranked 26, scored 34,7 (EU: 53,1), respectively, is ranked 28 and scored 24,5 (EU: 53,1). However, the situation is different when referring to Specialist skills and employment, where is ranked 13, scored 44,6 (EU: 43.9).

#### **4.3. Public policies concerning digital skills and skills for innovation in Romania**

A review of the main public policy initiatives in the field of digital skills and innovation has revealed the existence of a series of important national documents, initiatives, and platforms with relevant directions that could open the way towards digital skills advancement in Romania and a possible balance of the above gaps. We provide below a brief description of the most important ones:

- ***National Strategy on the Digital Agenda for Romania for 2020***

Romania adopted its National Strategy on the Digital Agenda for Romania for 2020 (SNADR) in February 2015. The SNADR is the steering document for all digital matters, including digital skills. The strategy focuses on providing ICT infrastructure in schools; developing pupils' and teachers' digital skills; using ICT in the learning process and in lifelong learning; updating the ICT skills of public administration staff, and ensuring e-inclusion by developing digital skills and e-skills.

- ***National Coalition for Digital Skills and Jobs***

Romania has a National Coalition for Digital Skills and Jobs - Skills4IT<sup>3</sup>. The Romanian National Coalition (Skills4IT) is an open platform that includes a variety of stakeholders: policymakers, ICT companies, associations, training providers, and NGOs involved in the digital transformation. The Coordinator is APDETIC - Association of Producers and Dealers of ICT equipment. The main partners are the Ministry of Communications and Information Society, Ministry of National Education, Union of IT teachers of Romania Informal School for IT, Association of Librarians, and Public Libraries (ANBPR), HP Inc. Romania, Maguay IBM, and Junior Achievement.

Activities are focusing on rolling out coding and IT classes in schools, organizing cybersecurity courses, and educational events. The coalition also provides training to upgrade the digital skills of the labour force. Romania actively participated in EU Code Week in 2018, a grassroots movement to encourage people of all ages to code. There were 458 activities organised around the country, with an estimated number of 25,400 participants.

- ***'Wireless Campus' - an integrated national platform***

In 2018, the Romanian Government launched the project entitled 'Wireless Campus' - an integrated national platform that provides wireless Internet in 4,500 state-run schools. The project's objective was to create an integrated national campus platform that will provide, with priority in middle schools, the service of wireless access to interconnected open data networks, including the Internet. The results provided by the project implementation are 4500 schools that will benefit from wireless equipment, one wireless campus platform installed, 54 persons trained for the administration and use of the infrastructure. The project was co-financed by the European Regional Development Fund through the Competitiveness Operational Program

<sup>3</sup> More information available at <http://coalitiait.ro/>

2014-2020, Priority Axis 2 "Information and Communication Technology (ICT) for a competitive digital economy".

- ***The National Strategy for Research Development and Innovation (2014-2020)***

The strategy states the fact that Romania spends almost 20 times less than the European average on research and development and establishes as the objective for 2020, transforming Romania competitive at the regional and global levels through innovation fed by research and development, generating wealth for citizens. For the formal education system, the strategy is targeting education in science and technology and communication of science. This strategy is also highlighted on the EACEA website, National Policies, Skills for Innovation.

The strategy supports measures to attract young people to science, in formal education and beyond, through measures such as attracting talented young people to the research career by organizing competitions with prizes for innovative solutions, establishing a Science City in the proximity of an innovation cluster or major infrastructure, organizing tours, exhibitions, open days, to promote science to the public, and promoting interest in science and innovation in pre-university education. (EACEA, 2020)

#### **4.4 Examples of private sector initiatives enhancing youth digital skills**

Beyond the above public policy initiatives, a series of private-sector initiatives enhancing youth digital skills worth to be analyzed. They have the merit to have responded fast and directly to the challenge of the digital skills gap. We describe shortly some of them, which we consider being of high relevance:

- ***Google initiatives***

Google launched The Digital Workshop to help people develop their digital skills so they could advance in their careers or find a job. After this first initiative, Google is expanding the program to target software developers and will also set up a start-up incubator.

The Digital Workshop for Programmers was launched in collaboration with The University of Bucharest and universities from Cluj-Napoca and Timisoara. It was a premiere for a humanities-focused university to host and develop such a program, but as Mircea Dumitru, the Rector of the University of Bucharest, said: "today's digital technologies are not just about mathematics, but also about humanities." (quoted from Drăgan A., 2018).

Currently, in October 2020, Google is launching "Advancing AI", an acceleration program for local start-ups looking to build artificial intelligence products and scale their businesses.

- ***The Skill IT for Youth – Integrating Digital and Future Skills into Youth Work project.***

This project aims to increase youth work quality, combining higher levels of excellence and attractiveness in services, obtained through the digitalization of youth work, with increased opportunities for young people. Through this Erasmus + project, implemented in Romania by Danis Foundation, the partners' main goal was to equip youth workers with the digital knowledge, skills, and confidence to enhance young people's futures in the 21st century. In The Skill IT Romania National Report prepared by the Foundation Danis team, some important remarks about NGOs' role in developing digital skills in young people are outlined and analyzed. The report revealed that NGOs could intervene in teaching the professors new methods and tools for developing the right digital skills of young people, and they might also contribute with ICT equipment for schools by bringing in sponsorships from technology companies. NGOs can play mediators' roles among families, schools, and youth people and can validate or refine the skills that young people acquire elsewhere. Providing training for those who need improvement of digital skills (teachers, youth) looks like a contribution favored by many senior managers. According to the report, there are few programs and services that are intentionally developed for the purpose of enhancing digital skills among young people. Nonetheless, youth workers are aware of their role in digitizing the future generation and seem to be open to the idea of sketching and delivering in the future more programs and services aiming to develop young people's digital skills.

- ***JA Romania: Digital and Entrepreneurial Skills for Girls***

The Digital and Entrepreneurial Skills for Girls project aims to increase the number of young women interested in professions in fields dedicated to innovation and technology. During 2019, Junior Achievement, together with partner companies, organizes four such sessions dedicated to high school students. The program is supported by the European Institute of Innovation & Technology (EIT) and takes place in Bulgaria, Greece, Lithuania, Serbia, and Romania.

## 5. Conclusions

Romania still has a high percentage of young unemployed people, when compared with the national unemployment rate. At the same time, as we have already pointed, according to Digital Economy and Society Index (2019), Romania ranks 27th out of the 28 EU Member States in the European Union, and only 29 % of people aged between 16 and 74 have basic digital skills (57 % in the EU as a whole), and 10% have advanced digital skills (against an EU average of 31 %). This digital skills gaps are obviously correlated with the phenomenon of high youth unemployment.

As it is stated in a recent Europuls - Centre of European Expertise Policy Brief (2019), in this period of technological change and development, the education systems need to adapt and find innovative means to train the next generation of workers effectively. Some important points to address are outlined in this policy brief, that we also think they could solve the above imbalances. We quote from them:

- ✓ “While efforts are being deployed through the use of European funds and a national strategy that focuses on ICT in education and training, more sustained policies and actions are required.
- ✓ Very early in school, the curriculum should incorporate digital literacy, ICT and programming skills, and targeted extra-curricular activities, while teachers should be supported to adapt and retrain for this new curriculum.
- ✓ Romania should embark on an ambitious and committed journey of upskilling and reskilling its workforce, and the private sector should also contribute by actively driving this training.
- ✓ For a sustainable impact, the Romanian National Coalition for digital jobs should be endorsed at the highest political level, be supported to scale up and spread to other ICT-using industries.
- ✓ It is crucial that actors from both the private and public sector, civil society, NGOs, think-tanks, and academia focus on the imperative common goal of decreasing Romania's digital skills' deficit and retaining the ICT specialists who leave the country to work abroad”. (Europuls, 2019)

Youth unemployment is not a phenomenon specific only to Romania. Recent developments in the labour market, at the global scale and inside EU, reveal an ugly truth: youth unemployment is one of the most significant societal challenges of the twenty-first century. According to the most recent Eurostat data, in August 2020, 3.032 million young persons (under 25) were unemployed in the EU, of whom 2.460 million were in the euro area. Recently, EU Youth Strategy 2019-2027 has been introduced with 11 European Youth Goals, among them quality employment set as one of the objectives. Therefore, it is the time that every EU country, Romania as well, to make considerable efforts to achieve these goals. Young human capital needs to be "nourished", protected by appropriate policies, and empowered with skills and competencies that are matching the labor market requirements. Digital skills are, without a doubt, among the skills of the future.

On the other hand, young people need support in their efforts to look for employment, but the role of schools, universities ends at graduation. What happens next? It is the question that needs answers coming from various actors such as public authorities, employers, youth organizations, training providers, etc. In Romania, one in five young people is not in employment, not in education, or other training programs (NEET), which means that it is a waste of labor force that is not contributing to the country's GDP growth. Therefore, we believe that interventions to improve access to youth at the labor market are becoming imperative in order to reduce youth unemployment.

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