Partner Report Template

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1. The Changing Labour Market

1.1 Drawing on recent developments and technological changes to the world of work, can you describe the impact (or potential impact) of these changes?

Note:

In this section we would like to know the impact of the changing labour market in terms of automation, digitalision and future opportunities, in your Country and at an EU Level.

1. Which areas of the labour market are showing the most significant changes in your Country and at EU level?

2. What predictions are being made on the impact of digitisation/automation?

3. Which industries are considered high risk (of loss) and how might this impact low skilled workers?

4. Are there any significant areas of growth in the labour market? Which areas?

5. Will there be significant disruption in terms of the job roles and tasks performed by individuals? If so, what are they?

According to data provided by the National Institute of Statistics, Romania has a resident population of 19.52 million inhabitants. According to the Labour Ledger as at 1 January 2018, the active civilian population amounted to 8 717 900 persons, representing 44.7% of the resident population. Out of the total active population, 54.7% were men and 45.3% were women. The employed civilian population amounted to 8 366 800 people, of whom 5 362 300were salaried employees. Most of the employees were working in the services sector (3 333 500 people), while 1 900 200 persons were employed in the industrial and construction sectors. The number of employees in agriculture, forestry and fisheries was 128 600. In 2018, the employment rate of the working age population (15-64 years old) was 64.8%, with a higher rate for men (73.2%, compared to 56.2% for women). [Labour market information, https://ec.europa.eu/eures/main.jsp?catId=9545&countryId=RO&acro=lmi&lang=en&regionId=RO0&nuts2Code=%20&nuts3Code=&regionName=National%20Level]

The labour market situation in Romania has improved in recent years because of a continuous economic growth. In 2017, the employment rate for people aged 20-64 years reached 68.8 % (compared to 64.4 % in 2007), close to the national EU 2020 target of 70 %. However, it remains under the EU average (72.2 %) and under the level of other countries that had lower levels of employment than Romania in 2007 (i.e. Hungary, Poland and Malta) [EUROSTAT, consulted in July 2018, http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsi_emp_a&lang=eng].

Employment has increased in all regions between 2008 and 2016, with the exception of South-West Oltenia and South-Muntenia [INSSE, consulted in July 2018, http://statistici.insse.ro/shop/index.jsp?page=tempo2&lang=ro&context=15]. Despite this, the regional employment structure barely changed between 2008 and 2016: Bucharest-Ilfov drives employment, followed by the West and North-West regions, while the North-East continues to register the worst performance. This is due to the regional growth disparities in Romania, detailed in the previous section.

The distribution of employment by age groups and sex is unbalanced. In 2017, employment levels were particularly high for people aged 35-49, while they were lower for youth between 15 and 24 years and people over 60. In the period between 2007 and 2017, Romania has not made any progress in ensuring access to employment for young people. While the level of employment for people aged 35-49 has increased, that of people aged 15-24 has decreased. Some progress has been made in increasing the employment rates of people aged 55-64 years old [INSSE, consulted in July 2018, http://statistici.insse.ro/shop/index.jsp?page=tempo2&lang=ro&context=15].

The continuous decrease in population between 2008 and 2017 (-5 %), in particular of young people (-29 %), coupled with the ageing of the potential work force, the strong increase in migration (+162 %), in particular of people of working age, and the unused labor potential of women, young people represent a serious problem for labor supply.

Added to this there is a mismatch between education and the labour market. In fact, tertiary education is still significantly below the EU average. Furthermore, adult learning remains particularly low (1.2 % in 2016) compared to the EU average (10.8 %), despite the need for upskilling, and the market relevance of vocational training is insufficient [European Commission (2018) Commission staff working document, Country Report Romania 2018.

2018 European Semester: Assessment of progress on structural reforms, prevention and correction of macroeconomic imbalances, and results of in-depth reviews under Regulation (EU) No 1176/2011: https://ec.europa.eu/info/sites/info/files/2018-european-semester-country-report-romania-en.pdf.].

In addition, in 2016 24 % of the people enrolled in tertiary education studied business and law, while only 7 % studied ICT. Some studies point out that in ICT and STEM the number of qualified

graduates is insufficient to meet the demand for labour [Cristina Vasilescu in ESPON (2017), The geography of new employment dynamics in Europe – Annex to Chapter 6, Case study North East (RO): https://www.espon.eu/employment .], which has led to universities in border regions implementing specific campaigns to attract foreign students (in particular Moldovan and Ukrainian).

According to CEDEFOP, professionals in the following areas are missing on the labour market: ICT, health, education, sales, marketing and public relations, finance and legal, specialist services, forestry and administration services, while there is a surplus of supply for agricultural workers, client information workers, clerks, trade managers, street vendors, housekeeping and building supervisors [World Bank, (2017), Saber country report: http://documents.worldbank.org/curated/en/353271513777522586/SABER-workforce-development-country-report-Romania-2017].

The shortage in skills has increased competition between businesses for the most skilled, resulting in an increase in wages, especially in some knowledge sectors (e.g., ICT). This, coupled with the low levels of productivity, poses a real threat to the competitiveness and economic growth registered by Romania in recent years European Commission, (2018), Commission staff working document, Country Report Romania, 2018 [2018 European Semester: Assessment of progress on structural reforms, prevention and correction of macroeconomic imbalances, and results of in-depth reviews under Regulation (EU) No 1176/2011, https://ec.europa.eu/info/sites/info/files/2018-european-semester-country-report-romania-en.pdf ; Cristina Vasilescu in ESPON (2017), The geography of new employment dynamics in Europe – Annex to Chapter 6, Case study North East (RO), https://www.espon.eu/employment].

Over the next ten years, the digital transformation generated by new technologies will affect 600,000 jobs in Romania, according to PwC's Workforce Disruption Index. According to the report, 325,000 new jobs will be created over the next decade, while another 275,000 workers will need to improve their digital skills, as automation and the introduction of artificial intelligence will gradually eliminate repetitive activities. The most important observation is that the improvement of employees' digital skills becomes vital. At the same time the partnerships with government institutions need to be encouraged in order to look for areas of common interest such as infrastructure, education or health, where investments may stimulate the adoption of new technologies. In the absence of investments, new jobs cannot be created in key sectors. Moreover, in the case of economies vulnerable to automation and changing business models, some jobs are at a higher risk.

How digital automation will affect the labour market Romania:

- 600,000 jobs will be impacted by the new technologies in Romania. To maintain or create jobs, an innovation and digitization strategy has to be introduced.

- Innovation and digitization will contribute to streamlining processes, but they also require the implementation of strategies to improve workers' digital skills.

- The 600,000 jobs could contribute to an increase of local Gross Domestic Product (GDP) up to USD 66 billion by 2029.

- In manufacturing, agriculture and utilities, jobs are most likely to be replaced as these sectors do not currently use technology and automation. These sectors will need to improve the digital skills of employees.

- New technologies will generate new jobs, especially in the areas of health, education or financial services.

The most influenced firms by digitalization are 80% in IT and 80% in media and advertising, followed by 75% in financial /banking services. The least influenced industries by digitalization in Romania are construction / real estate, food / agriculture and transport.

If most of the utilities / energy companies are confident in digitalization but do not have the knowledge to tap this trend, whilst most transport companies (50%) are confident and say they know how to do this. [https://valoria.ro/blog/the-most-affected-industries-by-digitalization-in-romania/]

Impact of digitalization on business growth in Romania:

- The industries that expect more than 30% increase of the profit margin over the next 3 years are the following: media and advertising, IT, other services (except financial-banking). It is noteworthy that telecom companies (25%) said that digitization would lead to a decrease in their profit margin by -1% to -5% in the next years.

- The industries that expect more than 30% growth in turnover over the next 3 years are the following: research and development, media and advertising, other services. On the other hand, we notice that 25% of media and advertising companies expect a -5% to -10% decrease in turnover over the next 3 years. Also, 20% of construction / real estate companies forecast a decrease in turnover between -10% and -20%.

- There are industries that expect an increase in the number of employees because of digitalization and industries expecting a fall of this indicator. However, the industries expecting a 30% fall in the number of employees over the next 3 years are IT and trade.

- The industries that expect more than 30% increase of the company's value because of digitalization are the following: research and development, media and advertising, and IT. The most pessimistic answers came from services other than financial-banking, because 25% of them expect a decrease in the company's value between -5% and -10% due to digitalization.

[http://business-review.eu/tech/digital-transformation-to-affect-600000-jobs-in-romania-over-the-next-decade-pwc-report-says-202815]

By 2021, the Romanian labor market will need more than 1 million employees to support economic growth, according to Adela Jansen, Coalition for Romania's Development (CDR) coordinator.

The Labor Force Barometer study, conducted by PwC Romania for CDR, shows that Romania is among the top European countries in terms of the percentage of working-age population out of the labor market, with over 34 percent being exceeded only by Italy and Croatia. Beyond retirees and people in various forms of education, there are over 1 million active people who are not officially involved in any kind of economic activity and the number of unemployed is about 400,000.

By 2022, augmentation of existing jobs through technology may free up workers from the majority of data processing and information search tasks—and may also increasingly support them in high-value tasks such as reasoning and decision-making as augmentation becomes increasingly common over the coming years as a way to supplement and complement human labour. [The Future of Job Report - http://www3.weforum.org/docs/WEF_Future_of_Jobs_2018.pdf].

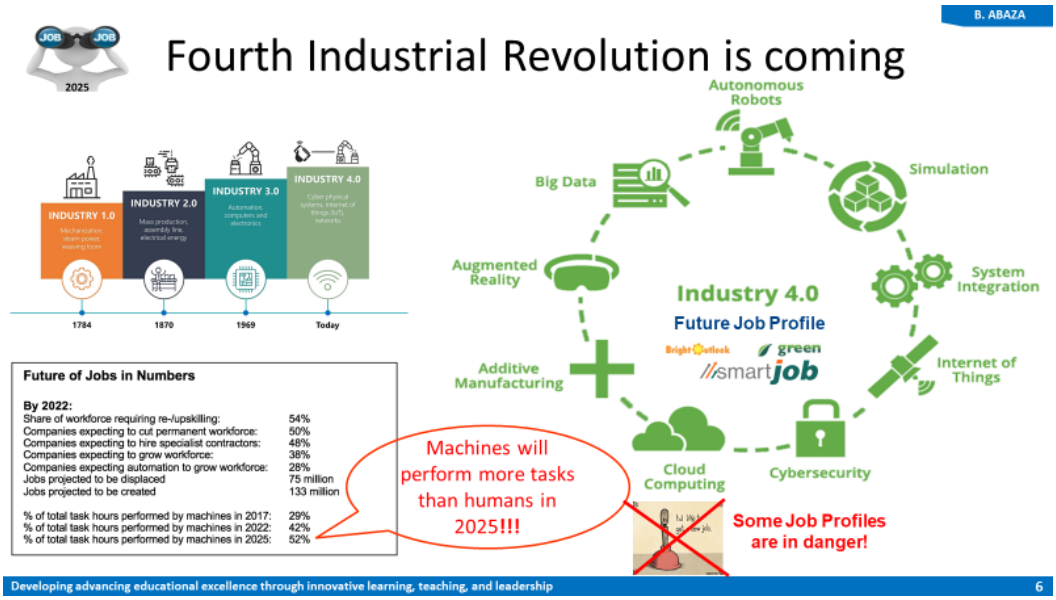
1.2 Drawing on Country and EU research, can you describe what skills will be most needed in the future world of work?

Note:

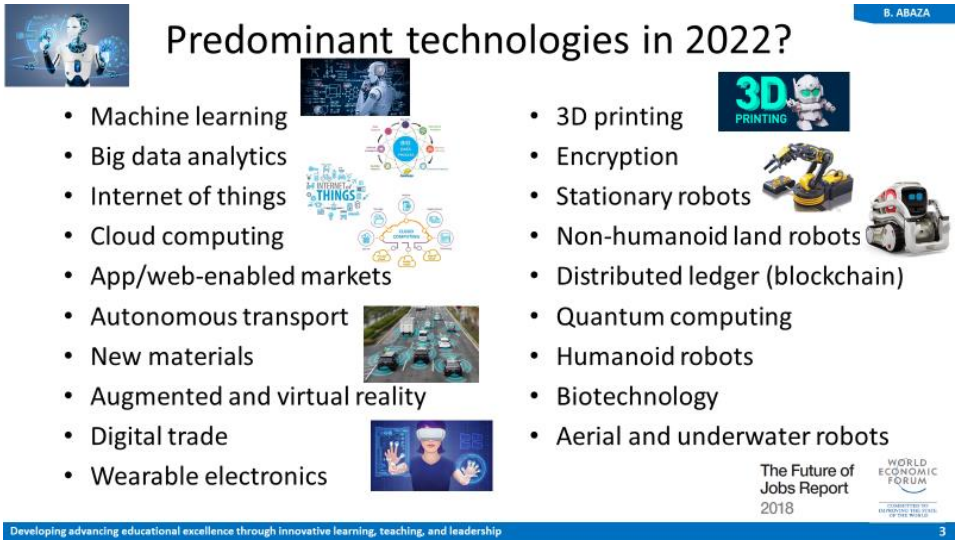
1. Having identified where job losses are likely to happen, what skills/upskilling will be most needed?

2. What steps are being taken in your Country to address the challenges and skills gap, particularly for low skilled workers and those of low educational attainment and disabilities? *(National and Local initiatives, training etc..)*

3. What recommendations are being made for low skilled workers, in the future labour market in your Country and/or at EU level?



As the Fourth Industrial Revolution unfolds, companies are seeking to harness new and emerging technologies to reach higher levels of efficiency of production and consumption, expand into new markets, and compete on new products for a global consumer base composed increasingly of digital natives. More and more, employers are therefore also seeking workers with new skills from further afield to retain a competitive edge for their enterprises and expand their workforce productivity. Some workers are experiencing rapidly expanding opportunities in a variety of new and emerging job roles, while others are experiencing a rapidly declining outlook in a range of job roles traditionally considered 'safe bets' and gateways to a lifetime career.



Emerging job roles for Eastern Europe in 2022

- Software and Applications Developers and Analysts
- Managing Directors and Chief Executives
- Sales and Marketing Professionals
- Data Analysts and Scientists
- General and Operations Managers
- Sales Representatives, Wholesale and Manufacturing,
- Technical and Scientific Products
- Human Resources Specialists
- Financial Analysts
- Assembly and Factory Workers
- Information Security Analysts

Steps taken in Romania to address the challenges and skills gap, particularly for low skilled workers and those of low educational attainment and disabilities

In 2015 Romanian Government approved, by Decision, the National Strategy for the Digital Agenda for Romania - 2020. The document takes over and adapts to the situation of our country, the elements of the Digital Agenda for Europe, one of the seven flagship initiatives of the Europe Strategy 2020.

National Strategy for the Digital Agenda sets out four areas of action as follows:

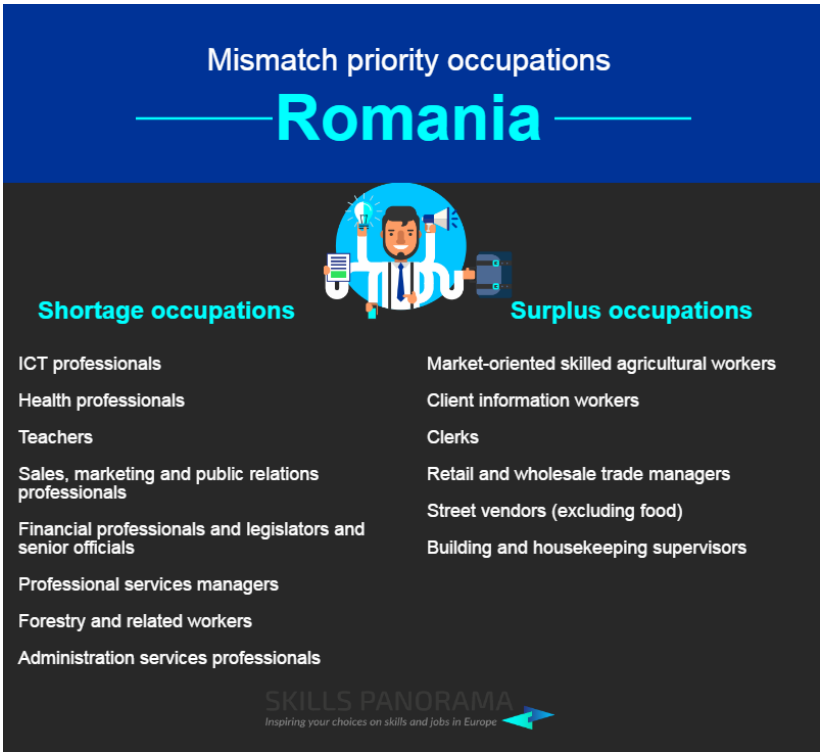
1. e-Government, Interoperability, Cyber Security, Cloud Computing and Social Media - field which aims to increase efficiency and reduce costs in the public sector in Romania by modernizing the administration;

2. ICT in education, culture and health - field which aims to support these technologies at the sectoral level;

3. ICT in e-commerce, and research, development and innovation in ICT - area aimed at regional comparative advantages of Romania, and backs growth in the private sector;

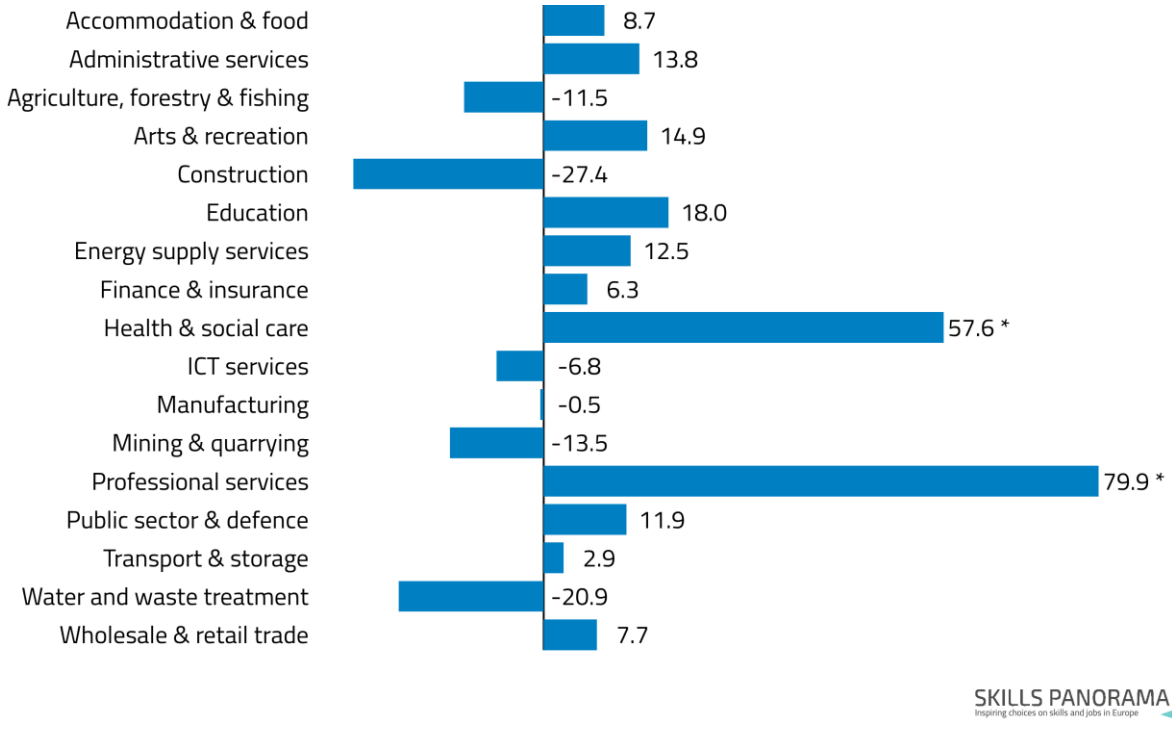
4. Broadband and digital infrastructure services - aimed at ensuring social inclusion field.

[https://www.gov.ro/en/government/cabinet-meeting/national-strategy-on-the-digital-agenda-for-romania-2020]

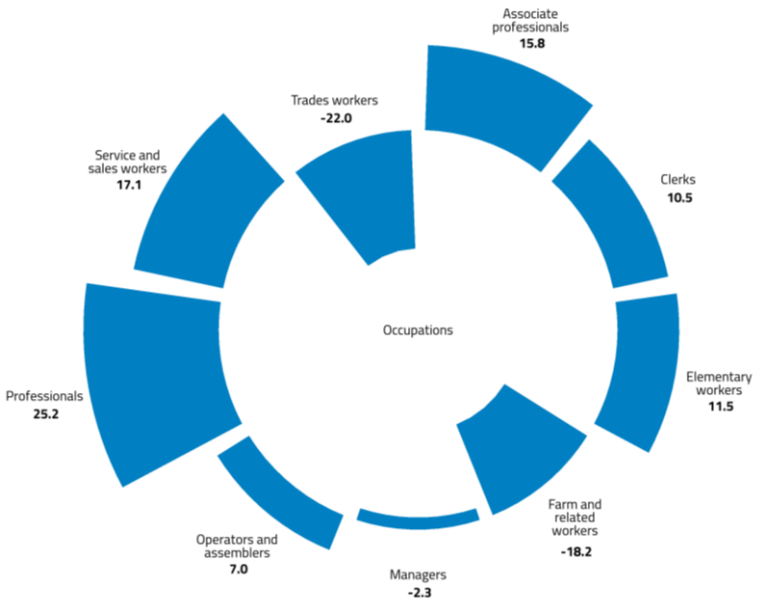


[https://skillspanorama.cedefop.europa.eu/en/analytical_highlights/romania-mismatch-priority-occupations]

Future employment growth (in %) in Romania in 2018-2030 across sectors



Future employment growth mean in Romania over the period 2018-2030 is estimated at 5. Professionals exhibit the highest value equal to 25.2, while Trades workers the lowest equal to -22.



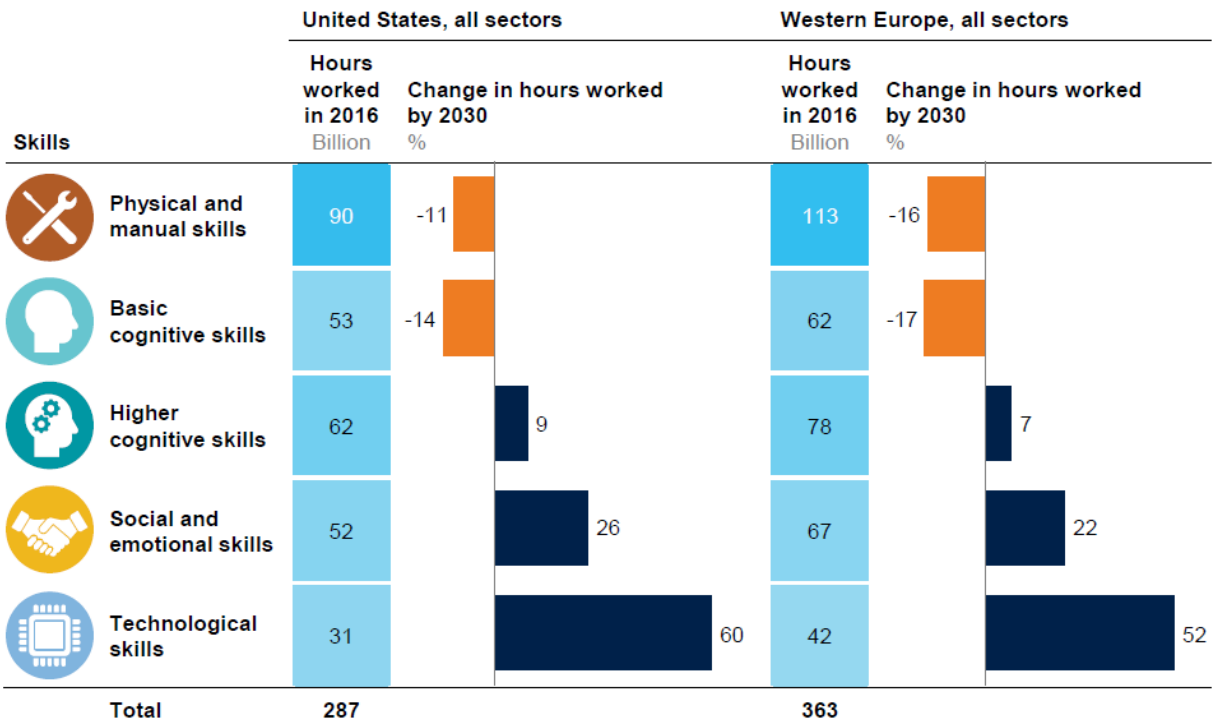
[https://skillspanorama.cedefop.europa.eu/en/countries/romania]

Emerging skills in 2022 for Eastern Europe:

- Creativity, originality and initiative
- Analytical thinking and innovation
- Active learning and learning strategies
- Technology design and programming
- Emotional intelligence
- Critical thinking and analysis
- Leadership and social influence
- Complex problem-solving
- Systems analysis and evaluation
- Reasoning, problem-solving and ideation

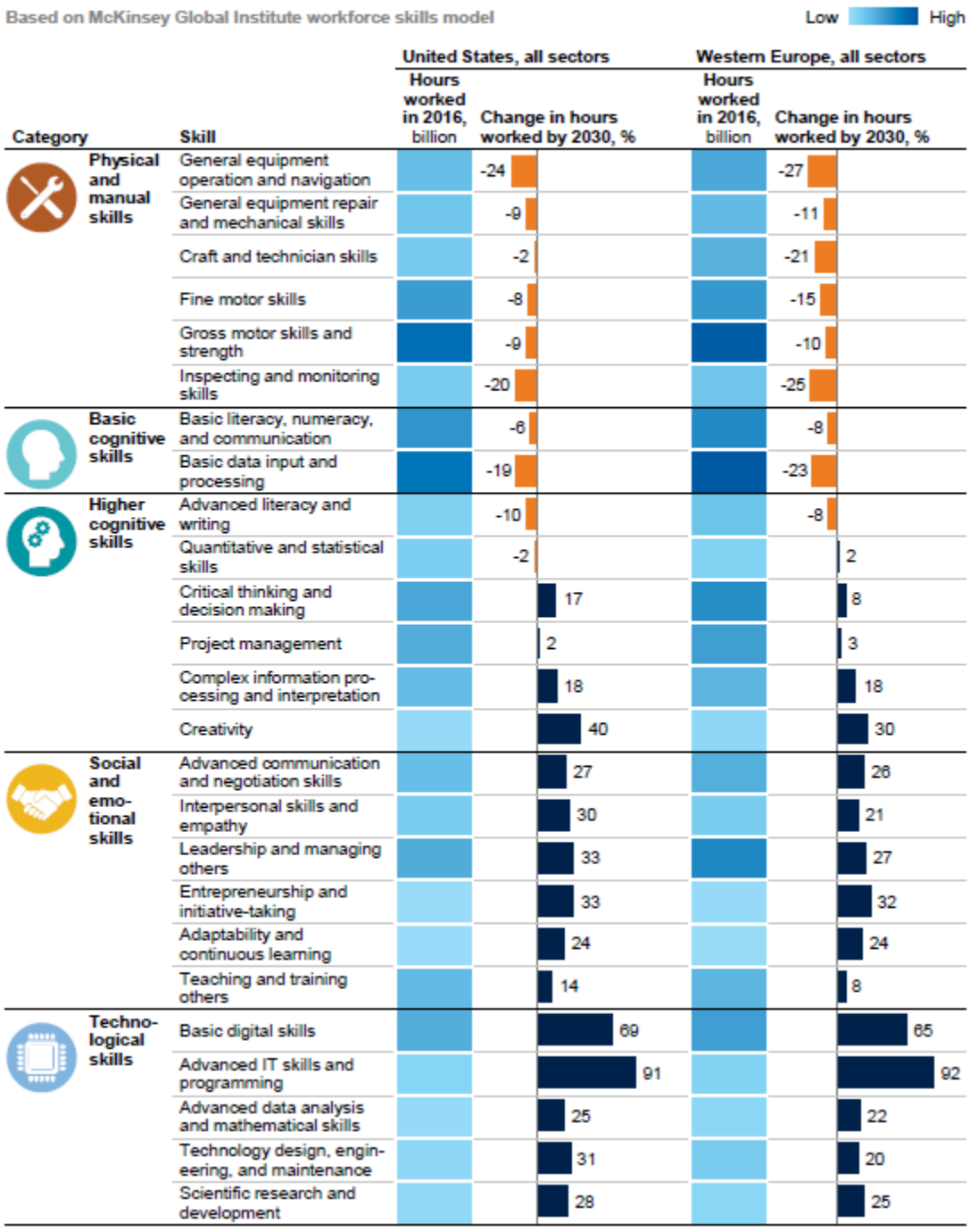
[The Future of Job Report - http://www3.weforum.org/docs/WEF_Future_of_Jobs_2018.pdf].

Automation will accelerate the shift in required workforce skills we have seen over the past 15 years. McKinsey Global Institute research finds that the strongest growth in demand will be for technological skills, the smallest category today, which will rise by 55 percent and by 2030 will represent 17 percent of hours worked, up from 11 percent in 2016. This surge will affect demand for basic digital skills as well as advanced technological skills such as programming. Demand for social and emotional skills such as leadership and managing others will rise by 24 percent, to 22 percent of hours worked. Demand for higher cognitive skills will grow moderately overall, but will rise sharply for some of these skills, especially creativity.



SOURCE: McKinsey Global Institute workforce skills model; McKinsey Global Institute analysis

Social and emotional skills will grow rapidly, along with technological skills and some advanced cognitive skills, while basic cognitive and manual skills will decline.



[SKILL SHIFT AUTOMATION AND THE FUTURE OF THE WORKFORCE, McKinsey Global Institute, MAY 2018]

2. Theoretical Approach

2.1 Identify and explore relevant theories and research evidence which can be used to inform project and tool development

Note:

Review of formal and non-formal Learning

1. Please provide an up to date definition of formal and non-formal learning

2. What are the characteristics of formal and non-formal learning?

3. Are you aware of any methods and/or tools for testing/validating formal and non formal learning, if so, what are they? Why do you like them? How do they relate to FYC client group?

Learning is the process of acquiring new, or modifying existing, knowledge, behaviors, skills, values, or preferences. [Richard Gross, Psychology: The Science of Mind and Behaviour 6E, Hachette UK, ISBN 978-1-4441-6436-7.]

Formal learning is education normally delivered by trained teachers in a systematic intentional way within a school, higher education or university. [https://en.wikipedia.org/wiki/Formal_learning]

Formal learning is provided by education systems and follows a syllabus and is intentional in the sense that learning is the goal of all the activities learners engage in. Learning outcomes are measured by tests and other forms of assessment. [https://www.coe.int/en/web/lang-migrants/formal-non-formal-and-informal-learning]

Non-formal learning takes place outside formal learning environments but within some kind of organisational framework. It arises from the learner's conscious decision to master a particular activity, skill or area of knowledge and is thus the result of intentional effort. [https://www.coe.int/en/web/lang-migrants/formal-non-formal-and-informal-learning]

Informal learning takes place outside schools and colleges and arises from the learner's involvement in activities that are not undertaken with a learning purpose in mind. Informal learning is involuntary and an inescapable part of daily life; for that reason, it is sometimes called experiential learning. Learning that is formal or non-formal is partly intentional and partly incidental: when we consciously pursue any learning target we cannot help learning things that are not part of that target. [https://www.coe.int/en/web/lang-migrants/formal-non-formal-and-informal-learning]

Active Learning refers to understanding the implications of new information for both current and future problem-solving and decision-making. Active learning refers to a broad range of teaching strategies which engage students as active participants in their learning during class time with

their instructor. Typically, these strategies involve some amount of students working together during class, but may also involve individual work and/or reflection. These teaching approaches range from short, simple activities like journal writing, problem solving and paired discussions, to longer, involved activities or pedagogical frameworks like case studies, role plays, and structured team-based learning. [https://cei.umn.edu/active-learning]

European guidelines for validating non-formal and informal learning made by The European Centre for the Development of Vocational Training (Cedefop) in 2009 presents the conclusions of more than two years of intensive exchange of experiences - involving representatives from more than 20 European countries - in validating non-formal and informal learning.

In the *Cedefop analytical framework for developing upskilling pathways for adults*, the Skills assessment (also "skills audit" or "skill profiling") is a process in which an individual's learning outcomes are checked against specific reference points or standards. It is usually referred to as a "skills audit" or "skill profiling".

In the context of upskilling pathways, skills assessment is focused on the identification and documentation of skills, knowledge and competences that a person has acquired in any context (formal, non-formal and informal) and of any gaps in relation to their desired level of skills. Skills assessment will result in a statement of skills of an individual, which can be the basis for planning the next steps in training (Key areas: Tailored learning offer(s) leading to a formal qualification and/or with work-based learning) or for the validation and recognition of skills.

[https://www.cedefop.europa.eu/files/cedefop_af_upskilling_pathways_20-21.05.2019.pdf]

3. Identifying and Measuring Soft skills for the Future Labour Market

3.1 Review of theories which underpin INFORM and identifying and measuring soft skills

Note:

Thinking about the current theories which underpin the INFORM tool, please identify relavant and up to date research in these common areas.

*Explore and document the process of recognising worker oriented skills. For example: as identified in O*NET, worker characteristics, requirement and experience requirements. Soft, digital and cognitive skills recognition*

1. Reviewing the theories which underpin the INFORM tool, do you think that they are still relevant? If so, why? If not, please provide up to date literature and research. *(for example does 'hardiness', described as inner strength that allows people to overcome stressful events (Kobasa 1979), need to be replaced with a more current theory such as resilience?)*

2. Are there any relevant soft skills frameworks which you find useful and applicable to the target group? If so, why?

3. What existing tools and methods are present to identify, measure and/or recognise soft and cognitive skills (worker orientated skills) both nationally and in an EU context? (Technology, Initiatives, EU projects etc..)

Inform Project identified 9 relevant theories to guide the project development: Emotional Intelligence, Hardiness, Experiential Learning, Tacit Knowledge, Competency, Social Learning Theory, Positive Psychology, Feed Forward, Client Centred Therapy. Most of them are still solid in the further use of the actual project.
Reviewing the theories which underpin the INFORM tool we consider they are still relevant. The key element is the way how we adapt them for the actual context where both formal and informal environments are changing and the animations of the tool which depict everyday activities should be updated.

Inform tool contains three sides to the tool creation, the front-end of the tool (common everyday activities), what is seen when doing the assessment; the backend of the tool (task analysis of everyday activities), the hidden competence weighting; and the interview where the client is given the results combining the information from the front-end and back-end of the tool. The first component represented by animations which represents common everyday activities should be re-analyzed in order to be updated with current and future common everyday activities.

In most other cases soft skills are most often measured using survey questions that ask respondents to self-assess their personality characteristics.

Another prominent example is the Big 5 personality inventory, a rigorously developed psychological model that distills human personality into five factors — extraversion, conscientiousness, agreeableness, neuroticism, and openness to experience.19 Big 5 personality measures — especially conscientiousness — are strongly positively correlated with educational attainment, labor market earnings, and other important life outcomes. [J. Heckman and T. Kautz, "Hard Evidence on Soft Skills," NBER Working Paper No. 18121, June 2012, and Labour Economics, 19(4), 2012, pp. 451–64.]

Some recent research uses behavioral measures such as school absences or suspensions to measure soft skills. These studies argue that behavioral measures are better because they are more predictive and less context-dependent. However, Shelly Lundberg shows that using school suspensions as a behavioral measure of impulsivity is problematic, since suspensions are also determined by school context, racial discrimination, and other unknown factors. The deeper issue with using behaviors to measure soft skills is that sometimes behaviors are too predictive — they measure the underlying soft skill, but also many other things.

Researchers ought to stop relying on convenient, off-the-shelf measures of soft skills and start creating metrics that are theoretically sound and suitable for the task at hand. I am as guilty as anyone else when it comes to using poor measures of soft skills. Here, economists may be able to learn from psychologists, who have carefully developed measures that map cleanly to underlying constructs but mostly have not subjected these measures to rigorous testing in a variety of field settings.

One possibly useful measure of social intelligence is the Reading the Mind in the Eyes Test (RMET), a measure of emotion recognition or social sensitivity. The RMET was originally created to diagnose "theory of mind" deficits such as Asperger syndrome and high-functioning autism. However, much like IQ, psychologists have discovered that the RMET has predictive power for a wide variety of outcomes within a general population.

[The Value of Soft Skills in the Labor Market, https://data.nber.org/reporter/2017number4/deming.html]

Relevant skills assessment tools:

Tool name and link	Short description
123Test - https://www.123test.com/competency-test/	Free IQ tests, career tests, and personality tests
Kandio - https://kand.io/	Assessment tests made from the best experts across a range of technologies.
eSkill - https://www.eskill.com/	eSkill is an online skills assessment solution which helps organizations deploy the most accurate, valid tests for pre-employment and skills gap assessments.
Owiwi - https://www.owiwi.co.uk/product/	Owiwi uses gamification to enhance the recruitment experience, turning it into a skill-revealing journey of self-knowledge.
Mercer Mettl - https://mettl.com/en/	Mercer Mettl is an online talent assessments platform which can help you measure your candidates' skills, personality and ability. You can choose from their test library of different psychometric, cognitive and technical test or get custom test built for your specific needs

4. Summary of Desk Research

Note:

Please summarize your desk research here, making reference and connections to automation in the workplace and the changes required to the previous INFORM tool

In Romania there is a mismatch between education and the labour market. In fact, tertiary education is still significantly below the EU average. Furthermore, adult learning remains particularly low (1.2 % in 2016) compared to the EU average (10.8 %), despite the need for

upskilling, and the market relevance of vocational training is insufficient [European Commission (2018) Commission staff working document, Country Report Romania 2018.]

Over the next ten years, the digital transformation generated by new technologies will affect 600,000 jobs in Romania, according to PwC's Workforce Disruption Index. According to the report, 325,000 new jobs will be created over the next decade, while another 275,000 workers will need to improve their digital skills, as automation and the introduction of artificial intelligence will gradually eliminate repetitive activities.

For Eastern Europe the emerging skills in 2020 will be the following combination of interpersonal and cognitive skills are in 2022:

- Creativity, originality and initiative
- Analytical thinking and innovation
- Active learning and learning strategies
- Technology design and programming
- Emotional intelligence
- Critical thinking and analysis
- Leadership and social influence
- Complex problem-solving
- Systems analysis and evaluation
- Reasoning, problem-solving and ideation

[The Future of Job Report - http://www3.weforum.org/docs/WEF_Future_of_Jobs_2018.pdf].

McKinsey Global Institute research finds that the strongest growth in demand will be for technological skills, the smallest category today, which will rise by 55 percent and by 2030 will represent 17 percent of hours worked, up from 11 percent in 2016. This surge will affect demand for basic digital skills as well as advanced technological skills such as programming. Demand for social and emotional skills such as leadership and managing others will rise by 24 percent, to 22 percent of hours worked. Demand for higher cognitive skills will grow moderately overall, but will rise sharply for some of these skills, especially creativity.

The importance of 21st century skills have an even stronger emphasis on cognitive competencies and learning strategies. System skills – Judgment and Decision-making, Systems Analysis and Systems Evaluation – feature prominently.

The need for social and emotional skills including initiative taking and leadership will also rise sharply, and among higher cognitive skills, creativity and complex information and problem solving will also become significantly more important. In a more automated future, when machines are capable of taking on many more rote tasks, these skills will become increasingly important — precisely because machines are still far from able to provide expertise and coaching or manage complex relationships.

The skill shift is not only a challenge, it is an opportunity and retraining (or "reskilling") become the imperative of the coming decade. The jobs of the future will be more skill-intensive.

The development of the sort of soft skills likely to be in most demand in the future, complex reasoning, critical thinking, creativity and socio-emotional intelligence, are all best absorbed through hands-on experience rather than being learned by reading or listening.

Social, emotional, and technological skills are becoming more crucial as intelligent machines take over more physical, repetitive, and basic cognitive tasks.

Inform Project identified 9 relevant theories to guide the project development: Emotional Intelligence, Hardiness, Experiential Learning, Tacit Knowledge, Competency, Social Learning Theory, Positive Psychology, Feed Forward, Client Centred Therapy. Most of them are still solid in the further use of the actual project.

Reviewing the theories which underpin the INFORM tool we consider they are still relevant. The key element is the way how we adapt them for the actual context where both formal and informal environments are changing.

There are some other online tools which try to measure or to assess competencies. Most of them are based on survey questions that ask respondents to self-assess their personality characteristics.

The design model of the online INFORM tool can be preserved and improved because it can be used in a positive style in order to help the client to become aware of their hidden skills and tacit abilities gained from everyday activities. The tool identifies for the client the skills they have developed through their day-to-day activities that they possibly are not aware of.

Inform tool contains three sides to the tool creation, the front-end of the tool (common everyday activities), what is seen when doing the assessment; the backend of the tool (task analysis of everyday activities), the hidden competence weighting; and the interview where the client is given the results combining the information from the front-end and back-end of the tool. The first component represented by animations which represents common everyday activities should be re-analyzed in order to be updated with current and future common everyday activities. Because the strongest growth in demand will be for technological skills and social and emotional skills the process of identifying the common everyday activities related to those skills will play an important role in updating the investigation tool of the Inform model.

This investigation approach of the Inform tool based on animations which represents common everyday activities represents an important competitive advantage because it can give a better accuracy of the skills measurement.

5. Qualitative inquiry in the partner countries

5.1 Please summarise how you implemented the interviews and focus groups and give us feedback of the people involved.

Note:

Please describe the methods you used to gather the information (e.g. interviews or focus groups with guidance provider, employers and clients)

Please describe the range and types of interviewees/focus groups that you targeted (and how and why you made these choices). State how many you interviewed, the timeframe in which you operated and the method(s) that you interviewed (e.g. telephone, face-to-face, skype, a mix) and how many of each etc.

Please distinguish between guidance practitioners, employers and clients

Please then go on to describe the characteristics of your groups; how and where you organised them, how you recruited; the characteristics of the attendees and summarize the approach you took with them in terms of your facilitation and recording of the events.

The method used to gather the information was the interviews with guidance provider and employers.

The range and types of interviewees/focus groups targeted was influenced by the context. In order to identify guidance practitioners, we used expertise of our personnel from University POLITEHNICA of Bucharest where there is a department of Career Counseling and Guidance Center with guidance practitioners. Tree of them where interviewed face-to-face.

For identifying relevant employers, we succeed to have an interview with a representant of Renault Technologie Roumanie which is the most important Engineering Center from Eastern Europe with more than 2500 employees most of them are Romanian engineers graduated from our university. This is a very important employer from Romanian labor market with pertinent views about changing world of work.

Initially it was a telephone discussion which each person when the context about the project was exposed. After that an email with additional information about the project was sent to each person for preparing the interview discussion. Each interview took about 20-30min and it was face-to-face.

6. The Changing World of Work, Stakeholder Experiences

6.1 Please describe your stakeholder experiences of automation in the workplace. Include Practitioner, Employer and Service User Feedback (Capturing any useful text/literature/initiatives)

Note:

What changes are your stakeholders experiencing? What concerns do they have? How are they currently addressing these concerns?

The stakeholders from Automotive sector identified that most significant changes are:

1. Digitalisation
2. Requirements for full & continuous online learning
3. Multi – tasking is a must
4. Multi – foreign language is a must
5. Continuous improvement for procedures, performance or economy savings are considered normal targets

The Automotive sector have been impacted by technological advancement in some specific directions like:

1. Battery electrified vehicles
    a. Requirements: the need for new skills (design, testing, client necessities)
    b. Changes: industry considered high risk
2. Autonomous driving & Safety
    a. The need for new skills – developing new apps, Augmented reality, CAR 2x communication, User Xperience skills are considered a plus

Due to digitalisation/technological changes stakeholders indicate some areas of growth: fast & Digital learning, social skills, IT developing skills, Augmented reality, practicality

The stakeholders from the Automotive Industry indicates that besides the technical basement needed for each sector, the main required skills are:

- Important: Team player, Social Skills, User Experience, Analysis oriented
- Vital: Innovations oriented person, Multi Language speaker (+3 languages), Creativity, Fast, Agile, Problem Solving, Multi Tasking

Most of the stakeholders consider that social, emotional, and technological skills are becoming more crucial as intelligent machines take over more physical, repetitive, and basic cognitive tasks.

Many employers report that they face recruitment problems due to skill shortages.

HR professionals report difficulty recruiting candidates who have the necessary soft skills for an automating world. Top three areas of missing soft skills are:

- Problem solving, critical thinking, innovation and creativity
- Ability to deal with complexity and ambiguity
- Communication

Resolving the mismatch means hiring, retraining, or both.

One of the biggest change will take place in technological skills, both in advanced skills such as programming, advanced data analysis, and tech design, for example, and also in more basic digital skills relating to the increasing prevalence of digital technologies in all workplaces. Most of stakeholders indicate that workers in all corporate functions are expected to improve their digital literacy over the next years.

Raise skill levels of employees by teaching them new or more advanced skills is one of the most adopted solution by companies in order to build their workforce for the future.

7. Identifying and Measuring Soft skills for the Future Labour Market

7.1 Please provide us with examples of effective tools and methods used to capture ***formal and non-formal learning***

Note:

Examples collected through discussions with the participants of the Interviews/focus groups…how practitioners currently identify/test etc.

Please provide us with max. 5 examples. If you have more examples choose the ones which are most relevant to our project.

Name of tool or method	Short description (2-5 sentences max)	Link to source	Why this method is relevant (3-6 sentences)
Counseling	Counseling allows to clarify the specific need	Structured discussions	It helps the student to clarify what he wants to do in his career, establish objectives
Lighting the creativity lamp	The ability to be creative is not innate, but rather is a skill that can be learned and improve upon through the use of various systems and strategies	The creative training idea book	It causes the students to discover and evaluate their creativity skills in a technical field
Public speaking workshops	Working with students on developing communication skills, public discourse, argumentation and logical and critical thinking skills.		For technical students the soft skills area is less developed. Participation in such activities helps students gain a complete profile of skills (technical and soft skills)
Career path strategy	Ho to create a career portfolio ()		
Observation	By observing, we can surprise, for example, how children learn the rules of a game just by playing		The observer does not intervene with anything, he only identify facts, behaviors, qualitatively evaluates the way in which the person learn nonnormally
Debate	Exchange of verbal arguments between groups with different opinions on the		

	same subject in order to reach a conclusion		

7.2 Please provide us with examples of effective tools and methods used to ***identify/measure soft skills***

Note:

Examples collected through discussions with the participants of the Interviews/focus groups… how practitioners currently identify/test etc.

Please provide us with max. 5 examples. If you have more examples choose the ones which are most relevant to our project.

Name of tool or method	Short description (2-5 sentences max)	Link to source	Why this method isrelevant (3-6 sentences)
Psychometric method	Psychological standardized tests	CAS platform	Helps students to be aware of their skills that need to be developed, of their personality, decision making style
CAS++ Platform	This is a platform with different tests that measure soft skills	www.cognitrom.ro	The platform evaluate the right profile for each student

7.3 Please provide us a list of ***informal or non-formal activities*** as identified by your stakeholders

Guidance practitioner

1.)	*Group sessions: helps them to exercise the skills required in the labour maeket and individual session that are concentrated on the specific need.*
2.)	*Team building activities, Workshops, Forum theater, Experience based learning*
3.)	

7.4 Briefly describe why your stakeholders think it important to identify and measure formal and non-formal learning

Group sessions: helps them to exercise the skills required in the labour maeket and individual session that are concentrated on the specific need.

Identifying and measuring formal and non-formal learning is important because the practitioners can evaluate and develop certain methods that hep the process of understanding and integration/learning for students.

It is important to combine the two forms of learning to get the best results and reach your goals.

Please provide us with a list of ***soft skills*** used in informal and non-formal activities, as identified by your stakeholders

Guidance practitioner

1.)	*Communication skills, team work skills, leadership skills, presentation skills*
2.)	*Communication skills, team work skills, Creativity, Critical thinking, Problem solving skills, Negotiation skills*
3.)	*Communication skills, team work skills, leadership skills, Active listening, Helping skills*

Employers

1.)	*Innovations oriented person, Multi Language speaker (+3 languages), Creativity, Fast, Agile, Problem Solving, Multi Tasking*
2.)	*Team player, Social Skills, User Experience, Analysis oriented*
3.)	

7.6 Briefly describe why your stakeholders think it important to identify and measure ***soft skills*** relevant to the work place.

To be aware of what you need to improve so you can achieve your goals.

It is important that you can evaluate yourself as a professional. Until you know yourself well enough and you properly evaluate your skills and abilities, you are likely to underestimate or over-value yourself. The incorrect evaluation may sabotage and make professional profile incorrectly placed on the labor market.

It is important to have a human-organization fit in terms of professional interests, soft skills, value held. Only in this way will be there efficiency, performance, professional satisfaction.

8. Main Findings and Conclusions

8. 1 Please describe your main findings and implications after the finalization of the interviews/focus groups.

Note:

In this final section we ask you to summarize your main findings and implications for the project.

What are the main findings? What are the main implications? Do you have solutions to propose?

Please feel free to provide us here with information which wasn't queried so far, but what you think is relevant for the further project development.

This section should be between one and two pages of A4.

Please summarize your findings here…

In Romania there is a clear awareness about the changing world of work because of the integration to the Fourth Industrial Revolution. The automation, Artificial Intelligence and all other new technologies related to this new technological wave will impact the workforce skills model. Social and emotional skills will grow rapidly, along with technological skills and some advanced cognitive skills, while basic cognitive and manual skills will decline.

In Romania there is also an accelerate decrease of population which of represent a serious additional problem for labor supply.

Most of the stakeholders consider that social, emotional, and technological skills are becoming more crucial as intelligent machines take over more physical, repetitive, and basic cognitive tasks.

Most employers report that they face recruitment problems due to skill shortages.

One of the biggest changes will take place in technological skills, both in advanced skills such as programming, advanced data analysis, and tech design, for example, and also in more basic digital skills relating to the increasing prevalence of digital technologies in all workplaces. Most of stakeholders indicate that workers in all corporate functions are expected to improve their digital literacy over the next years.

Raise skill levels of employees by teaching them new or more advanced skills is one of the most adopted solution by companies in order to build their workforce for the future.

Counseling was identified as an important tool in measuring soft skills for the future labor market.

Identifying and measuring formal and non-formal learning is important because the practitioners can evaluate and develop certain methods that hep the process of understanding and integration/learning for students.

According with general view the most important solution for skill mismatch is to innovate in generating the customized upskilling pathways. For designing these pathways, the first process is the identification and documentation of skills, knowledge and competences that a person has acquired in any context (formal, non-formal and informal). The key starting point in this process is the way how identify/measure the skills. There is a real need to innovate and create customized online tools updated to help the client to become aware of their hidden skills and tacit abilities gained from everyday activities.