

REPUBLIC UNION

ROZ

SKILLS FOR THE FUTURE OF A COMPETITIVE LABOUR MARKET IN SLOVAKIA

ANALYSIS

THE REPUBLICAN UNION OF EMPLOYEES IS:



IOE



BusiNESSatOECD

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MANAGEMENT SUMMARY

The objective of the questionnaire “*Skills for the future of a competitive labour market*” was to identify which future key skills people should have in the future in order to adapt effectively to changing conditions on it under the influence of constantly evolving new technologies (artificial intelligence, digitalisation, automation, etc.). It was based on the assumption that the need for manual, physical and basic cognitive skills will decline in the future, but the demand for higher cognitive abilities and technological skills will increase. The result of the questionnaire provides an overview of future key competences and their relevance levels for employers. This overview presents an input analysis to set up updates to formal or continuing education needs, in particular in soft skills, but also others.

The questionnaire survey was mainly attended by representatives of employers who determined the importance of the selected 19 skills in the Slovak Republic’s current and future conditions (2030). The selection of skills was based on two already completed foreign studies (the McKinsey study and the FWS study) on the basis of which the final list of assessed skills was selected. Respondents to the questionnaire indicated the need to use individual skills for two main categories of workers:

Workers with a predominance of mental work, and workers with the predominance of physical work.

One of the results of the present questionnaire survey is a comparison of the change in the importance of skills at present and in the future. **Environmental literacy** (a rise of 18.4 %), **foreign language knowledge** (an increase of 17 %), **understanding digital systems** (up 16.1 %) and **digital skills** (an increase of 15.6 %) recorded the highest increase. Another 15 skills increased by an average of 10 %. None of the 19 skills studied has seen a decline in its needs in the future. This confirms the importance of skills development in the coming years and the relevance of their choice as the skills of the future.

A COMPARISON OF THE CHANGE IN THE IMPORTANCE OF SKILLS IN PRESENT AND FUTURE (%)

Comparison of the change in the importance of skills now and in the future (in %)

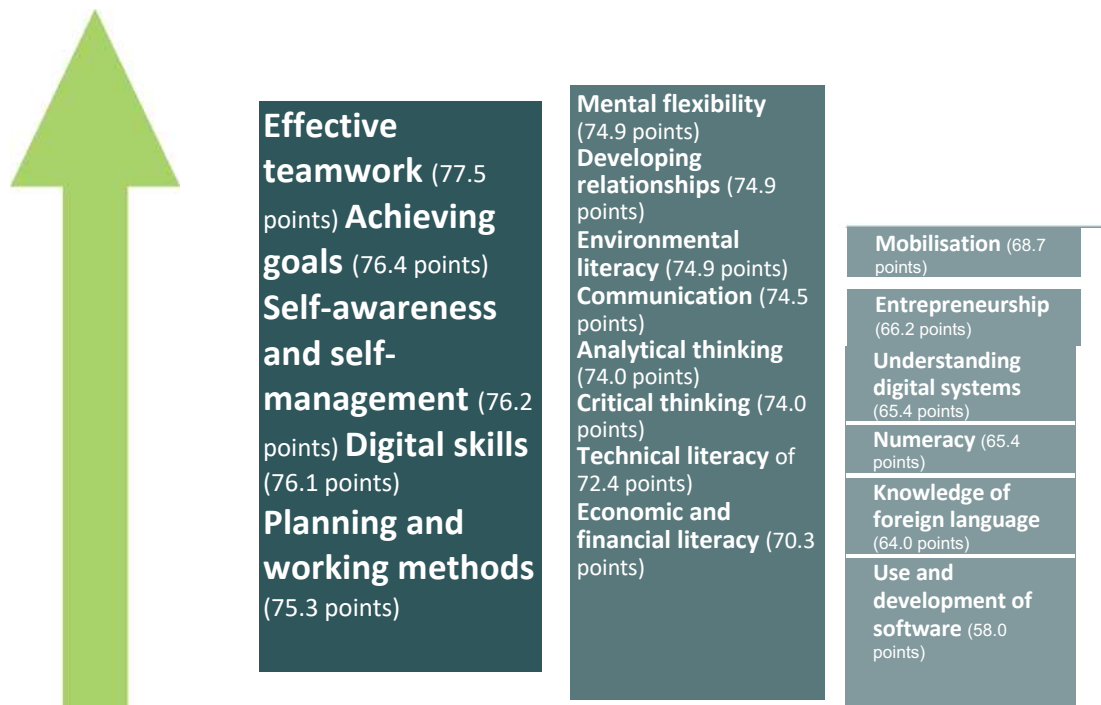
TITLE OF SKILLS	DIFFERENCE BETWEEN IMPORTANCE LEVELS	The level of importance at present	The level of importance in the future
Environmental literacy	18,4	56,5	74,9
Knowledge of foreign language	17,0	47,0	64,0
Understanding of digital systems	16,1	49,3	65,4
Digital skills	15,6	60,5	76,1
Technical Literacy	13,1	59,3	72,4
Use and development of software	12,8	45,2	58,0
Economic and Financial Literacy	12,7	57,6	70,3
Entrepreneurship	12,5	53,7	66,2
Mobilisation	11,6	57,1	68,7
Mathematical Literacy	11,6	53,8	65,4
Achievement of objectives	11,5	64,9	76,4
Self-awareness and self-management	11,5	64,7	76,2
Effective teamwork	11,0	66,5	77,5
Mental flexibility	10,5	64,4	74,9
Planning and ways of working	8,5	66,8	75,3
Critical thinking	8,5	65,5	74,0
Developing relationships	8,3	66,6	74,9
Analytical thinking	7,6	66,4	74,0
Communication	6,8	67,7	74,5

Environmental literacy has seen the highest expected shift in the assessment, however, when looking at the difference in the two categories of workers, the situation is as follows:

In terms of assessing the gap between the required level of skills currently and in the future, the highest increase among **workers with a predominance of mental work** was recorded in **Foreign Language Knowledge** (an increase of 17.6 %), **Environmental Literacy** (an increase of 16.7 %), **Understanding digital systems** (an increase of 16.4 %) and **Software Use and Development** (an increase of 14.2 %).

For workers with the predominance of physical work, the highest need for environmental literacy (an increase of 20.1 %), Development of digital skills (an increase of 18.1 %), Foreign language knowledge (an increase of 16.3 %) and Understanding digital systems (up 15.8 %).

Ranking skills by expected level of importance in 2030



The results of both categories of workers correspond to the national average of the need to increase overall levels of environmental **literacy**, improve **foreign language knowledge** and improve **digital skills** in all sectors of the national economy. This need should be reflected in the lifelong learning system, but also by Employers in their corporate employee training programmes, so that the Slovak Republic remains competitive in international comparison.

The analytical evaluation of the data obtained from the questionnaire also identified the three sectors with the highest increase in future skills needs. **Education** appears to be the most affected sector, which in the 15 skills studied (out of 19) has achieved the highest increases in skills needs in the future. The **agriculture, forestry and fisheries** sector achieved the highest increases in 14 skills, as well as the **water supply, wastewater drainage, waste disposal** sector. These

results also highlight the importance of lifelong learning in all future skills examined in the labour market.

By contrast, future skills declines have only been identified in some sectors. The **housing and catering** sector saw a slight decline in the need in **Communication, Critical Thinking, Planning and Ways of Work**. The **Arts, Entertainment and Recreation** sector saw a decline in the only skill that was **Communication**.

A comprehensive evaluation of the TOP 3 skills in the future for individual divisions of the Statistical Classification of Economic Activities SK NACE Rev. 2 is shown in the following list:

NACE Rev. 2 Division SK	Name of Division SK NACE Rev. 2	TOP 3 FUTURE SKILLS DETERMINED BY RESPONDENTS		
		1	2	3
01	Crop and animal husbandry, hunting and related services	Planning and ways of working	Effective teamwork	Mental flexibility
02	Forestry and logging	Achievement of objectives	Self-awareness and self-management	Economic and Financial Literacy
05	Coal and lignite mining	Effective teamwork	Communication	Mobilisation
07	Mining of metal ores	Effective teamwork	Mobilisation	Developing relationships
08	Other mining and quarrying	Planning and ways of working	Effective teamwork	Self-awareness and self-management
10	Food production	Self-awareness and self-management	Environmental literacy	Developing relationships
14	Manufacture of clothing	Planning and ways of working	Mental flexibility	Communication
15	Manufacture of leather and leather products	Environmental literacy	Developing relationships	Self-awareness and self-management
16	Wood processing and manufacture of wood and cork products, except furniture; manufacture of articles of straw and plaiting materials	Digital skills	Planning and ways of working	Mental flexibility
17	Manufacture of paper and paper products	Mathematical Literacy	Economic and Financial Literacy	Self-awareness and self-management
18	Printing and reproduction of recording media	Achievement of objectives	Environmental literacy	Digital skills
20	Manufacture of chemicals and chemical products	Effective teamwork	Achievement of objectives	Planning and ways of working
21	Manufacture of basic pharmaceutical products and pharmaceutical preparations	Effective teamwork	Technical Literacy	Achievement of objectives
22	Manufacture of rubber and plastic products	Communication	Achievement of objectives	Digital skills

NACE Rev. 2 Division SK	Name of Division SK NACE Rev. 2	TOP 3 FUTURE SKILLS DETERMINED BY RESPONDENTS		
		1	2	3
23	Manufacture of other non-metallic mineral products	Developing relationships	Achievement of objectives	Digital skills
24	Manufacture and processing of metals	Developing relationships	Economic and Financial Literacy	Self-awareness and self-management
25	Manufacture of metal structures, except machinery and equipment	Digital skills	Mental flexibility	Self-awareness and self-management
26	Manufacture of computer, electronic and optical products	Analytical thinking	Developing relationships	Planning and ways of working
27	Manufacture of electrical equipment	Achievement of objectives	Critical thinking	Mobilisation
28	Manufacture of machinery n.e.c.	Environmental literacy	Self-awareness and self-management	Mental flexibility
29	Manufacture of motor vehicles, semi-trailers and trailers	Effective teamwork	Achievement of objectives	Developing relationships
30	Manufacture of other means of transport	Effective teamwork	Developing relationships	Planning and ways of working
31	Manufacture of furniture	Technical Literacy	Critical thinking	Effective teamwork
32	Other production	Communication	Achievement of objectives	Critical thinking
33	Repair and installation of machinery and apparatus	Communication	Achievement of objectives	Mobilisation
35	Electricity, gas, steam and cold air supply	Effective teamwork	Environmental literacy	Planning and ways of working
36	Water collection, treatment and supply	Environmental literacy	Critical thinking	Self-awareness and self-management
37	Wastewater treatment and drainage	Environmental literacy	Critical thinking	Self-awareness and self-management
38	Collection, treatment and disposal of waste; recycling of materials	Digital skills	Understanding of digital systems	Analytical thinking
41	Construction of buildings	Developing relationships	Digital skills	Effective teamwork
42	Engineering buildings	Mobilisation	Planning and ways of working	Digital skills
43	Specialised construction work	Achievement of objectives	Effective teamwork	Self-awareness and self-management
45	Wholesale and retail trade and repair of motor vehicles and motorcycles	Self-awareness and self-management	Developing relationships	Achievement of objectives
46	Wholesale trade services, excluding motor vehicles and motorcycles	Digital skills	Planning and ways of working	Effective teamwork
47	Retail trade services, except motor vehicles and motorcycles	Self-awareness and self-management	Communication	Effective teamwork
49	Land transport and pipeline transport	Self-awareness and self-management	Effective teamwork	Environmental literacy
52	Storage and auxiliary transport activities	Environmental literacy	Effective teamwork	Understanding of digital systems

NACE Rev. 2 Division SK	Name of Division SK NACE Rev. 2	TOP 3 FUTURE SKILLS DETERMINED BY RESPONDENTS		
		1	2	3
55	Accommodation	Achievement of objectives	Mental flexibility	Digital skills
56	Restaurant and hospitality activities	Digital skills	Self-awareness and self-management	Environmental literacy
59	Production of films, videos and television programmes, preparation and publication of sound recordings	Knowledge of cuzde language	Digital skills	Mental flexibility
62	Computer programming, consultancy and related services	Effective teamwork	Self-awareness and self-management	Communication
64	Financial services, except insurance and pension provision	Effective teamwork	Achievement of objectives	Technical Literacy
66	Auxiliary activities of financial services and insurance	Effective teamwork	Achievement of objectives	Economic and Financial Literacy
68	Real estate activities	Economic and Financial Literacy	Self-awareness and self-management	Environmental literacy
69	Legal and accounting activities	Planning and ways of working	Technical Literacy	Digital skills
70	Corporate leadership; management consultancy	Developing relationships	Effective teamwork	Self-awareness and self-management
71	Architectural and engineering activities; technical testing and analysis	Communication	Mental flexibility	Analytical thinking
72	Scientific research and development	Digital skills	Achievement of objectives	Understanding of digital systems
74	Other professional, scientific and technical activities	Analytical thinking	Economic and Financial Literacy	Technical Literacy
77	Rental and leasing	Analytical thinking	Digital skills	Communication
78	Employment placement	Effective teamwork	Achievement of objectives	Technical Literacy
79	Travel agency activities, travel agency reservation services and related activities	Developing relationships	Planning and ways of working	Digital skills
80	Security and Search Services	Digital skills	Effective teamwork	Achievement of objectives
81	Activities related to equipment maintenance and landscape treatment	Communication	Digital skills	Critical thinking
82	Administrative, office support and other business support activities	Effective teamwork	Communication	Self-awareness and self-management
84	Public administration and defence; compulsory social security	Self-awareness and self-management	Effective teamwork	Mental flexibility
85	Education	Effective teamwork	Environmental literacy	Digital skills
86	Health	Effective teamwork	Environmental literacy	Self-awareness and self-management

NACE Rev. 2 Division SK	Name of Division SK NACE Rev. 2	TOP 3 FUTURE SKILLS DETERMINED BY RESPONDENTS		
		1	2	3
87	Residential care (residential care)	Environmental literacy	Digital skills	Effective teamwork
88	Social work without accommodation	Developing relationships	Technical Literacy	Achievement of objectives
90	Creative, artistic and entertainment activities	Achievement of objectives	Effective teamwork	Mental flexibility
93	Sports, entertainment and recreation activities	Mental flexibility	Developing relationships	Planning and ways of working
94	Activities of member organisations	Effective teamwork	Analytical thinking	Planning and ways of working
95	Repair of computers, personal and household goods	Environmental literacy	Critical thinking	Achievement of objectives
96	Other personal services	Technical Literacy	Environmental literacy	Analytical thinking

Possible ways to acquire preferred future skills

Based on the results of the questionnaire survey, it is necessary to focus on deepening, in particular, those skills for which the highest increase in importance has been recorded and also those identified as the most important in the overall score. These findings need to be reflected and deepened in lifelong learning.

Since the results of the questionnaire survey reflect the position of a wide range of employers and other labour market players, users of the results of the questionnaire should be:

- professional organisations;
- employers;
- government,
- territorial self-government,
- secondary schools,
- universities,
- employees (including groups of persons at risk of loss of employment);
- State providers of employment services;
- non-state providers of employment services (e.g. agencies and advisory institutions);
- private education of the institution.

A unique platform bringing together the above-mentioned labour market players is **sectoral councils** – voluntary independent professional associations representing the monitoring of labour market needs in the relevant sectors of the national economy and their transfer to the lifelong learning system. Sectoral councils operate within the framework of the National Project Sectorally Managed Innovations to an Effective Labour Market in the Slovak Republic. The project responds to the development changes in the Slovak labour market, especially the needs of individual sectors of the economy affected by innovation, digitalisation, new technologies as well as global challenges in the political, economic, European and global context. Building on innovation processes, the project comprehensively identifies the requirements of sector employers for the appropriate skills of the workforce, their key competences, professional knowledge and professional skills. From the aspect of the system solution, the implementation of the project ensures the innovation created as well as the creation of new national employment standards. The aim is to transfer sector-driven innovations to the system of monitoring and anticipating labour market needs, to the system of lifelong learning, in particular vocational training for the Slovak labour market.¹ The project aims to create a system of measures for the purposeful and smooth improvement of the adaptability of employees to the new requirements of the labour market and to identify more accurately the skills needs of a skilled workforce in the demand of small, medium and large employers.² The results of the questionnaire survey need to be incorporated into the competency model, which is a fundamental component of national employment standards.

INTRODUCTION

The present analysis “*Skills for the future of a competitive labour market in Slovakia*” is a performance resulting from the contract of 10. 11. 2021 for the sponsor – Republic Union of Employers (RU).

The focus of the analysis follows the global trend of the impact of innovation, which entails significant changes in the labour market. Such trends include, for example, automation, digitalisation and artificial intelligence technologies. These and many others will undoubtedly touch on today’s future labour force, which will have to reflect on them with adequate skills/competences and adapting their own work to new activities that she has not yet known. This analysis is based on the results of an **international study by McKinsey & Company (2021)**, which defined a set of key skills for the future labour market. **The author’s team of analysis aims to examine the expected importance of these skills/competences in the Slovak Republic and evaluate them from the perspective of the expected importance by 2030.** Responses to the importance of individual skills today and in the future (2030) have been provided by representatives of employers, organisations, institutions and other actors operating in the national economy. The information

¹ https://sustavapovolani.sk/o_portali

² <https://www.employment.gov.sk/sk/praca-zamestnanost/podpora-zamestnanosti/np-sektorovo-regular-innovation-effective-market-work/>

obtained from the present analysis can be an important basis for setting up the lifelong learning system and updating the content of the curriculum within primary, secondary and higher education.

The need for manual, physical and basic cognitive skills will decline in the future, but **demand for technological, social, emotional and higher cognitive abilities will increase**. The outcome of the questionnaire survey is intended to provide an overview of future key competences and the level of their relevance for employers operating in the Slovak Republic. This overview provides an input analysis for setting the update of formal or continuing education needs, especially in the area of soft skills.

An overview of the most important skills required by employers to perform their jobs by 2030 can be seen as an important contribution from the analysis. In addition, an overview of all the skills examined, which are ranked according to the highest expected shift in importance, is also interesting, which makes it possible to evaluate the skills on which the education system needs to focus as a priority. Comparison of the importance of the examined

skills in terms of two categories of workers offer a different view of the future need for each job. It is also useful to evaluate the results of the survey in terms of the size category of the organisation represented by the respondent. A comparison of the resulting findings between domestic and foreign organisations is considered as a particularly specific information by the author collective.



KAPITOLA Č. 1:

Príprava a tvorba dotazníkového
zistovania

1. PREPARATION AND DEVELOPMENT OF THE QUESTIONNAIRE SURVEY

1.1 Estimated work schedule

The overall work on the questionnaire survey was planned for nine working weeks (November-December 2021). The work schedule included the draft questionnaire, comments, editing, final creation in the respective program, distribution to respondents and evaluation. The proposed implementation of the work schedule is summarised in the table below. The highest share of allocated time was attributed to the questionnaire survey and evaluation of the results of this survey.

Table 1 Expected timetable for the work of the questionnaire survey

p.c.	Week	44	45	46	47	48	49	50	51	52
	Task/Date	1. - 7.11.2021	8. -14.11.2021	15. - 21.11.2021	22. - 28.11.2021	29.11. - 5.12.2021	6. -12.12.2021	13. - 19.12.2021	20. - 26.12.2021	27. - 31.12.2021
1	Identification of the target group	x								
2	Preparation of the scope and content structure of the	x								
3	Creation of a questionnaire		x	x						
4	Distribution of the questionnaire				x					
5	Questionnaire survey				x	x	x			
6	Evaluation of the questionnaire and analysis of results							x	x	
7	Management summary/Key Measures									x

Source: author's collective

1.2 Starting points for the creation of the questionnaire survey

The structure and content of the questionnaire survey was developed on the basis of already existing studies aimed at exploring workers' future skills. A survey of publicly available studies was carried out and, on the basis of their assessment, two of them were selected as a starting point for the design of the questionnaire survey in the present analysis.

1.2.1 Study “Defining the skills citizens will need in the future world of work” – McKinsey & Company

The analysis of skills needed for the future of a competitive labour market in Slovakia was based on the study Defining the skills citizens will need in the future world of work carried out by McKinsey & Company through McKinsey Global in 2021.

McKinsey & Company is a global strategic management consulting firm operating across all economic sectors in more than 130 cities and 65 countries worldwide. It helps clients in the private, public and social sectors to shape strategies and transform the way they work.³

The McKinsey study is based on a survey of 18000 respondents in five countries and provides an

³[https://www.mckinsey.com/~/-/media/McKinsey/About%20Us/Media%20Center/McKinseymediafact sheet_11-Dec-2019.ashx](https://www.mckinsey.com/~/-/media/McKinsey/About%20Us/Media%20Center/McKinseymediafact%20sheet_11-Dec-2019.ashx)

overview of the skills citizens will need to apply to the labour market in the future.⁴

The McKinsey study looked at jobs that will emerge and disappear due to the impact of new technologies (such as automation, artificial intelligence and robotics). Subsequently, a list of skills that will become important as a result of these changes was drawn. The study showed that the need for manual, physical as well as basic cognitive skills will decline, but the demand for technological, social, emotional and higher cognitive abilities will increase.

The research has defined four complex skill categories (cognitive, digital, interpersonal and self-leadership) within which 13 separate skill groups belonging to these categories have been identified. Subsequently, 56 elements of talent (sub-skills) belonging to skill groups were defined to increase accuracy (Figure 1).

⁴ <https://www.mckinsey.com/industries/public-and-social-sector/our-insights/defining-the-skills-citizens-will-need-in-the-future-world-of-work>

Picture. 1 Define Skills Categories, Skills Groups and Talent Elements by McKinsey & Company

<h3>Cognitive</h3>		<h3>Interpersonal</h3>	
Critical thinking <ul style="list-style-type: none"> Structured problem solving Logical reasoning Understanding biases Seeking relevant information 	Planning and ways of working <ul style="list-style-type: none"> Work-plan development Time management and prioritisation Agile thinking 	Mobile Systems <ul style="list-style-type: none"> Role modeling Win-win negotiations Crafting an inspiring vision Organisational awareness 	Developing relationships <ul style="list-style-type: none"> Empathy The Inspiring Trust Humility Sociability
Communication <ul style="list-style-type: none"> Storytelling and public speaking Asking the right questions Synthesising messages Active listening 	The Mental Flexibility <ul style="list-style-type: none"> Creativity and Imagination Translation knowledge to different contexts Adoption and different perspective Adaptability Ability to Learn 	Teamwork effectiveness <ul style="list-style-type: none"> The Fostering Inclusiveness Motivating different staffities Resolving conflicts Collaboration Coaching Empowering 	
<h3>Self-leadership</h3>		<h3>Digital</h3>	
Self-awareness and self-management <ul style="list-style-type: none"> Understanding own emotions Integrity Self-control and regulation Understanding own strengths SEFF-confidence Self-motivation and wellness 		Digital fluency and citizenship <ul style="list-style-type: none"> Digital literacy Digital learning Digital collaboration Digital ethics 	
Entrepreneurship <ul style="list-style-type: none"> Courage and risk-taking Energy, passion, an optimism Driving change and innovation Breaking orthodoxies 		Software use and development <ul style="list-style-type: none"> Programming literacy Data analysis and statistics Computational and algorithmic thinking 	
Goals achievement <ul style="list-style-type: none"> Ownership and decisiveness Achievement orientation Coping with uncertainty Self-development Grit and persistence 		Understanding of digital systems <ul style="list-style-type: none"> Data literacy Smart systems Cybersecurity literacy Tech translation and enablement 	

Source: study by McKinsey

For analysis purposes, the names of the individual skills from the McKinsey study in question were translated. In addition, the names of the sub-skills, which were used in the questionnaire survey, were translated to help the respondent to better understand the skills in question in the questionnaire. In the context of the translation, some skills and sub-skills names were modified (i.e. they were not a literal translation from English). Their translation was based on the skills descriptions that were part of the McKinsey study – the aim was to give respondents a clear name of the skill they can understand and thus correctly assess the importance of the skill for the present and future.

In the first stage of designing the structure of the questionnaire survey, the future requirements of employers

⁵ <https://www.mckinsey.com/industries/public-and-social-sector/our-insights/defining-the-skills-citizens-will-need-in-the-future-world-of-work>

for all partial skills (59 items in total) were examined. Due to the high number of partial skills (Table 2, column Partial skills), this procedure was reviewed and the final questionnaire examined only the skills themselves, which totalled 20 (Table 2, column Skills). In addition to the high number of skills initially considered, another reason for reducing the list was the significant time-consuming of completing the questionnaire. In order to achieve the maximum number of final questionnaire replies, it was proposed to reduce the number of skills examined, which significantly shortened the expected time to complete the questionnaire. During the final stage of the preparation of the questionnaire, the **SYSTEM/Conceptual Impression skills were discarded**, which was assessed as a high penetration item in the other skills examined.

Table 2 Summarisation of researched skills according to McKinsey study and author's collective

Areas of skills	Skill	Partial skill
COGNITIVE/KNOWLEDGE	COMMUNICATION	active listening asking the Right Questions speaking and public speaking
	CRITICAL THINKING	logical thinking search for relevant information structured problem solving understanding bias
	ANALYTICAL THINKING	search for reliable information conceptual, logical and accurate analysis search for arguments and use them
	SYSTEM/CONCEPTUAL THINKING	search for contexts and facts design concepts and planning implementation of proposals
	MENTAL FLEXIBILITY	ability to learn adaptability creativity and imagination use of knowledge in different activities
	PLANNING AND WAYS OF WORKING	active thinking time management and prioritisation creating a work plan
DIGITAL	DIGITAL SKILLS	virtual cooperation digital ethics digital learning digital literacy
	USE AND DEVELOPMENT OF SOFTWARE	computational and algorithmic thinking data analysis and statistics programming Literacy cybersecurity literacy
	UNDERSTANDING OF DIGITAL SYSTEMS	data Literacy intelligent systems translation (presentation) of a technical solution into colloquial language
INTERPERSONAL	DEVELOPING RELATIONSHIPS	empathy humility building trust sociality
	MOBILISATION	creating an inspiring vision organisational awareness role modeling negotiations
	EFFECTIVE TEAMWORK	coaching/coaching cooperation delegation inclusion support motivating different personalities conflict resolution
SELF-LEADERSHIP	ENTREPRENEURSHIP	dismantling of established methods courage and risk-taking stimulating change and innovation energy, passion and optimism
	ACHIEVEMENT OF OBJECTIVES	orientation to success perseverance acceptance of Responsibility self-development
	SELF-AWARENESS AND SELF-MANAGEMENT	integrity (morality and honesty) confidence self-control and self-control self-motivation and optimism understanding the emotions and emotions of others, their triggers understanding your own strengths
TRANSDISCIPLINARY	MATHEMATICAL LITERACY	
	ECONOMIC AND FINANCIAL LITERACY	
	KNOWLEDGE OF FOREIGN LANGUAGE	
	ENVIRONMENTAL LITERACY	
	TECHNICAL LITERACY	

Source: author's collective and McKinsey study (translation of the skills of the author's collective)

1.2.2 Study Future Work Skills – Institute for the Future

The analysis of skills needed for the future of a competitive labour market in Slovakia was also based on

the international study Future Work Skills (FWS) 2011 which analyses skills demanded in the labour market by 2025. The study was conducted by the Institute for the Future, based in California, USA, which is the world's leading education and future organisation. As this study presupposes the competences necessary for workers in the future, it has been used as additional background material for the selection of current and future skills for the development of the questionnaire survey.

The study outlines six fundamental innovation trends that will certainly change the workforce and a number of key competences that are influenced by these trends:

- longevity,
- the computational world,
- structuring and setting up organisations;
- a globally connected world,
- communication tools;
- smart devices.

Figure 2 Future key job skills induced by innovation trends by the Institute for the Future



Source: own processing of the author's team based on analysis of Future Work Skills 6

The study results in a list of the 15 most important skills for 2025, which, while not mentioning the differences in skills use at the time of the study and in 2025, clearly define the development of skills needed for workers in the coming years.

6 https://www.iftf.org/uploads/media/SR-1382A_UPRI_future_work_skills_sm.pdf

Table 3 List of the 15 most important skills for 2025

1	analytical and Innovative Thinking	9	stress resistance and flexibility
2	active learning	10	justification
3	comprehensive problem solving	11	emotional intelligence
4	critical thinking and analysis	12	troubleshooting based on user experience
5	creativity, initiative	13	customer orientation
6	leadership and social impact	14	system analysis and evaluation
7	use of technology	15	negotiations
8	technology design and programming		

Source: own processing of the author's collective based on FWS analysis

These 15 skills were broken down by the study authors into four types of skills needed for 2025, according to the table below:

Table 4 Skills divided into four categories

PROBLEM SOLVING	analytical and Innovative Thinking
	comprehensive problem solving
	critical thinking and analysis
	creativity, initiative
	justification
	troubleshooting based on user experience
	system analysis and evaluation
	negotiations
WORKING WITH PEOPLE	leadership and social impact
	emotional intelligence
	customer orientation
SELF-DEVELOPMENT	active learning
	stress resistance and flexibility
TECHNOLOGY	technology design and programming
	use of technology



Source: own processing of the author's collective based on FWS analysis

The importance of the set of skills taken over from the McKinsey study for analysis was also supported by the FWS study. **The final structure of the questionnaire survey was thus created by combining the skills of both studies**, thus avoiding unilaterality.

1.3 Question investigation

1.3.1 Creating a questionnaire

When creating the questionnaire, it was necessary to propose options for data (numerical) evaluation and therefore efforts were made to differentiate the different categories of workers. In the process of creation, the division of workers into five categories was predominant to:

- management personnel,
- administrative staff,
- specialists,
- auxiliary/executive power,
- the technicians.

As part of the proposal, the respondent was supposed to evaluate on a case-by-case basis for each category selected 19 skills currently and in the future. The proposal was processed on the assumption that one of the five categories of workers examined was not represented in the respondent's organisation and therefore the option "not located in our organisation" was added to the proposal. The respondent would thus not have to fill in all categories of workers in the 19 skills studied.

The pilot version of the questionnaire survey was subjected to multiple test testing and commentary procedure by the author's team as well as employees in supplier-customer relations. The staff participating in the questionnaire testing submitted the following comments:

- Lack of clarity in the scope of the category of workers.
- The issue of intersection of workers in different categories and ambiguity of designation (e.g. technology companies can identify the category of specialists as technicians).
- The possibility of "I can't answer".
- Supplement the specification of the assessed skills in more detail (e.g. Active listening is also intentional listening, in which listening questions or reinterpretation make sure that the speaker understands correctly what he or she is hearing).
- In the final open question (determining the importance of the five skill categories), it is not recommended to use a ranking system from the most important to the least important, but to assign a score on a scale.
- The skill of "digital learning" collides with critical thinking – rather the ability to learn from digital media.
- The skill of "systemic/conceptual thinking" can be combined with analytical thinking into a common skill of "analytic-synthetic thinking".

- The evaluation scale has the values indicated in points 0, 25, 50, 75, 100, but can only be evaluated by tens, so the evaluation scale in the questionnaire should be adjusted as it can be assessed – this should correspond.
- Care should be taken to ensure that the respondent's questionnaire does not enter the next page unless the currently displayed page is filled in.
- It would be appropriate to distinguish the categories of workers in colour.
- When assessing skills categories, it should be stressed that the values of each skill category should not give a total of 100 points, but respondents can freely mark values for each skill category.
- Some skills provide duplicate examples from practice and consequently it is difficult to clearly distinguish the different skills from one another (e.g. critical and systemic thinking both have the use of logical reasoning in the example).
- In the context of the future assessment of these skills, it should be noted that this is meant by 2030.
- In the open question at the end of the questionnaire on skills that the respondent lacked, it would be advisable to include a summary of the skills to which the respondent had already replied (because the questionnaire was long and complicated and the respondent could have lost an overview of what they had already answered).
- Overall, the questionnaire is long and not always clear, as some definitions overlap.

Based on the results of the testing of the questionnaire survey, the time-consuming to complete the questionnaire in the above form was assessed as unacceptable, which would give rise to a legitimate assumption of low interest in a comprehensive questionnaire reply by respondents or a complete completion of the questionnaire collection. On the basis of the above, and in order to obtain the expected and relevant number of responses, a decision was taken with the intention of significantly limiting the scope of the questionnaire by reducing the number of categories of workers from five to two:

- workers with a predominance of mental work,
- workers with the predominance of physical work.

The definition of these two categories of workers was based on the English division of workers into 'white' and 'blue collar' (English term 'Blue-Collar vs. White-Collar'). The educational website IVESTOPEDIA7 defines these two categories of workers as follows:

- A typical characteristic of a worker classified as a **"white collar"** is **higher education**. Similarly, earnings are **on average higher for this type of worker**. From a social point of view, these workers are placed in the **higher social class**. A key characteristic of these workers is that *they work more*

<https://www.investopedia.com/about-us-5093223>

*often in the service sectors, administration, economy, management, without physically demanding work.*⁸

- The “**blue collar**” refers to workers engaged in difficult to heavy manual work, usually in agriculture, manufacturing, construction, mining or maintenance. Such workers may be qualified or unqualified. They obtain qualifications in a secondary school rather than through a bachelor’s or master’s/engineered degree programme at a university.

It follows from the above that the division of workers into two categories (the predominance of mental and physical work) is better understood and comparable for respondents.

Further comments on structure, specifications and technical solutions were accepted and incorporated before the launch of the questionnaire collection.

1.3.2 Structure of the questionnaire

After finalisation, the questionnaire contained a total of 23 items in the following structure:

- **3 items in the form of a free response** (respondent responds with arbitrary text, respectively. number:
 - Respondent ID (if necessary, the respondent could enter any number without a limited number of characters – this avoids problems for respondents who do not have the possibility or refuse to provide this identifier);
 - identifying the key skills that the respondent lacked in the questionnaire;
 - providing an email address for the respondent’s interest in delivering the results of the survey.
- **19 questions in the form of a “slide bar”** - respondent determines the value of the parameter importance at a level from 0 points (lowest importance) to 100 points (highest importance).

In the 19 questions, respondents assessed 19 skills, which were conceived in a uniform way of assessment (0-100 points). Respondents reported the value of the skill needs of workers both now and in the future (horizon 2030), while the importance of each skill was briefly specified and examples of skills in practice were listed below.

Figure 3 Example of evaluation “Analytic thinking” in the questionnaire

4. Please evaluate how important the skill/competence of “ANALYTIC THINKING” is in the present and how important it will be for you in the future. Value 0 indicates the lowest importance and 100 the highest importance

⁸ <https://www.investopedia.com/articles/wealth-management/120215/blue-collar-vs-white-collar-different-social-classes.asp>

*Further specification of the skill/competence: Individuals can recognise the problem and solve it systematically (disassemblythe whole into parts and work with them). Within logical reasoning, it derives one judgment from another and can draw logical connections between individual phenomena and thus gain new knowledge. **

0 20 40 60 80 100
Workers with preyaou GENERAL PRACE at present in the future (2030)

Predominant workers i.e.
Physical PRACE at the moment

in the future atse)

The staff were categorised directly in the questionnaire as follows:

- **workers with a predominance of mental work** – perform specialised, technical, managerial and administrative tasks mainly in the office or in other administrative premises. This includes e.g. civil servants, teachers, doctors, lawyers, accountants, managers, assistants, secretaries, marketers, researchers, quality engineers, technologists, dispatchers, etc.
- **personnel with the predominance of physical work** - perform manual, craft work in the workshop, in the field, on the construction site, in the hall, in the means of transport, in catering and hotel operations outside office space. This includes e.g. assemblers, machine operators, waiters, construction workers, drivers, electricians, maintenance workers, salesmen, etc.

The assumption of the questionnaire survey was that HR, as the main target group of the survey, would be able to properly assess the changes in skills for these two categories. Through the above examples for each group, respondents can correctly rank workers to assess the expected future change in their skills.

In the introduction of the questionnaire, an optional entry was included for the respondent – the indication of the ID of the entity represented by the respondent. The aim was to evaluate the responses received from the point of view of e.g.:

- **the sector/sector** in which respondents operate (according to the Statistical Classification of Economic Activities SK NACE Rev. 2),
- the size category of the organisation,
- regional breakdown (office of the organisation), etc.

The comprehensive structure of the questionnaire with the wording of the individual items is set out in Annex 1.

1.3.3 Technical support for the distribution of the questionnaire survey

The **questions of the questionnaire survey** approved by the customer were implemented through the Alchemer programme for the purpose of the questionnaire collection. The functionality of the questionnaires was thoroughly tested before sending to the target group and any shortcomings were addressed operationally.

A draft email message was prepared for respondents, which was processed for sending via MailChimp. His text reads:

Have a nice day,

on behalf of the National Union of Employers, we would like to ask you to complete a questionnaire to find out how digitalisation, automation, artificial intelligence and other global innovation topics are changing the labour market. As a country, we need to know your opinion on the expected change in skills/competences of your employees in order to prepare the next generation of qualified staff managing the impact of these innovations and to properly set up the vocational education and training and lifelong learning system.

You will evaluate the state of play and the outlook for the future (2030) for 19 skill categories/competences for 2 groups of employees – workers with a predominance of mental work and those with the predominance of physical work. Completing the questionnaire will not take more than 15 minutes and will significantly help professional and professional organisations to take the necessary steps to ensure that the workforce in Slovakia is qualified and competitive in the coming years.

Thank you for your time and willingness!

Respondents' sources

The selection of the target group – respondents – focused on representatives of organisations, businesses, institutions, etc., in all sectors of the national economy, in representative representation at regional level, size categories of employers, etc. The target group also needed to include associations, professional associations, chambers, associations and individual employers. To ensure the relevant results, it was necessary to reach a target group of at least 500 respondents, with an expected return of 75 %. In order to ensure the collection of relevant data and analysis, three sources of respondents were selected and approached:

1. **Membership of the Republic Union of Employers:** full members of the National Union of Employers were contacted. The questionnaire was also published on the website www.ruzsr.sk.
2. **Members of sectoral councils within the framework of the National Project Sectorally Managed Innovations for an Efficient Labour Market in the Slovak Republic** (hereinafter referred to as “NP SRI”): The challenges of the changing labour market are solved, under the authority of the Ministry of Labour, Social Affairs and Family of the Slovak Republic, significant NP SRI. In the process of presenting strategic objectives of the sectors, including requirements for the development of human resources, sector councils have a special

status as professional associations of professionals representing the interests of individual sectors of the economy of the Slovak Republic established in accordance with

Section 35b of Act No. 5/2004 Coll. on Employment Services and on Amendments to Certain Acts. They consist of representatives of employers, employees, local self-government, educational institutions, state administration bodies who are actively involved in formulating employers' demands for the workforce so that their skills are developed in accordance with the actual needs of employers. In the framework of the questionnaire survey, all members of the sectoral councils were consulted as respondents. **The total number of members contacted was 680.**

3. **Active users of the Internet Work Market Guide www.istp.sk** (hereinafter referred to as "ISTP"): The ISTP portal offers information-advisory tools to help people find a suitable employee in the labour market and employers. The portal has been in operation since 2003 and the reason for its creation was high unemployment, which prompted the need to improve and optimise the advisory and placement services of employment, social affairs and family offices. To this end, a free and publicly available portal has been set up to allow unemployed people to have online access to self-service diagnostics of their job potential and to search for jobs that follow-up. It was also a call for employers to present their demands and labour entitlements to the public. The ISTP coordinator is the Centre for Labour, Social Affairs and Family. In the questionnaire survey, ISTP users were contacted as respondents with an employer account created, who gave the ISTP portal administrators consent to the processing of personal data in accordance with the principles established by EU Directive 2016/679 (GDPR) and Act No. 18/2018 Coll. on the Protection of Personal Data and on Amendments to Certain Acts and who agreed to send information in the field of the labour market and on news in ISTP. The total number of ISTP users contacted was 13188.



KAPITOLA Č. 2:

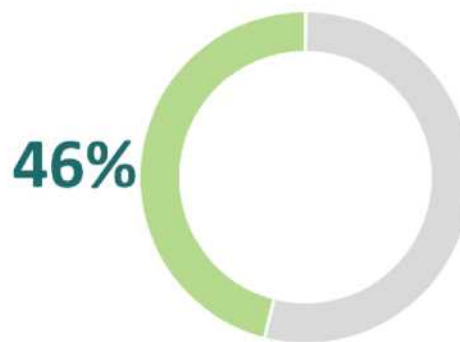
Štatistické vyhodnotenie dotazníkového
zistovania

2. STATISTICAL EVALUATION OF THE QUESTIONNAIRE SURVEY

2.1 Returnability of questionnaire survey

According to the assignment, it was necessary to reach a target group of at least 500 respondents with an expected rate of return of at least 70 %. Given the interest of a wider range of respondents, more and different target groups have been addressed, which are further specified below.

Overall was by address, through programme Alchemer, 13868 contacts contacted. Email was opened by 1,200 respondents of questionnaire survey, of which 552 replied to the questionnaire. The return is 46 %.



2.2 Statistical evaluation of the base of respondents

The introduction of the questionnaire consisted of an optional item for the respondent – the indication of the ID of the entity represented by the respondent. The aim was to allow a more detailed analysis of the target group and its characteristics in relation to the responses. If the respondent refused or did not have a ID, he or she chose an arbitrary random number.



The questionnaire was completed by 552 respondents. 77.4 % of them entered a valid ID when filling in, which made it possible to complete data about the respondent.

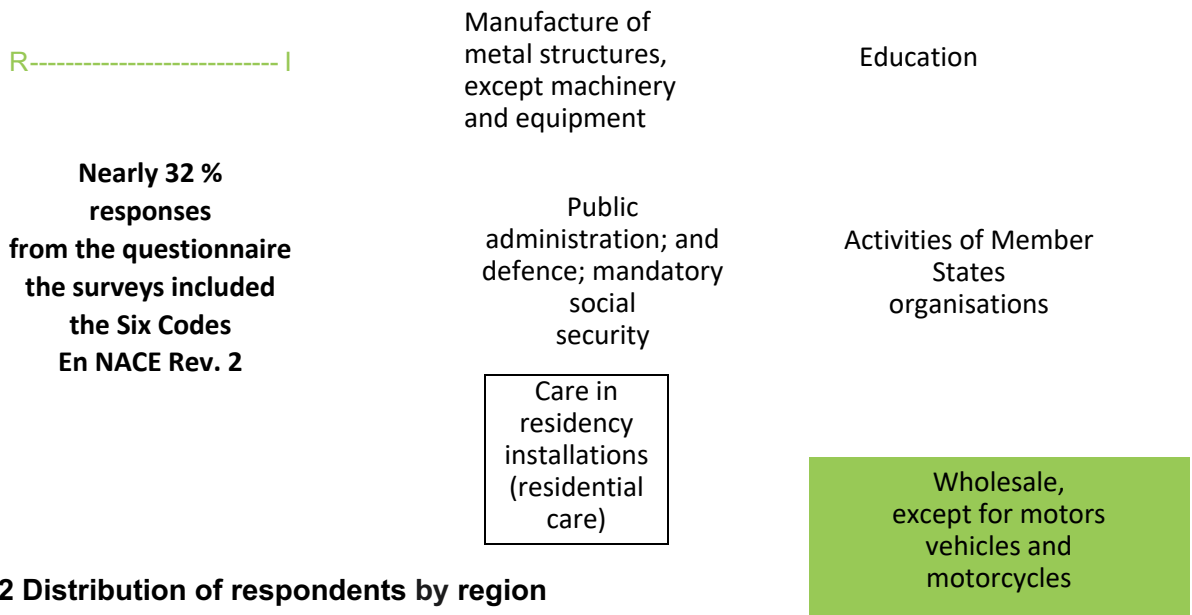
The following data was added to the respondents from the FINSTAT database based on the ID number:

En NACE Rev. 2, region, size category, legal form, type of ownership.

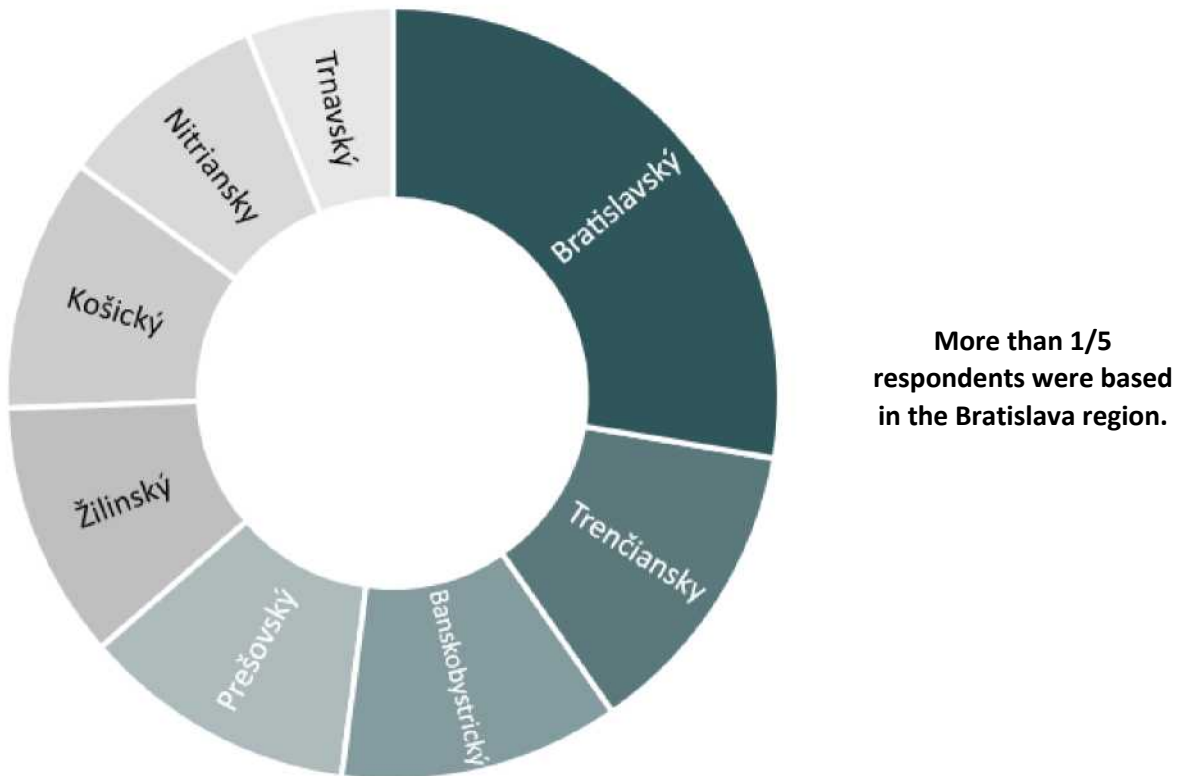
For the purposes of the following sub-chapters, only those respondents who can be classified using the ID number will be evaluated.

2.2.1 SK NACE Rev. 2 – Statistical classification of economic activities





2.2.2 Distribution of respondents by region

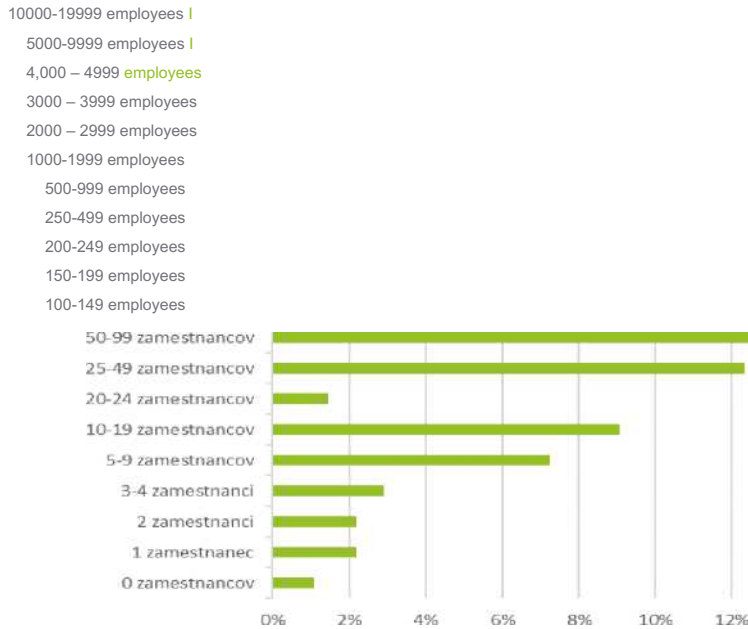


More than 1/5 of respondents were based in the Bratislava region, which is directly related to the fact that more than 1/3 of all companies in Slovakia are based in the Bratislava region.⁹ “Bratislava county’s assessment of economic position in terms of gross domestic product

⁹ [https://www.finreport.sk/podnikanie/na-tisic-obyvateľov-slovenska-pripada-56-firiem-v- Bratislava-country-is-ich-az-trikrat-more//](https://www.finreport.sk/podnikanie/na-tisic-obyvateľov-slovenska-pripada-56-firiem-v-Bratislava-country-is-ich-az-trikrat-more//)

(GDP) formation has been Slovakia's most performing region. In 2018, the region's regional gross domestic product amounted to EUR 25450 million in current prices. The volume of GDP generated in the region represented 28.4 % of the GDP generated in Slovakia. In per capita terms, regional GDP reached EUR 38836 in current prices and 2.4 times the national average.¹⁰

2.2.3 Size category of respondents



at 10 respondents was not available data about the number employees.

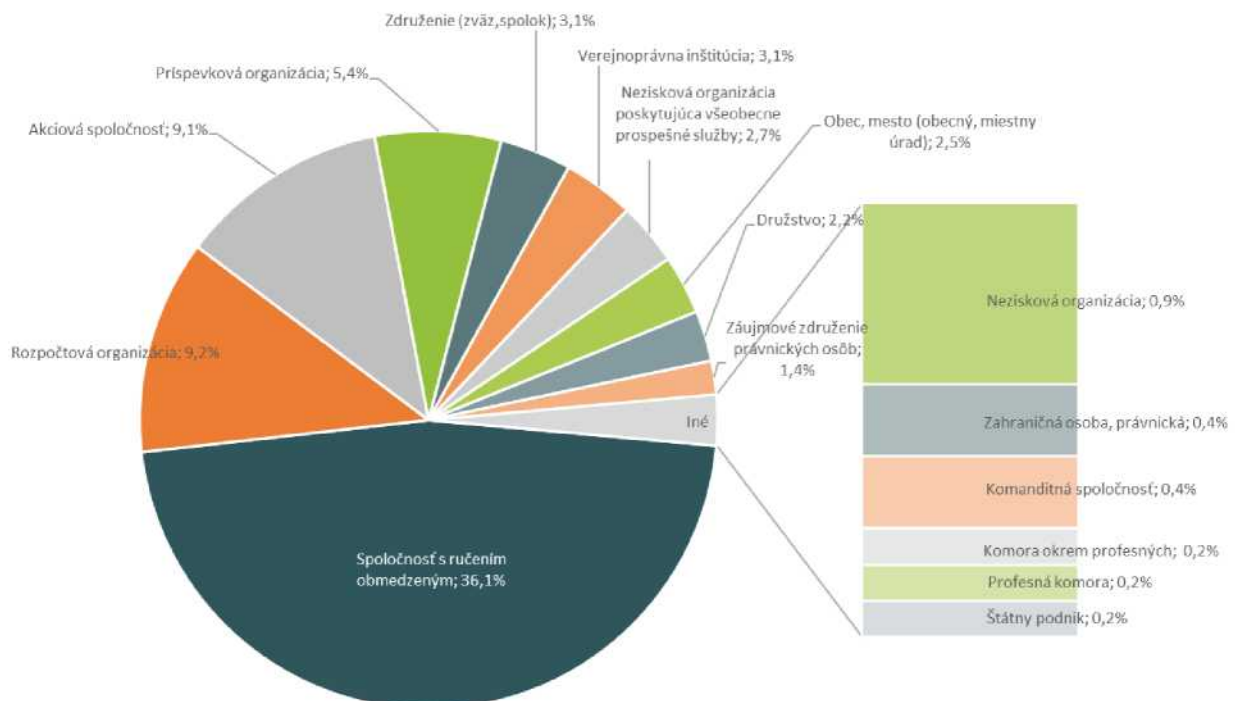
¹⁰

https://slovak.statistics.sk/wps/portal/ext/themes/regional/bratislava/about/lut/pZz1/jZFNT4NAEIZ_Sw9cd1_YZRe8bTGIGKJSisW9GNogxfDRUCx_32p6aaJr5zbJ88xM5qWa5lR3xamuirHu6l5969avCUy8uZzW8FzJRA9phnwkoyJBN38AEGollzGgBeHLiK1zFZ-whgUo_oWH3-Uwm2-AdDm8RuqzSu4GVBr9wls0mdH—TwM7ldPC0TrwPHSWDiAfQFMT_rvzAeq621 Lpl1LQBybSS4YuC85910pvNS3ZZ5FdVD-V4O5UA-h3N6-3E8HO8sWJimiVR9XzUI2fWthd—UfX8caX5N0kObZTnq6MNtTrGazb4AmtqmaAll/dz/d5/L2dBISEvZ0FBIS9nQSEh/



For evaluation purposes in chapters 3.1.2 to 3.1.20, respondents will be divided into three size categories based on data from the FINSTAT portal: small organisations (0-49 employees), medium organisations (50-249 employees), large organisations (250 or more employees).

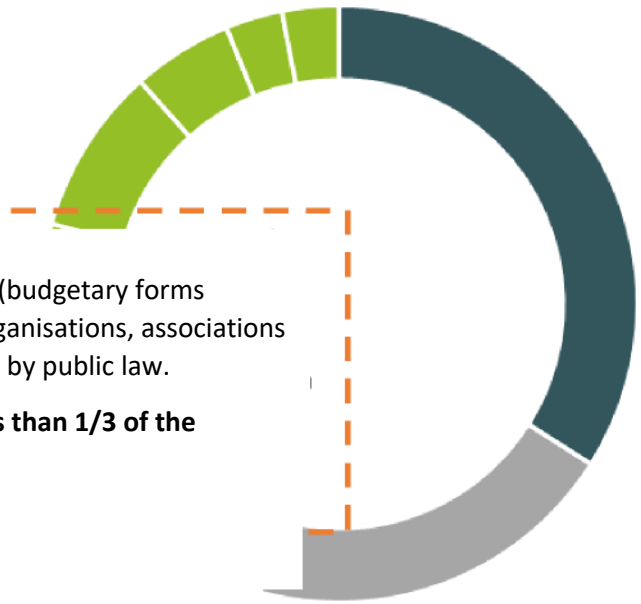
2.2.4 Legal form of respondents



Limited liability companies accounted for more than 1/3 replies to the questionnaire survey.

The next 1/3 was made up of five legal forms (budgetary forms organisations, joint-stock companies, contributory organisations, associations (federations, associations), bodies governed by public law.

The other legal forms together accounted for less than 1/3 of the respondents.



2.2.5 Type of ownership



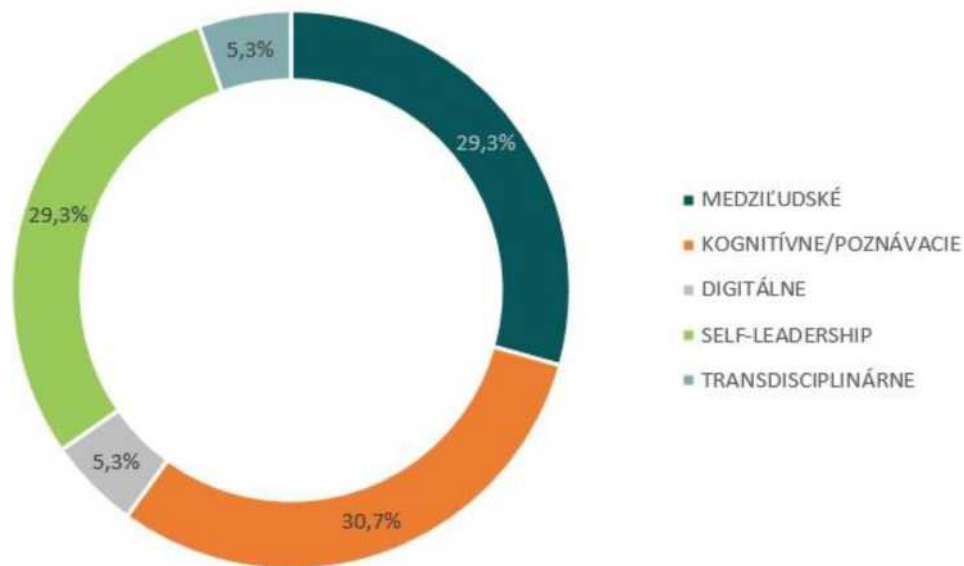
Foreign companies accounted for up to a tenth of respondents. Private domestic companies more than 1/3 of respondents.

The least respondents (2.5 %) were cooperative-owned companies.

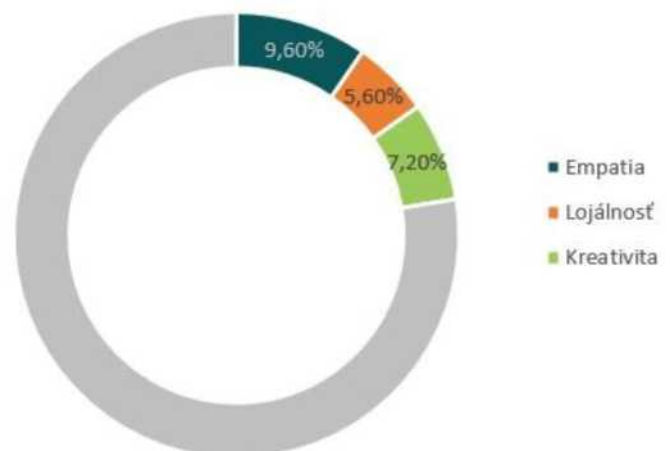
2.3 Suggestions for missing skills

The questionnaire survey included an open question with an open form of reply to determine whether and what skills the respondents lacked in the questionnaire. 60 respondents answered (reported lack of skills) to the question, with 125 proposals aggregated. The responses received were analysed and their evaluation found that 60 % of these proposals are part of the 19 skills studied (see. Table 2 Summarisation of the skills examined in the McKinsey study).

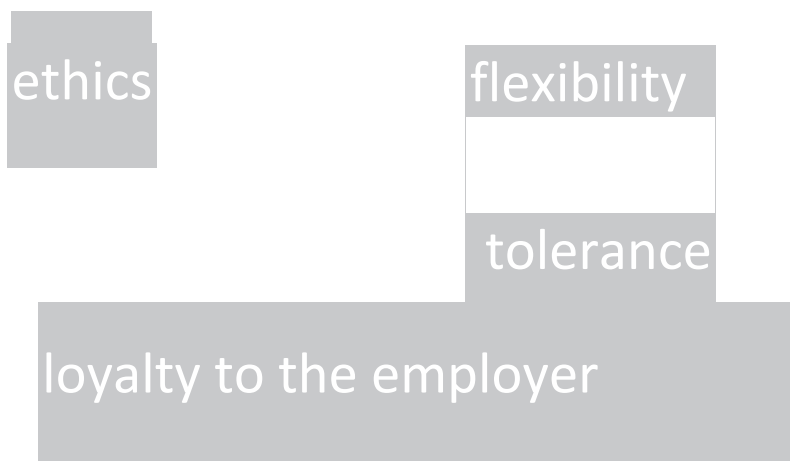
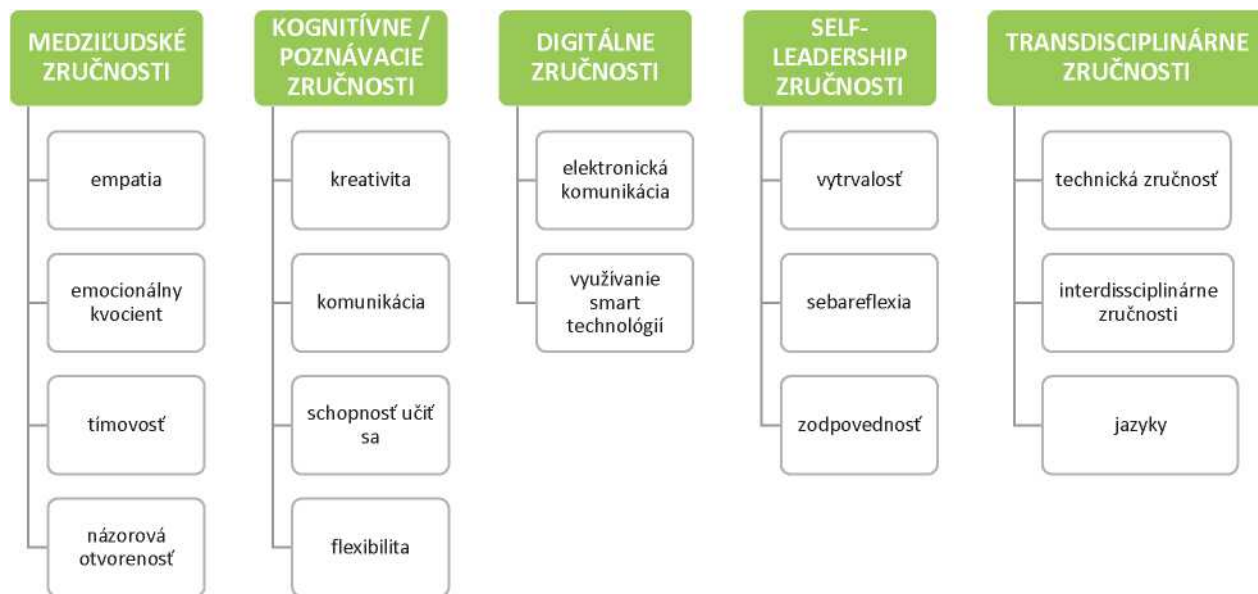
In terms of individual areas of skills, the proposals were mainly in the field of cognitive, interpersonal and self-leadership skills.



Some skills gaps were repeated in the proposals of several respondents. This was specifically empathy, creativity and loyalty, which accounted for 22.4 % of responses.



Within each area, respondents also reported, for example:



**In the context of the open question
respondents reported
proposals
of skills,
which have been evaluated
as interesting.**

Contrary to the ever-increasing impact of digital technologies and innovation, respondents to the

questionnaire were absent:

**“common
sense”
ability
working
without
Internet**

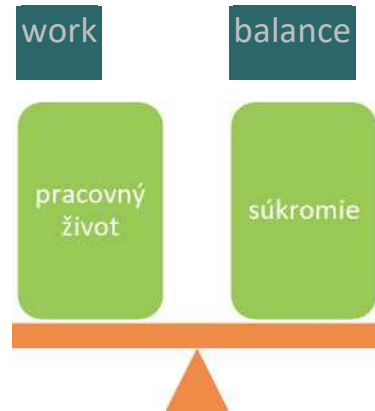


**manual
work**

In a broader context, skills proposals “media literacy” and “political literacy” can be classified as cognitive/knowledge skills, their identification and strengthening can be considered important not only from a human resource perspective, but above all from a social perspective.

Following societal and lifestyle changes, respondents repeatedly referred to the ability to reconcile work balance. With increasing human resources requirements (in relation to digitalisation, new technologies and innovation), this skill may need to be addressed in greater detail in the future.

The questionnaire also proposed a few items that do not fall into the skills. Respondents mentioned the lack of skills such as health care, practice and culture of the institution as a suggestion.



Two proposals for specific professional skills specific to the respondent were also presented. These included control of autonomous vehicle systems, writing procedures and knowledge of new propulsion media systems.

The image features a dark blue background with a grid of hexagons. The hexagons are mostly dark blue, but some are highlighted in lighter shades of blue and teal. A white wireframe map of Europe is overlaid on the grid, showing the continent's outline and internal connections.

KAPITOLA Č. 3:

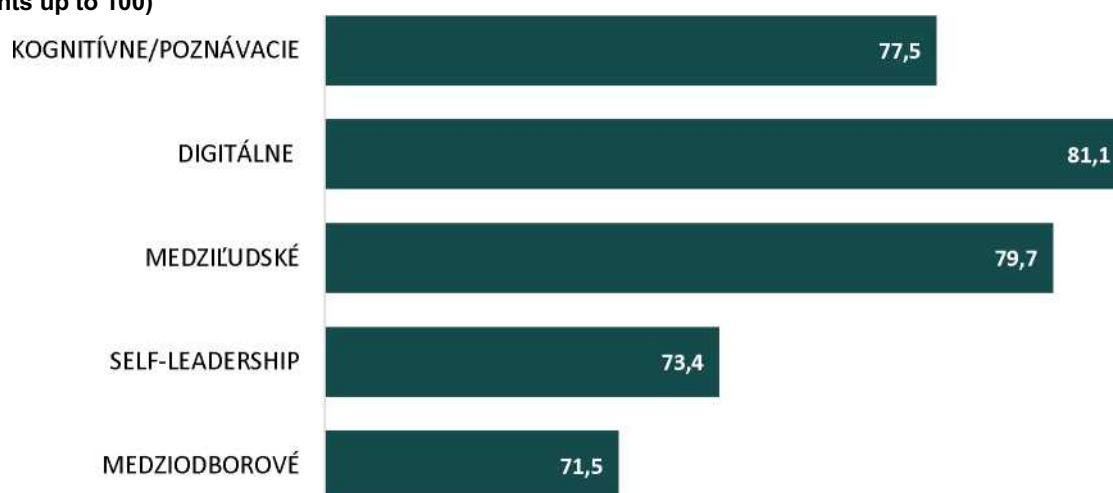
Analytická část

3. ANALYTICAL PART

The central theme of the questionnaire survey was to examine the expected change in the level of importance in the 19 selected skills of workers by 2030 compared to 2021. At the end of the questionnaire, respondents assessed the expected importance of more broadly defined skills (so-called skill categories). These were a total of five categories that covered the 19 skills studied. The level of expected importance of these five categories is evaluated in Chart 1.

Respondents consider “Digital Skills” as the **most important by 2030**. Out of the maximum possible value of 100 points, this category scored 81.1 points. An interesting result offers the second most important category – “Interpersonal skills”. The three most important categories of skills of the future are concluded by the “Cognitive/Recognition Skills” with a value of 77.5 points. The lowest position, but still with relatively high scores, achieved the skills of **Self-Leadership and Interprofessional Skills**. The level of importance in this case was assessed as an average for all respondents, regardless of the type of worker.

Graph 1 The degree of importance of the categories of skills of workers as expected by employers (in points up to 100)



Source: author's collective

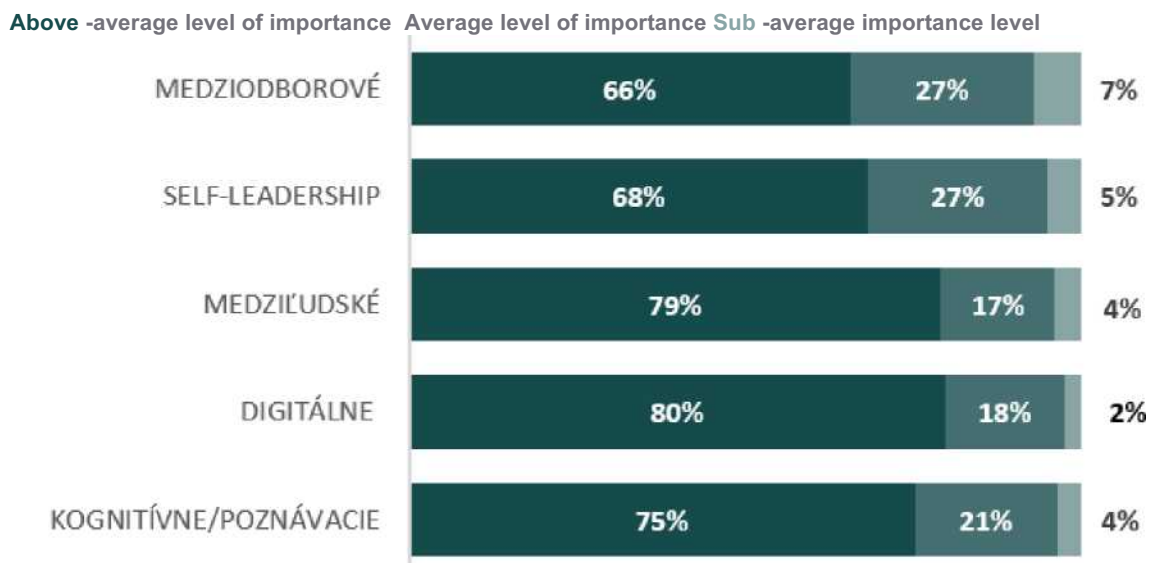
In terms of the degree of importance of skill categories, i.e. how many percent of organisations consider each major skill category to be above average/average/sub-average, the data were evaluated as follows:

For this purpose, the limits of importance have been set as follows:

- **above average level:** greater than or equal to 71 (maximum value of 100)

- **average level:** between 30 and 70
- **below average level:** less than or equal to 29 (lowest possible value 0)

Graph 2 **Distribution of the degree of importance of skills categories by respondents**



Zdroj: autorský kolektív

3.1 Evaluation of the importance of skills in the Slovak Republic

The evaluation of the results of the questionnaire survey consists of three parts. In the first part, the difference between the value of the present and future importance of the skill examined is evaluated. Skills are ranked in order from the highest expected importance to the lowest. Based on this indicator, it is possible to reflect the highest expected differences, which will need to be given significant attention in the lifelong learning system.

In the next part, the results of the survey are assessed against the expected value of the importance of individual skills in the future. In this section, the examined skills are ranked according to the level of importance in the future. This gives an overview of the skills that respondents expect with the highest degree of importance.

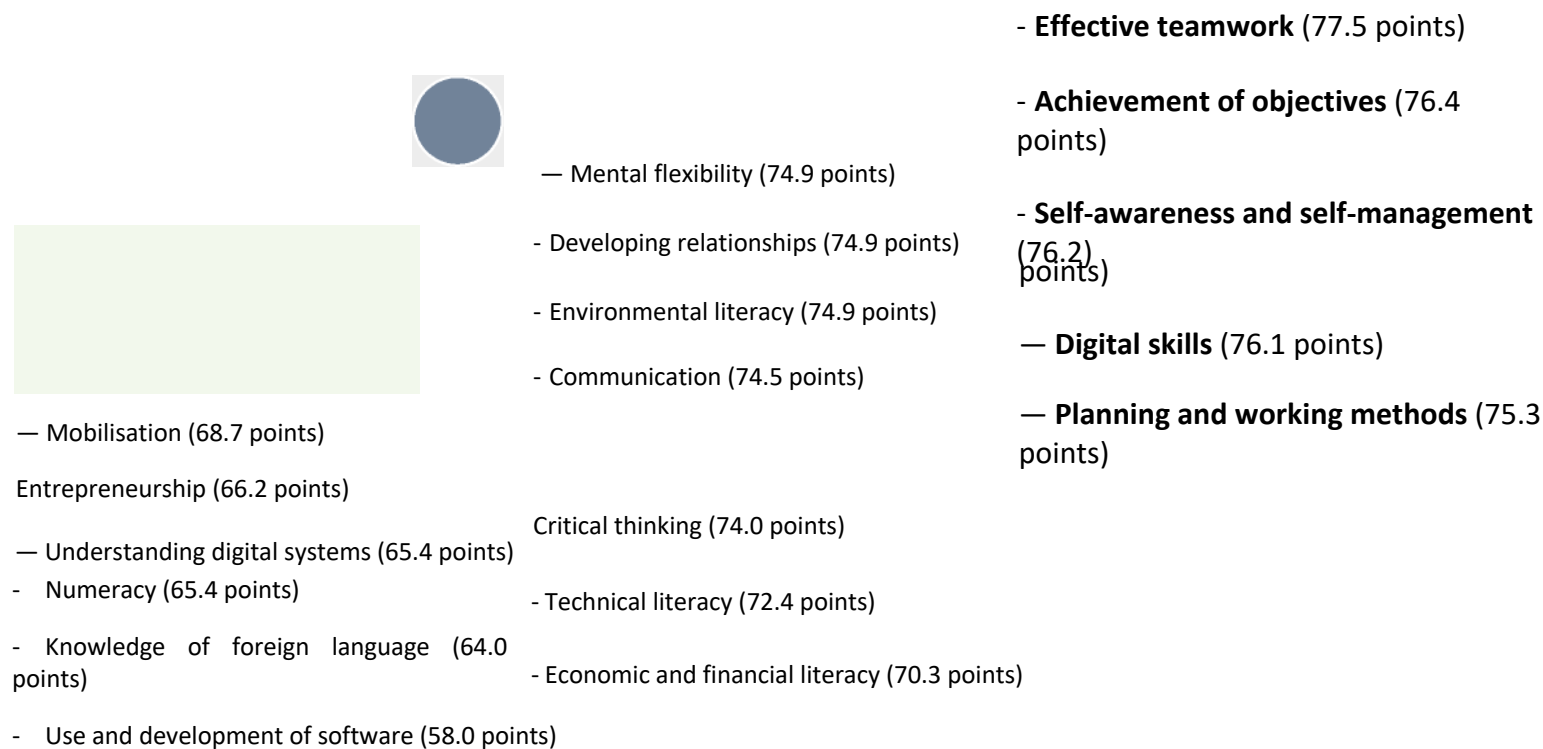
The last, third part of the evaluation thoroughly analyses all 19 skills examined. This section focuses on analysing the following aspects:

- comparison average levels importance investigated skills currently
 - in the future,
- comparison average levels importance investigated skills currently
 - in the future, in two categories of workers:
 - workers predominant in mental work, - workers with the predominance of physical work,
- evaluation of TOP sectors in terms of highest and lowest expected increase in the importance of skills in economic sectors (classification of SK NACE Rev. 2) sectors;
- comparison of the level of importance of skills in terms of ownership (results were assessed separately for respondents representing organisations with domestic ownership and respondents representing organisations with foreign ownership). The aim was to highlight their possible differences in their perception of the level of importance of individual skills.

3.1.1 Evaluation of expectations of changes in the level of importance of the 19 studied skills now and in the future

TITLE OF SKILLS	THE DIFFERENCE BETWEEN CURRENT AND FUTURE LEVELS OF IMPORTANCE	The level of importance at present	The level of importance in the future
Environmental literacy	18,4	56,5	74,9
Knowledge of foreign language	17,0	47,0	64,0
Understanding of digital systems	16,1	49,3	65,4
Digital skills	15,6	60,5	76,1
Technical Literacy	13,1	59,3	72,4
Use and development of software	12,8	45,2	58,0
Economic and Financial Literacy	12,7	57,6	70,3
Entrepreneurship	12,5	53,7	66,2
Mobilisation	11,6	57,1	68,7
Mathematical Literacy	11,6	53,8	65,4
Achievement of objectives	11,5	64,9	76,4
Self-awareness and self-management	11,5	64,7	76,2
Effective teamwork	11,0	66,5	77,5
Mental flexibility	10,5	64,4	74,9
Planning and ways of working	8,5	66,8	75,3
Critical thinking	8,5	65,5	74,0
Developing relationships	8,3	66,6	74,9
Analytical thinking	7,6	66,4	74,0
Communication	6,8	67,7	74,5

Sorting skills by expected level importance in 2030

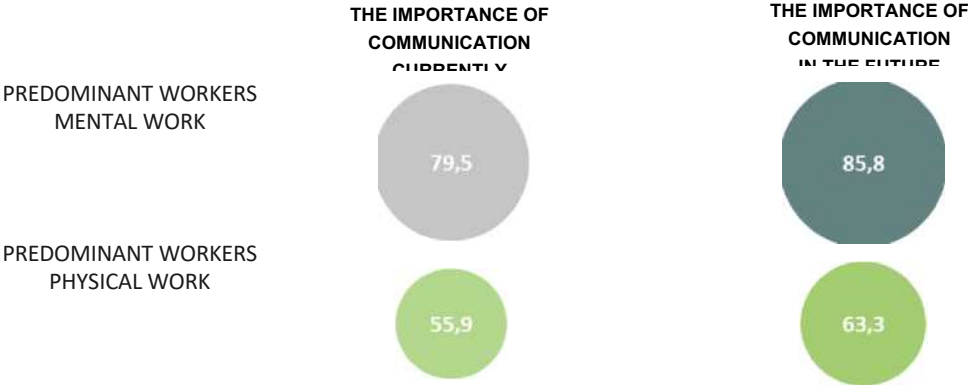


3.1.2 Communication

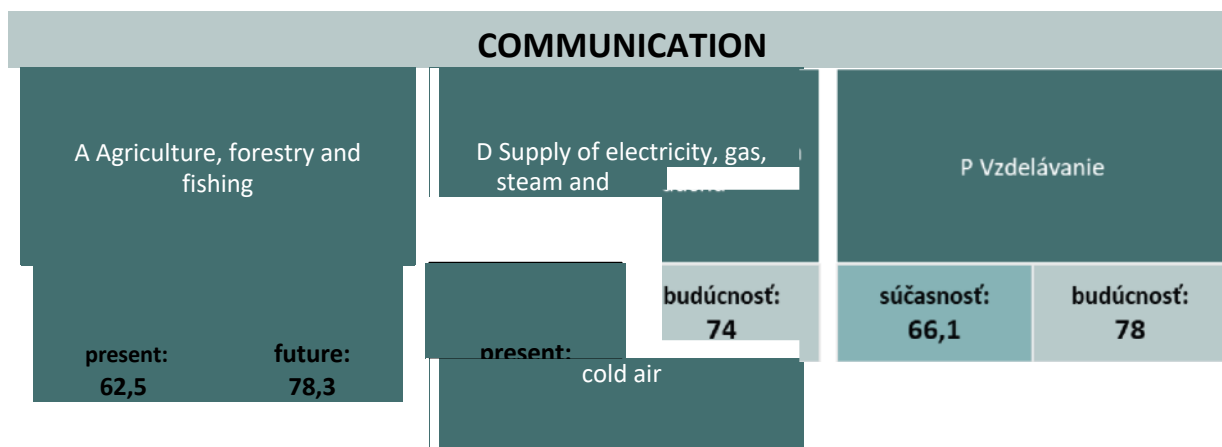
The importance of **Communication** is currently assessed by respondents at 67.7 points. Respondents to the questionnaire survey expect the importance of this skills at 74.5 points in 2030, an expected increase of 6.8 points.



In terms of the importance of **communication** according to the predominance of the work performed, respondents perceive a difference. While workers with a predominance of mental work will need **Communication** at 85.8 points, those with the predominance of physical work at 63.3 points.



The highest increase in the **importance of communication** by 2030 is predicted by respondents in the sector Agriculture, forestry and fishing. The difference between the level of current and future importance is more than 15 points.

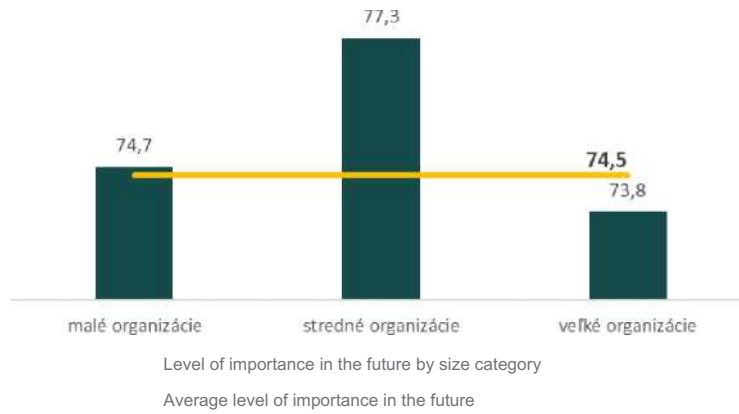


Respondents expect communication to decline in importance by **2030** compared to currently in two sectors. The first is accommodation and catering, which is projected to decline from the current value of 76.1 points to the next 71.7 in 2030. Another sector with an expected decline in the importance of **Communication** is Arts, Entertainment and Recreation. However, the expected decrease is not significant (from the current value of 77 to 76 points).

The comparison of the evolution of the importance of **Communication** from the point of view of domestic and foreign business ownership did not lead to significant differences in the investigation. According to both types of respondents, **communication** will be important at a similar level, namely from 75.1 to 76.1 points.



The expected importance of **communication** skills is on average 74.5 points in the future. Similarly, small organisations see their importance. It is given greater importance to medium-sized organisations and smaller large organisations.



3.1.3 Critical thinking

Critical thinking is already considered important by respondents. The level of importance is currently at 65.5 points. By 2030, respondents expect this skill to increase to 74.0 points.

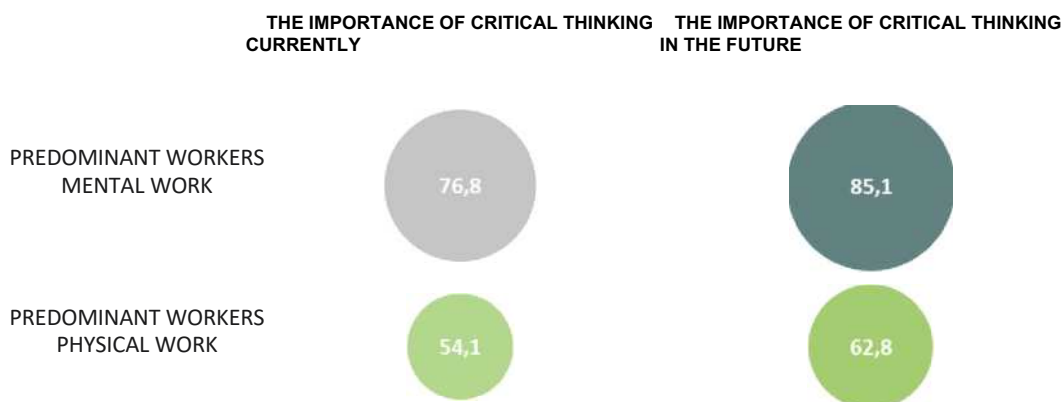
THE IMPORTANCE OF CRITICAL THINKING CURRENTLY



THE IMPORTANCE OF CRITICAL THINKING IN THE FUTURE



There was a difference in perception of the importance of **Critical Thinking** between the category of workers with the predominance of mental work and physical work. While the first category will require **Critical Thinking** up to 85.1 points by 2030, the importance of **Critical Thinking at level 62.8 is expected for workers with the predominance of physical work**. A comparison of the present and the future yielded a similar result in both categories, with an increase above 8 points.



A comparison of current importance with the next (2030) provides a view of the TOP sectors in terms of the highest shifts. Below you can see three sectors where the average expected shift in the importance of **Critical Thinking** is highest, at a level of more than 17 points.

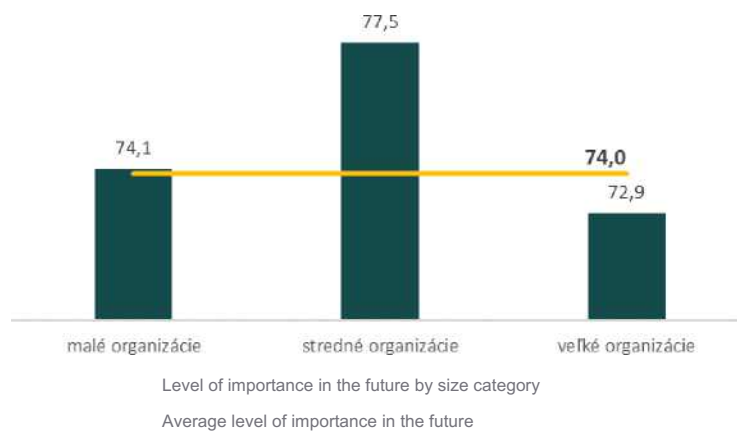
CRITICAL THINKING					
The decline in the importance of Critical Thinking was noted in the housing and catering sector, where					
E Dodávka vody; odvod odpad. vôd, odstraň. odpadov		A Poľnohospodárstvo, lesníctvo a rybolov		P Vzdelávanie	
súčasnosť: 52,5	budúcnosť: 78,3	súčasnosť: 63	budúcnosť: 77	súčasnosť: 66,1	budúcnosť: 78,4

the current importance was rated by respondents at 70.5 points and expected the future importance of this skill to 66.1 points. According to respondents, a change in the importance of **critical thinking** in the future is not foreseen in the Arts, Entertainment and Recreation sector. The level of importance in this sector is the same now and in the future, namely 76 points. The lowest increment of importance of **Critical Thinking** is assumed by respondents in the Transport and Storage sector, where the current value of importance is 65 points and the future value of importance is assumed to be 69.2 points.

Respondents representing domestic and foreign organisations expect the same trend in the importance of **Critical Thinking**. Both groups of respondents expect the importance of this skills by 2030 at a level of about 74 points.

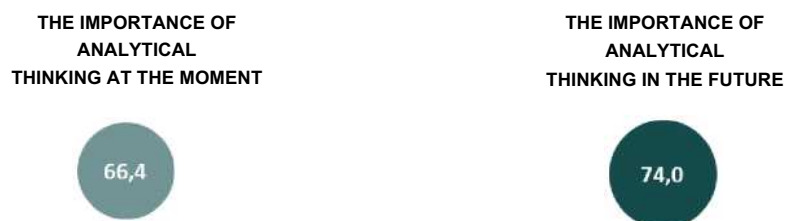


The importance of **critical thinking** skills is expected to average 74.0 points in the future. Its importance is also perceived by small organisations. It is given greater importance to medium organisations, on the other hand to smaller large organisations.

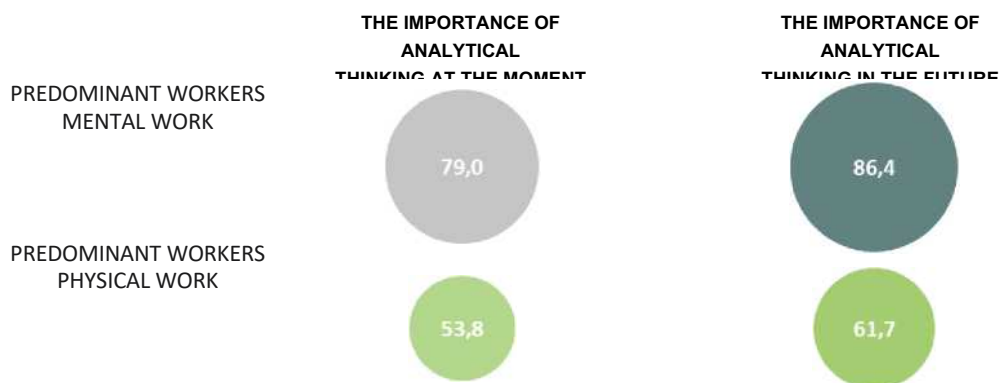


3.1.4 Analytical thinking

Respondents to the questionnaire predict an increase in **the importance of Analytical Thinking** from the present value of 66.4 to 74.0 points. This is a below-average expected increase compared to other skills in the questionnaire survey. Nevertheless, a significant need for **Analytical Thinking among** workers in the future can be expected.



As in previous skills **Analytical thinking** is more important for workers with the predominance of mental work. According to respondents, the current importance of **Analytical Thinking** at 79.0 points will increase to 86.4 by 2030. For workers with a predominance of physical work, respondents expect an increase in importance from 53.8 to 61.7 points.



From the point of view of the highest expected shift in importance of **Analytical Thinking**, the three TOP sectors listed in the table below can be evaluated. As can be seen, all three sectors have a very similar starting point within the current value of the importance of **Analytical Thinking**.

ANALYTICAL THINKING

No sector has declared a decline in the importance of analytical thinking in the future. Respondents in the transport and storage sectors (from a current value of 70.4 to 72.7 points), accommodation and

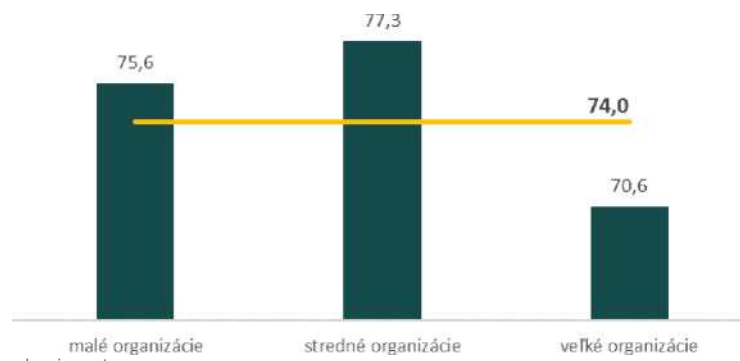


catering services (from present value 60 to 63.9 points) and in the construction sector (from 76.1 to 80) expect the lowest expected increase in the importance of this skill. Although these three sectors have been assessed as having the lowest expected increase in the importance of the skills in question for the future, their starting position in terms of current importance is relatively high. This means that workers in these sectors already need to use **analytical thinking** at least on average.

Analytical thinking is perceived by both domestic and foreign enterprises in terms of importance in a similar way. However, higher expectations for the future, in terms of the importance of this skill, have domestically owned businesses. Their expectations are 75.7 points, compared to those of respondents representing foreign businesses, where the level of importance is 72 points.



The expected importance of **analytical thinking** skills in the future is an average of 74.0 points. Similarly, the importance of small organisations is perceived. It is given greater importance to medium-sized organisations, on the other hand to smaller large organisations.



Level of importance in the future by size category
Average level of importance in the future

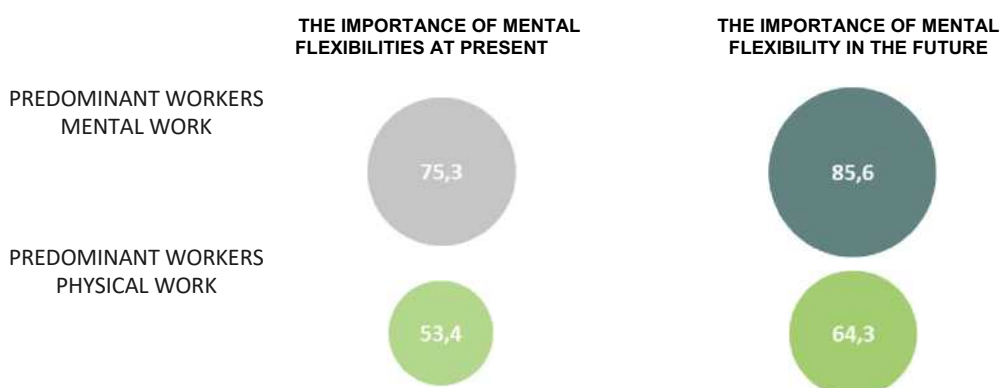
3.1.5 Mental flexibility

Mental flexibility also ranks among the skills whose importance in the future will be higher than it is today. On average, this skill is needed for

the performance of work in the Slovak Republic at the level of 64.4 points, in the future, respondents expect an increase in the importance of this skill by more than 10 points.



A difference in the perception of **Mental flexibility** can be observed in the division of workers into two defined categories. While employers do not currently place a high emphasis on **Mental flexibility** at work among workers with the predominance of physical work (respondents assessed the importance of this skill at 53.4 points now), for workers with a predominance of mental work, the current level of importance of the skill in question is 75.3 points. The expected increase in importance for the future is similar in both categories, respondents expect an increase of around 10 points by 2030.



In this case, the agriculture, forestry and fisheries sector also appeared among the top three sectors with the highest expected increase in the importance of **Mental flexibility** for the future (2030). One of the reasons may also be that this sector has some of the lowest scores of all sectors when assessing the current importance of the skills examined. For this reason, the expected changes in the importance of selected skills for the future can be significantly reflected in the shift in importance. Here again, respondents expect the importance of **Mental flexibility** in the agricultural, forestry and fisheries sector to increase from 60.5 points to 77 points by 2030. In addition, two other sectors with high expected growth have also been assessed, which are listed below.

MENTAL FLEXIBILITY					
A Poľnohospodárstvo, lesníctvo a rybolov		D Dodávka elektriny, plynu, pary a studeného vzduchu		P Vzdelávanie	
súčasnosť:	budúcnosť:	súčasnosť:	budúcnosť:	súčasnosť:	budúcnosť:
60,5	77	57,9	72,9	62,6	75,9

By 2030, respondents do not anticipate a decrease in the importance of **Mental flexibility**. The lowest increments of importance are expected in the Arts, Entertainment and Recreation sectors (an increase in importance from the present value of 64 to 66 points) and Transport and Storage (from the present value of importance 64.6 points to 69.6 points). The sovereign importance of **Mental flexibility** in the future is expected by respondents in two sectors, namely financial and insurance activities (91.3 points) and real estate activities (91 points).

The greater importance of **Mental flexibility** was mentioned in the questionnaire survey by respondents representing domestic institutions. However, the difference with foreign institutions is not significant. In the future (2030), the importance of this skill is expected to be 76.7 points in domestic institutions and 73.6 points abroad.



The expected importance of **Mental flexibility** in the future is on average 74.9 points. It is given greater importance in the future by small organisations and medium-sized organisations.



3.1.6 Planning and work methods

Respondents assume that in the future (by 2030) workers will need to make greater use of the skills of **Planning and ways of working**. Currently, the average level of importance of the skills in question is 66.8 points, and by 2030 respondents expect to increase to 75.3 points.

THE IMPORTANCE OF PLANNING
AND WAYS OF WORKING TODAY



THE IMPORTANCE OF PLANNING
WAYS OF WORKING IN THE FUTURE



Planning and working methods are more important today and in the future for workers with the predominance of mental work. Their current level of importance is 78.0 points, the future is expected to be 86.4 points. For workers with the predominance of physical work, the trend of expected development is more than 20 points lower than those with a predominance of mental work.



In sectors where **planning and working methods** are of low or lower importance at present, this figure can be expected to increase significantly in the future (by 2030). An example is the agriculture, forestry and fisheries sector, where respondents expect this skill to grow from the current 58.5 points to 74.0 by 2030. Similarly, the other two sectors are listed in the lower graphics. These are the sectors with the highest expected increase in importance for the skills studied by 2030.

PLANNING AND WAYS OF WORKING					
E Dodávka vody; odvod odpad. vôd, odstraň. odpadov		A Poľnohospodárstvo, lesníctvo a rybolov		P Vzdelávanie	
súčasnosť: 62,5	budúcnosť: 78,3	súčasnosť: 58,5	budúcnosť: 74	súčasnosť: 66,1	budúcnosť: 78

The importance of **Planning and working methods** is expected by respondents in the housing and catering sector (from the current level of importance 77.8 points to the expected importance of 73.9 points). Respondents in the Arts, Entertainment and Recreation sectors, where respondents expect an increase in importance from 78 to 80 points, and in the Transport and Storage sector, where a similar increase in importance is expected from 77.3 points to 81.2 points, predict the lowest gain in the skills in question. Both sectors, with low expected growth, have an above-average starting point in the use of the skills in question already today, which may be one of the reasons for the lower expected increase by 2030.

A significant difference in the perception of the importance of **Planning and working methods** can be observed in the division of respondents into representatives of domestic and foreign organisations (firms). Respondents representing domestic organisations declare that this skill is more important for workers not only now but also in the future. The difference between the expected importance of the skills examined in these two types of organisations is more than 6 points.



The expected importance of skills **Planning and ways of working** is on average 75.3 points in the future. Greater importance is given to small and medium-sized organisations.



3.1.7 Digital skills

In connection with the concepts of Work 4.0, Industry 4.0, Innovation, etc., it can be expected that **Digital Skills** will be the TOP skill for which the future workforce needs to prepare. **With a gain of 76.1 points (as expected value of importance in the future), it ranked fourth in terms of highest point level achieved.** In doing so, it confirmed dominance as one of the skills on which the education system will have to focus strongly.

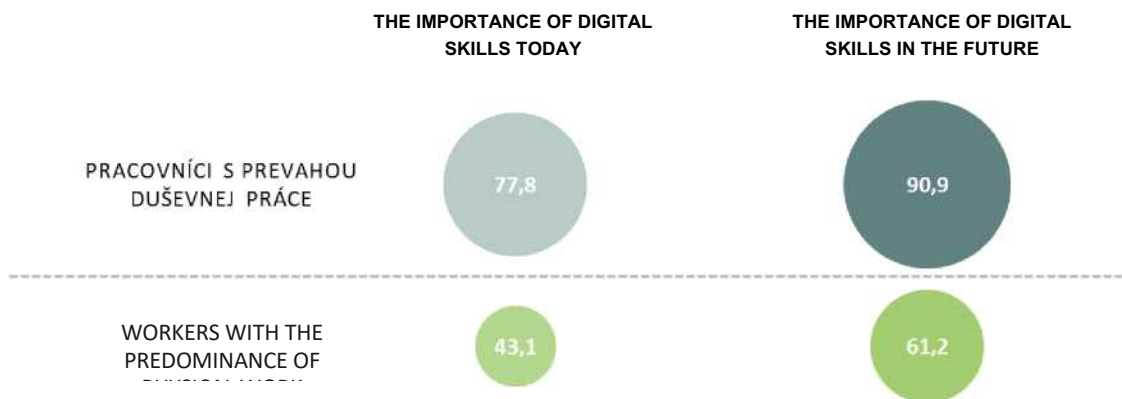
THE IMPORTANCE OF DIGITAL SKILLS AT PRESENT



THE IMPORTANCE OF DIGITAL SKILLS IN THE FUTURE



Digital skills have reached a high level of importance, especially in the expected development of workers with the predominance of mental work. It is for them that respondents expect the importance of **digital capabilities** at the level of 90.9 points. In this category of workers, the **importance of digital skills** is still high (77.8 points). Compared to workers with the predominance of physical work, this is significantly higher (by almost 35 points).



The top sectors with the highest expected increase in the **importance of digital capabilities** by 2030 include the following:

DIGITÁLNE SCHOPNOSTI					
E Dodávka vody; odvod odpad. vôd, odstraň. odpadov		L Činnosti v oblasti nehnuteľností		A Poľnohospodárstvo, lesníctvo a rybolov	
súčasnosť:	budúcnosť:	súčasnosť:	budúcnosť:	súčasnosť:	budúcnosť:
56,7	80,8	64	86	58	77,5

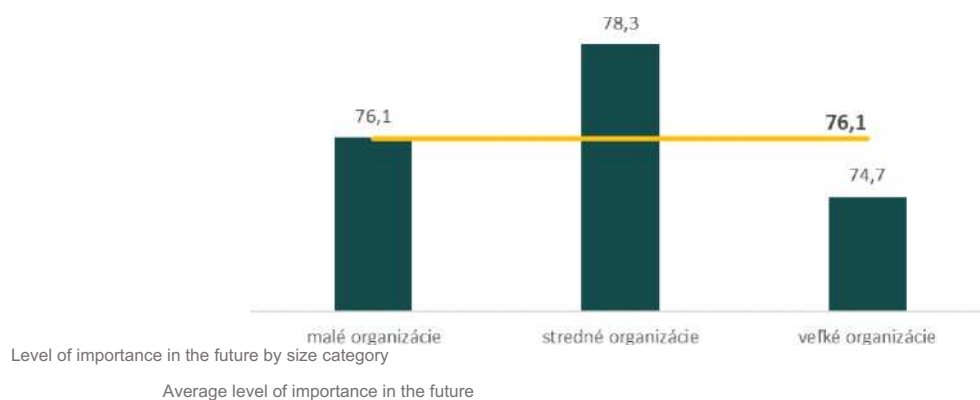
The importance of **digital capabilities** is not expected by respondents in any sector. The lowest increase in importance was recorded in the financial and insurance sectors; Construction and Arts, Entertainment and Recreation. Despite the fact that we are talking about the lowest expected increase, in the case of **digital capabilities**, even the lowest increases are highly above average, compared to other skills. An example is financial and insurance activities, where, although the lowest increase in the importance of

the skills in question is expected by 2030, the increase still stands at 8.75 points.

Representatives of domestic organisations expect a slightly higher degree of importance **of digital capabilities than** representatives of foreign organisations. However, looking at the overall expected shift in both categories examined, the result is very similar. It can be said that representatives of domestic organisations perceive the importance of digital capabilities in the future in the same way as representatives of foreign organisations.



The expected importance **of digital capabilities** is on average 76.1 points in the future. Their importance is also perceived by small organisations. They are given greater importance to medium-sized organisations, on the other hand to smaller large organisations.

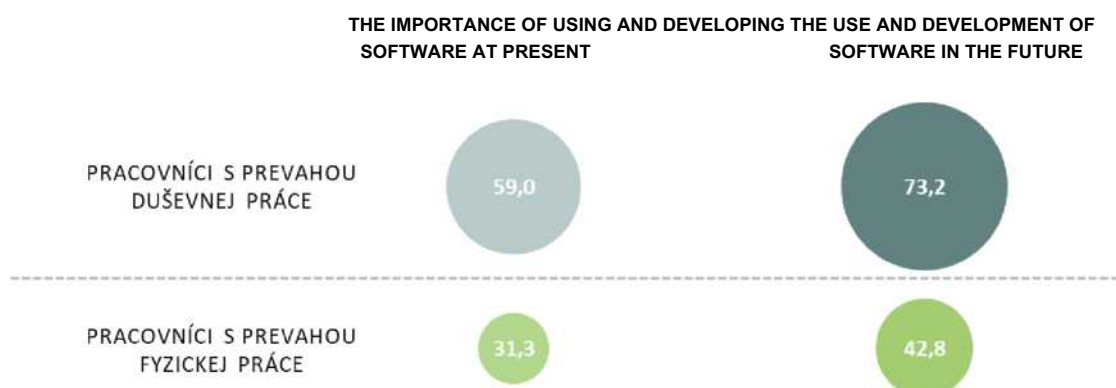


3.1.8 Usage and development of the software

Respondents expect a stronger future increase in importance also in **software usage and development** skills, at a level of around 13 points. However, the level of importance determined by respondents alone is not significantly high and is below the average level compared to other skills.



A higher degree of importance was shown in the splitting of the responses received into two categories of workers. For those with a predominance of mental work, respondents assume future importance at a level of more than 73 points. On the other hand, there is a presumption **of lower need for the use and development of software** both now and in the future for workers with the predominance of physical work.



When evaluating the three sectors with the most significant shift in the importance of the skills in question, low baselines can again be observed. All three sectors listed below currently have a relatively low level of relevance for the skills studied by respondents. This may, at a higher expected value, highlight the gap between the current and future importance of a given skill. Nevertheless, in terms of importance, the financial and insurance activities sector is also among the TOP three sectors, in which the use and development of software for workers is already an important skill.

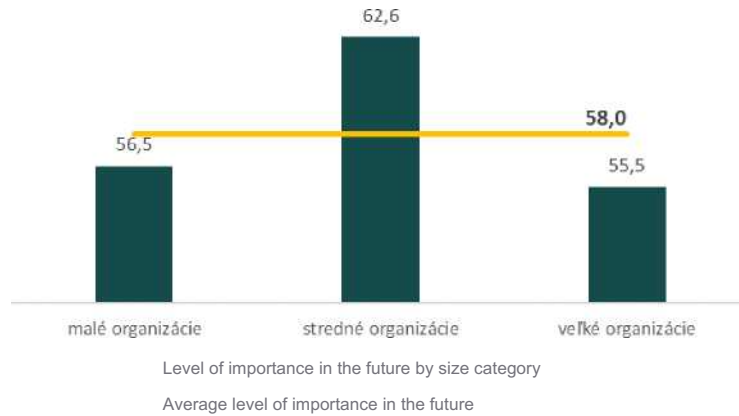
USE AND DEVELOPMENT OF SOFTWARE					
A Agriculture, forestry and fisheries		K Financial and insurance activities		D Supply of electricity, gas, steam and cold air	
present: 46,5	future: 66	present: 60	future: 78,8	present: 37,1	future: 55

A decline in the importance of the skills examined is not foreseen in any sector. **The use and development of software** will continue to be important until 2030. The lowest increase in importance was recorded in the housing and catering sectors (from 42.2 to 46.7) and Arts, Entertainment and Recreation (from 35.0 to 42.0).

Similarly, the current and future importance of the **use and development of software** is perceived by respondents representing both domestic and foreign organisations. However, the skills in question are somewhat more important from the point of view of respondents representing domestic organisations.



The expected importance of skills **Use and development of software** in the future is an average of 58.0 points. Medium-sized organisations see its importance significantly higher than small and large organisations.

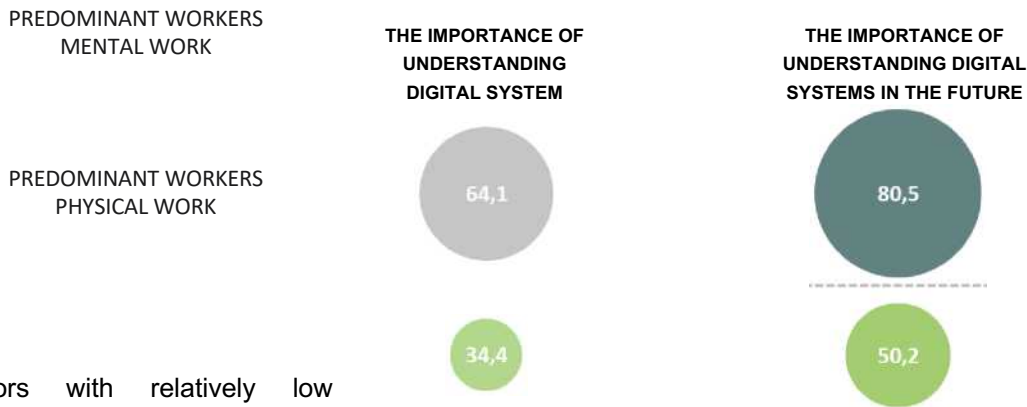


3.1.9 Understanding of digital systems

A significant shift in expected importance has seen the skill of **Understanding digital systems**. Respondents predict an increase in the level of importance from the present value of 49.3 points to 65.4 points. When assessing skills according to the expected change of importance for the future (2030), **Comprehension of digital systems is the third with the highest expected increase in importance.**



When assessing the importance of two categories of workers, the situation is diametrically different. While for workers with a predominance of mental work, **understanding of digital systems** will be a key skill (an assumption of importance of 80.5 points), for workers with the predominance of physical work, a level of importance of 50.2 points is assumed. However, the increase from the current to the next expected level is similar in both categories of workers, around 16 points.



Sectors with relatively low

importance of the skills in question currently have the potential to make significant progress in terms of expected importance in the future. The following are the sectors that, due to the low importance of **understanding digital systems** at present, expect a significant increase in the importance of this skills for the future (2030).

UNDERSTANDING OF DIGITAL SYSTEMS

Respondents do not expect a decline in the importance of the skills examined by 2030 in any sector.

Understanding digital systems will be significantly more important in the future than in most sectors

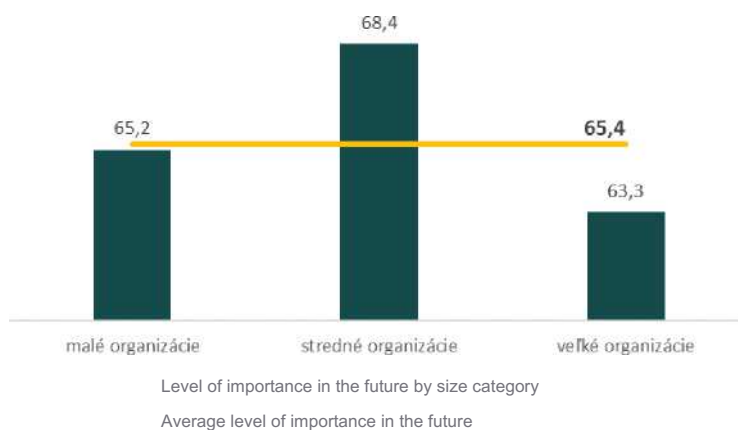


today. The average increase in importance in all sectors combined is more than 15 points. Sectors have been identified which, according to respondents, will not require mastery of this skill at such a high level. These sectors include: Arts, entertainment and recreation (respondents expect an increase in importance from the current value of 34 points to 41 points) and Mining and quarrying (expected increase from the current 50 to 58.7 points).

Almost identical is the perception of the importance of the skills in question among respondents representing both domestic and foreign organisations. The level of importance is the same for the present and the future.



The expected importance **of understanding digital systems** is on average 65.4 points in the future. Medium-sized organisations, and smaller large organisations, attach greater importance to skills.



3.1.10 Developing relationships

Developing relationships is, according to respondents, one of the skills that will be of high importance in the performance of work. This is also evidenced by the fact that respondents have already assessed the importance of this skill at 66.6 points.

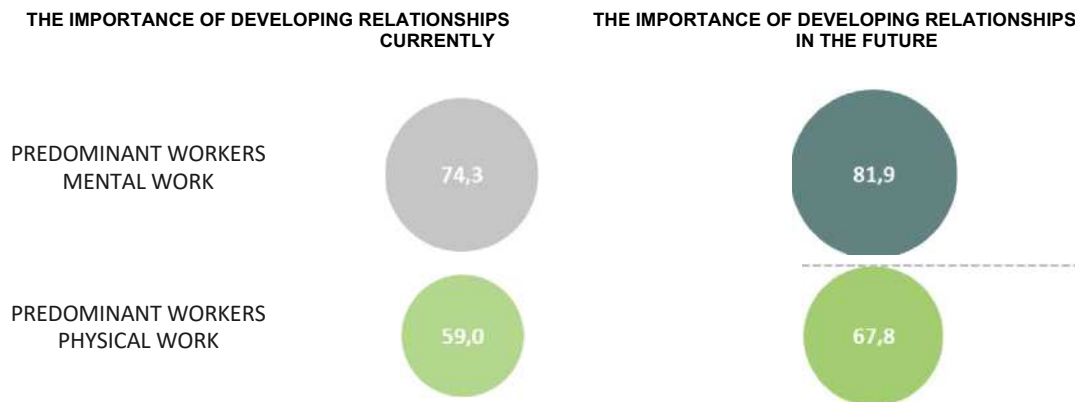
THE IMPORTANCE OF DEVELOPING RELATIONSHIPS CURRENTLY



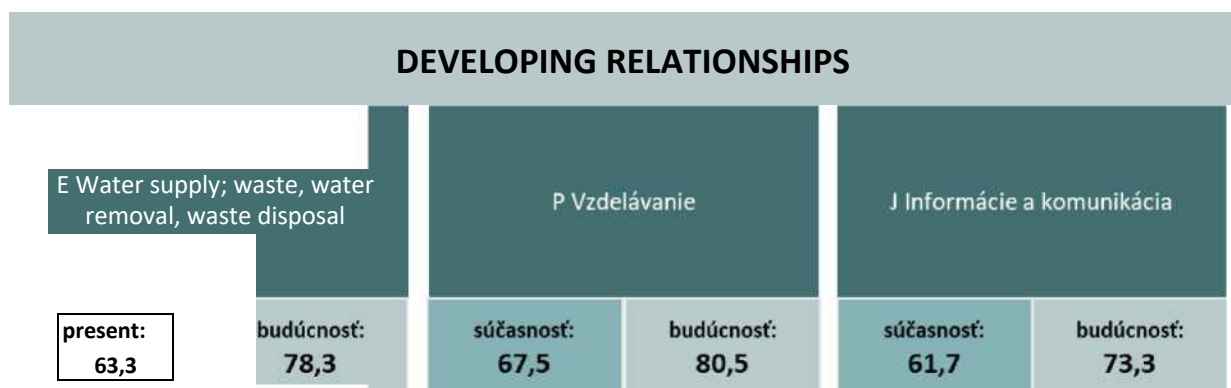
THE IMPORTANCE OF DEVELOPING RELATIONSHIPS IN THE FUTURE



Developing relationships is an important skill for both categories of workers (with the predominance of mental or physical work). Despite differences in values, a relatively high level of importance can be observed today and in the future among workers with the predominance of physical work.



The following three sectors are expected to increase **the importance of developing relations** in the future (by 2030).



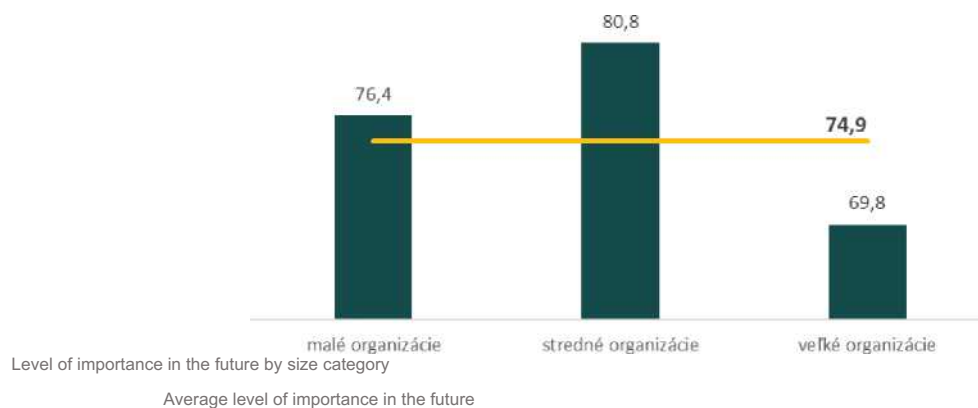
Also, in this skill examined, respondents do not foresee a drop in importance by 2030. The sectors with the lowest expected increment of importance include: Arts, entertainment and recreation (this sector, according to respondents, already has a high degree of importance, namely 72 points. In the future, respondents expect an increase of only two points, i.e. to 74. The second sector with the lowest growth is accommodation and food services, which are already at the highest of all sectors in the Slovak Republic – 88.9 points. The expected change is 2.2 points.

There is a different perception of **the importance of developing relationships** among respondents representing domestic organisations. **Developing relationships** is currently important for them at 69.5 points, while for

foreign organisations it is 62.4 points. In terms of expectations for the future (2030), representatives of domestic organisations assume the importance of this skill at the level of 78 points, which is almost 10 points higher than representatives of foreign organisations.



The expected importance of skills **Developing relationships** in the future is an average of 74.9 points. It is given greater importance to small and medium-sized organisations compared to large organisations.



3.1.11 Mobilisation

According to respondents, **mobilisation** as a skill is currently important in performing work at 57.1 points out of a maximum of 100. In the future, respondents expect the level of importance to rise to 68.7 points.

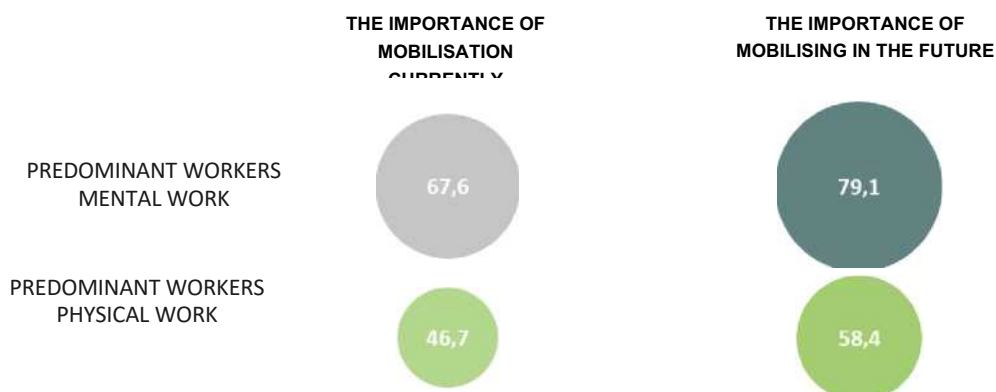
THE IMPORTANCE OF
MOBILISATION
CURRENTLY



THE IMPORTANCE OF
MOBILISATION
IN THE FUTURE



A relatively high difference can be observed in the division of workers into the two categories covered. The values determined by respondents differ significantly when assessing both the present and the future. For workers with a predominance of mental work, respondents expect a level of importance of 79.1 points, which is 20.7 more than those with the predominance of physical work.



The highest expected increase in skills **Mobilisation** was recorded in the agriculture, forestry and fisheries sector, where respondents expect a future level of 75.5 points. In addition, two other sectors with the highest predicted increase in the importance of the skills examined in the future are presented below in the graphic evaluation.

MOBILISATION

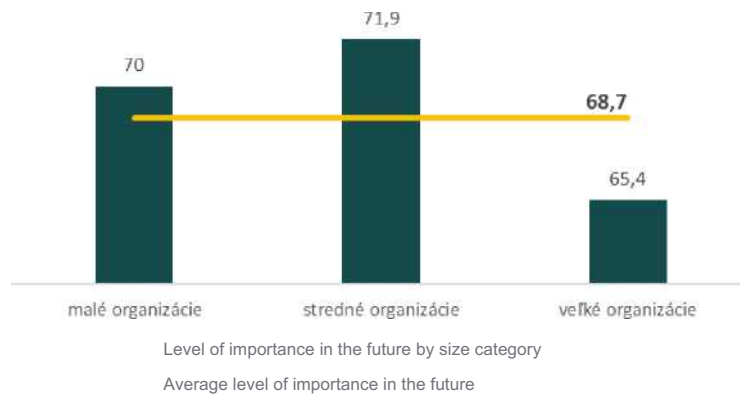
A Agriculture, forestry and fishing		O Public Administration and Defence; compulsory social security		E Water supply; waste collection, water, waste disposal	
present:	future:	present:	future:	present:	future:
58,5	75,5	52,9	69,5	56,7	70,8

Respondents across all sectors anticipate an increase in the importance of skills Mobility by 2030. Thus, none of the sectors assumes a decline in the importance of this skill. At present, the skill in question is the most important, according to respondents in the housing and catering sector, where it is important at 75.6 points. Due to the high level of importance at present, the expected shift can no longer be so significant, and therefore this sector is also among those that expect a change in the importance of this skill (by 7.8 points). In addition, the sector with the lowest increase in **the importance of Mobilisation** can also be included in the construction sector, where respondents estimated the increase in importance only at 5.5 points (from the current value of 64.7 points to 70.2 points).

The importance of mobilising is perceived in the same way by respondents representing domestic organisations as respondents representing foreign organisations. Somewhat higher importance in the future (by 2030) is assumed by respondents representing domestic organisations.



The expected importance of skills **Mobilisation** is an average of 68.7 points in the future. It is given greater importance to small and medium-sized organisations compared to large organisations.



3.1.12 Effective teamwork

From the perspective of the future, **effective teamwork** appears to be the most important. This skill is given the highest importance by respondents, namely 77.5 points. This has become the most important skill for workers in the future. Compared to the current assessment, an increase of 11 points is expected.

THE IMPORTANCE OF EFFECTIVE TEAMING WORK CURRENTLY



THE IMPORTANCE OF EFFECTIVE TEAMING WORK IN THE FUTURE



Significantly higher importance of **Efficient Teamwork** is assumed for workers with the predominance of mental work. From the current level of importance 74.9 points, respondents expect an increase to 85.1 points. For workers with the predominance of physical work, this skill will also be important in the future – namely at 69.9 points.



Sectors Education, real estate activities and water supply; wastewater drainage, waste disposal are among those sectors that, according to respondents, will see the highest increase in the **importance of efficient teamwork**. Below is graphically shown their expected increase.

EFFECTIVE TEAMWORK

Currently, the highest **importance of effective teamwork** has been given to respondents in the housing and catering sector (up to 85.6 points). For this reason, the expected significant increase in importance by 2030 cannot be expected and therefore ranks among the sectors with the lowest expected growth in

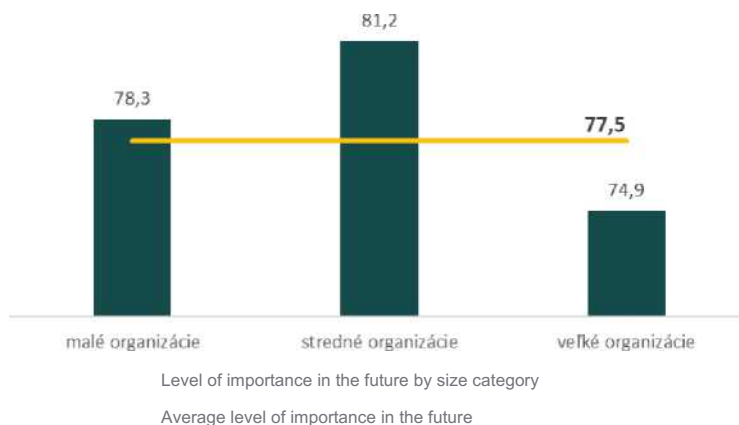


importance with an increase of 4.4 points. A similar situation is also in the financial and insurance sector, where, while the expected increase in the importance of this skill is “only” at 6.3 points, the level of importance is 78.6 in terms of today’s assessment, which again demonstrates the lowest shift in those sectors that have a high level of importance today.

Respondents representing both domestic and foreign organisations perceive the current and future importance **of effective teamwork** at a similar level. From the perspective of the future, representatives of domestic organisations assume a higher degree of importance.



The expected importance of skills **Effective teamwork** is on average 77.5 points in the future. They also see the importance of small organisations. It is given greater importance to medium-sized organisations compared to large organisations.



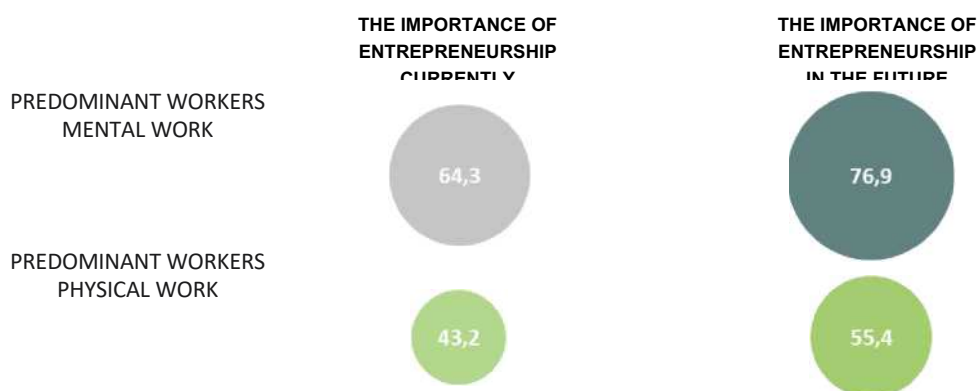
3.1.13 Entrepreneurship

According to respondents, the importance of entrepreneurship **will** grow by more than 12 points by 2030.



In terms of the division of workers into two categories, respondents in this case also expect a higher degree of importance for mentally predominant workers. There are currently lower values for the importance of entrepreneurship **among** workers with the predominance of physical work.

and while a positive trend towards 2030 is expected, they will not be seen as particularly important in the future, according to respondents.



Business is of little importance in terms of **use**, according to respondents, also in the water supply sector; wastewater drainage, waste disposal. Compared to today, however, respondents expect a significant increase in the level of importance by 2030 (an increase of more than 19 points).

ENTREPRENEURSHIP

According to respondents, entrepreneurship will be **more important by 2030 in all sectors. No**

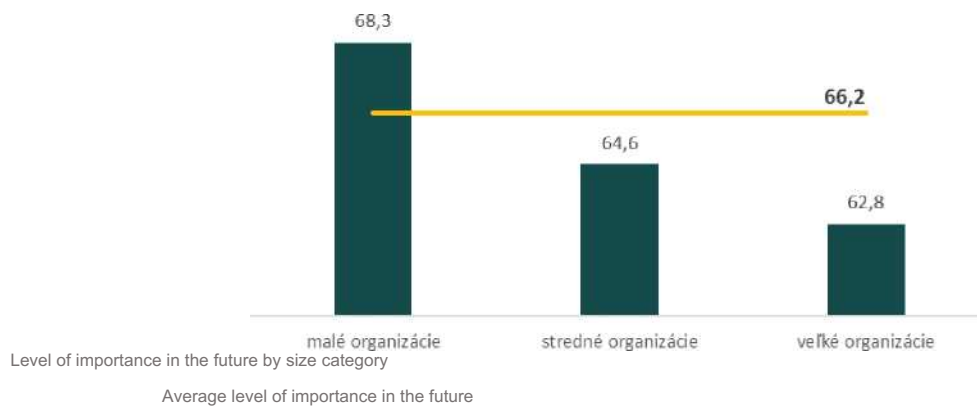


expected decline was captured from the analysis of the results. Nevertheless, there are sectors that, according to respondents, do not notice a significant increase in the importance of this skill. This is the mining and quarrying sector, in which respondents determined the current importance at 58.8 points and estimated the future importance of this skill at 61.3 points. In the Arts, Entertainment and Recreation sector, the situation is similar, respondents on average rated the importance of entrepreneurial skills at the level of 50 points and the assumption of future importance by 2030 at 57 points.

Respondents representing domestic organisations expect a higher degree of entrepreneurship than **foreign** organisations in the future.



The expected importance of entrepreneurship is on average 66.2 points in the future. It is given greater importance to small organisations compared to medium-sized and large organisations.



3.1.14 Achieving goals

In the overall assessment of importance, **Achieving the targets** ranked second, suggesting that this skill will be very important by 2030, according to respondents. Already, the average level of importance of this skill is 64.9 points. By 2030, respondents expect an increase to 76.4 points.

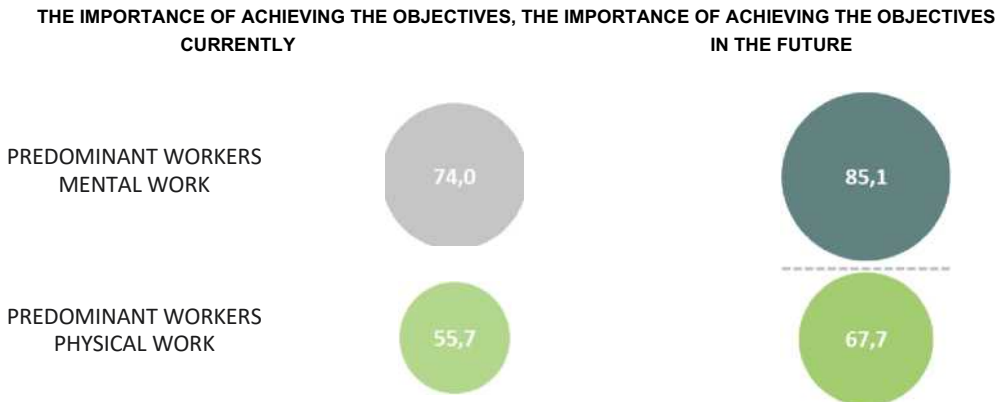
THE IMPORTANCE OF ACHIEVING THE OBJECTIVES CURRENTLY



THE IMPORTANCE OF ACHIEVING THE OBJECTIVES IN THE FUTURE



According to respondents, **achieving the objectives** will be particularly important for workers with a predominance of mental work. The expected level of importance is 85.1 points. For workers with the predominance of physical work, this skill will also be important – although the level of importance is not as high as in the first case, it still achieves an above-average result compared to other skills.



The most significant increases in the importance of the skills in question are expected in the three sectors listed below.

ACHIEVEMENT OF OBJECTIVES

E Water supply; waste collection,

A Agriculture, forestry and fishing

P Education

present:	future:	present:	future:	present:	future:
54,2	75,8	61	77	62,6	78,4

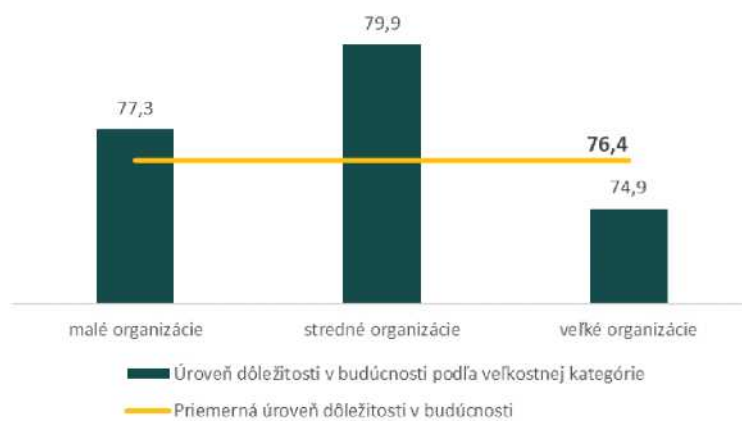
In all sectors surveyed, respondents anticipate an increase in the importance of achieving the **targets** by 2030. Of all sectors, there are two significantly higher starting positions (the value of the skill in question is currently at a high level). For this reason, these sectors are among those that, according to

respondents, will feel the lowest increase in the importance of the skills examined by 2030. This is the real estate activity sector, for which the skill **of achieving the goals** is already important at 81 points and the assumption by 2030 is 84 points. In addition, the financial and insurance activities sector, which currently considers the skills examined to be important at 87.5 points, is forecast by respondents to increase “only” by 5 points to 92.5 points in 2030.

Respondents representing foreign organisations perceive the current and **future importance of achieving higher-level objectives** compared to respondents representing domestic organisations.



The expected importance of skills **Achieving goals** is on average 76.4 points in the future. Small and medium-sized organisations attach greater importance to it compared to large organisations.

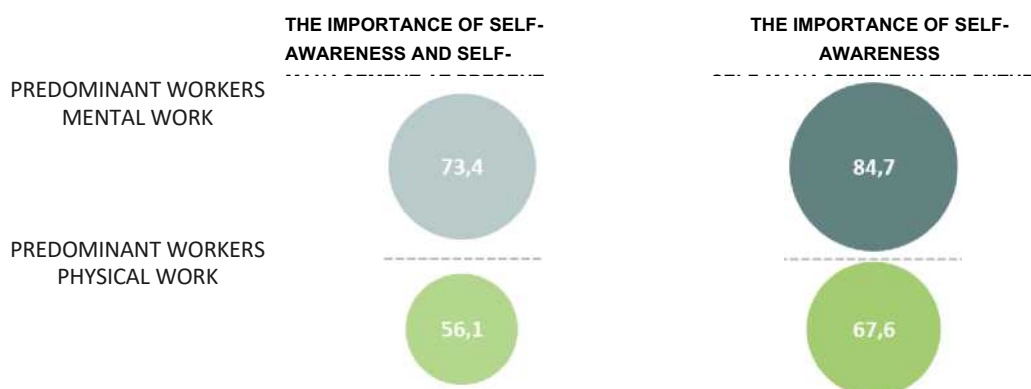


3.1.15 Self-awareness and self-management

It is interesting to evaluate the importance of self-awareness and self-management skills. Respondents expect future importance at 76.2 points, which ranks this skill as the third most important skill by 2030.



Even when evaluating two categories of workers, respondents assume that this skill is of high importance in the performance of the work. For workers with a predominance of mental work, the importance is assumed to be 84.7 points, for those with the predominance of physical work, it is 67.6 points.



The Education sector, according to respondents, will be the sector that will experience the greatest increase in the importance of self-awareness and self-management (more than 17 points). In addition, two other sectors with the highest expected growth in the future are listed below.

SELF-AWARENESS AND SELF-MANAGEMENT					
P Vzdelávanie		A Poľnohospodárstvo, lesníctvo a		K Finančné a poisťovacie činnosti	
súčasnosť:	budúcnosť:	súčasnosť:	budúcnosť:	súčasnosť:	budúcnosť:
61,6	79	62,5	78,5	76,3	91,3

Respondents do not anticipate a decline in the importance of the skills examined in any sector by 2030.

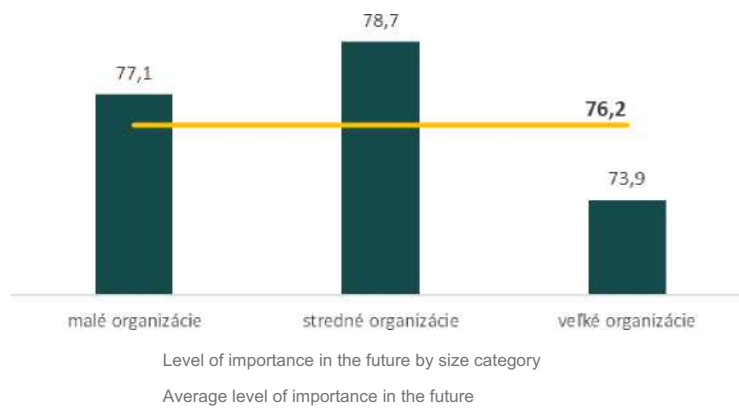
Self-awareness and self-management will have the lowest increase in importance by 2030, according

to respondents, in the Arts, Entertainment and Recreation sector (from current importance 67 to 74 in 2030). The second sector with the expected lowest increase in the importance of the skills in question is the Construction sector (from the current value of 66.3 points to 74.2, an increase of 8.75 points).

Somewhat more important is the skill in question to respondents representing domestic organisations. This trend was reflected in the determination of the present and future value.



The expected importance of **self-awareness and self-management** skills is an average of 76.2 points in the future. Small and medium-sized organisations attach greater importance to it compared to large organisations.



3.1.16 Mathematical Literacy

Mathematical literacy is gaining importance in the performance of work, which can be observed in the evaluation of both the present as well as the future measure of its importance. The increase expected by respondents is more than 11 points.

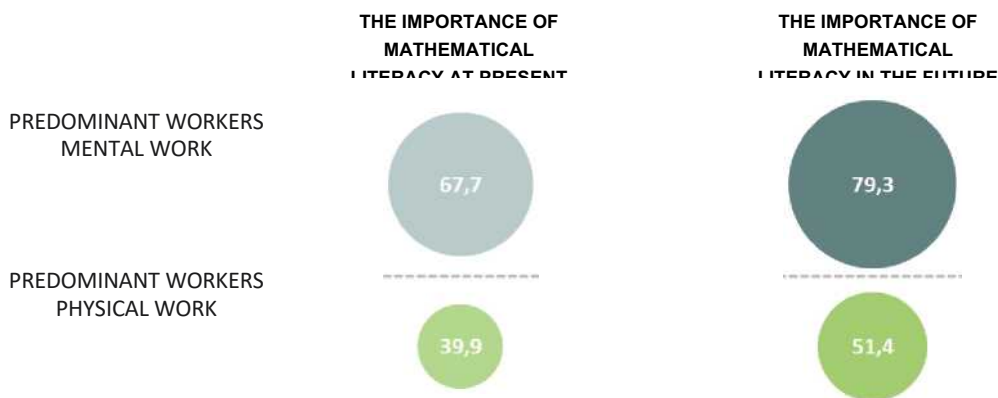
THE IMPORTANCE OF
MATHEMATICAL
LITERACY AT PRESENT



THE IMPORTANCE OF
MATHEMATICAL
LITERACY IN THE FUTURE



With the predominance of physical work, today, according to respondents, mathematical literacy is less important. Respondents expect an increase in the level of importance to 51.4 points, but this is a significant difference (more than 27 points) compared to the expected value for workers with a predominant mental work.



The most significant shift in the importance of **Mathematical Literacy** is expected by respondents in the three sectors listed below.

MATHEMATICAL LITERACY

According to respondents, **mathematical literacy** will be needed to a higher extent by 2030 in each of

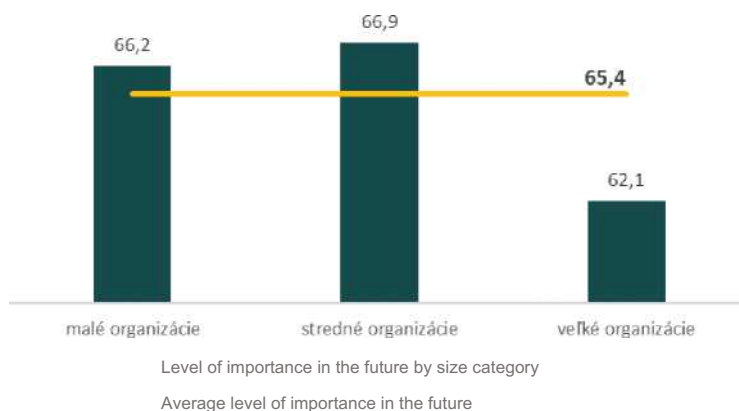


the sectors surveyed. There was no decrease in importance. The sector Arts, Entertainment and Recreation (from the current importance of 42 points to 43 points, i.e. an increase of one point) is also expected to gain importance at a lower level, also in the wholesale and retail sector, the repair of motor vehicles, where respondents expect a shift from 52.6 to 59.7 points.

The importance of **Mathematical Literacy** is currently perceived by respondents representing both domestic and foreign organisations in the same way. For the expected shift to the future (2030), respondents representing domestic organisations expect a higher level of importance. However, the difference is minimal (less than 2 points).



The expected importance of **Mathematical Literacy** is 65.4 points in the future. Its importance is also perceived by small organisations. It is given greater importance to medium-sized organisations compared to large organisations.



3.1.17 Economic and Financial Literacy

According to the results of the questionnaire, **economic and financial literacy will become more prominent**. On average, respondents expect its importance to increase from 57.6 points to 70.3 points.

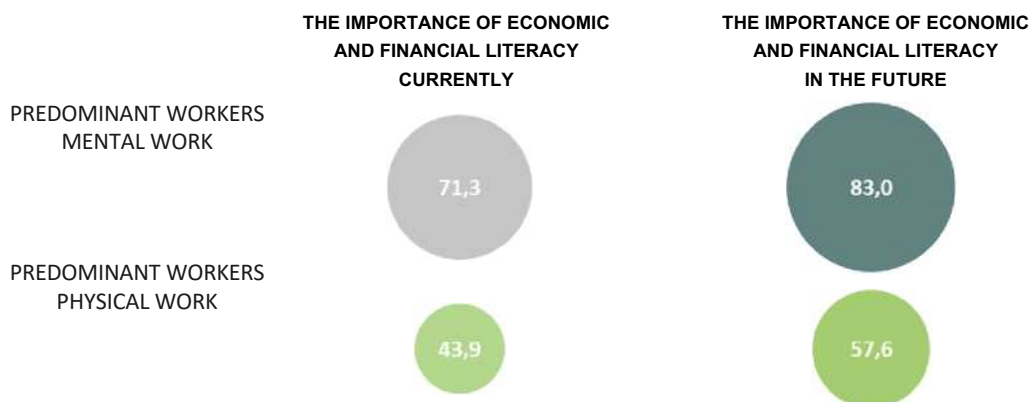
THE IMPORTANCE OF ECONOMIC AND FINANCIAL LITERACY CURRENTLY



THE IMPORTANCE OF ECONOMIC AND FINANCIAL LITERACY IN THE FUTURE



A stronger expected increase was observed in both categories of workers examined. In numerical terms, workers with a predominance of mental work have now reached a level of importance of 71.3 points, with an expected future shift of more than 11 points.



Respondents in the real estate activity sector expect the most significant shift in the importance of economic **and financial literacy**. This is an expected shift of 18 points. The graphical picture below shows two other sectors of the national economy that are expected to have a high degree of shift in the future.

ECONOMIC AND FINANCIAL LITERACY

According to respondents, the importance of economic and financial literacy will be significantly higher

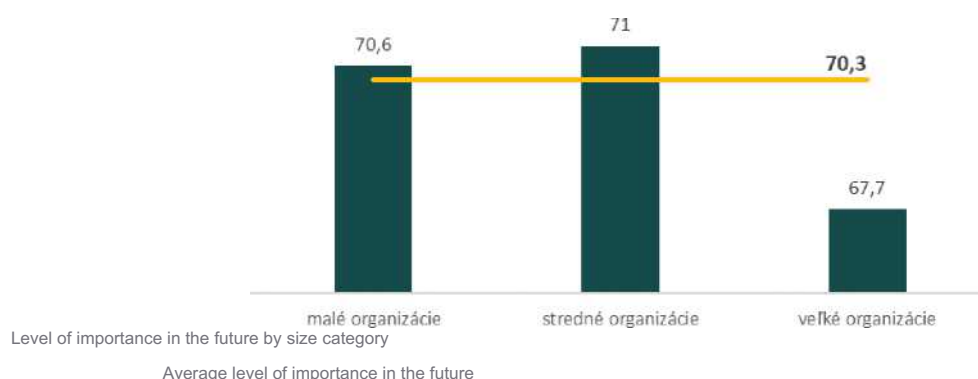


in all sectors of the national economy by 2030. There was no decline in importance in any of the sectors under review. For two sectors, a low point shift in importance was observed. In the first case, it is the Arts, Entertainment and Recreation sector, where respondents assume a shift in the importance of this skill by only 4 points. They have assessed the current importance in the sector at 46 points and expect the skills in question to be of 50 points by 2030. The second sector with the lowest shift in importance is the financial and insurance sector. However, the low rate of expected shift in this sector is related to the sovereignly highest starting point when assessing the importance of this skill. Today, respondents estimate the **importance of economic and financial literacy** in the sector at 82.5 points and is expected to move to 90 by 2030.

Here too, respondents representing domestic organisations expect greater importance of economic **and financial literacy** in the future. The current demands are at approximately the same level for both types of organisations.



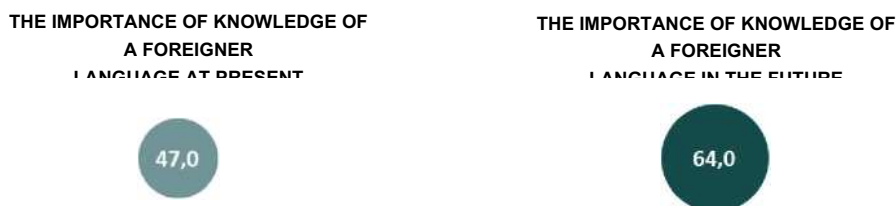
The expected importance **of economic and financial literacy** is on average 70.3 points in the future. Similarly, small organisations see their importance. It is given greater importance to medium-sized organisations compared to large organisations.



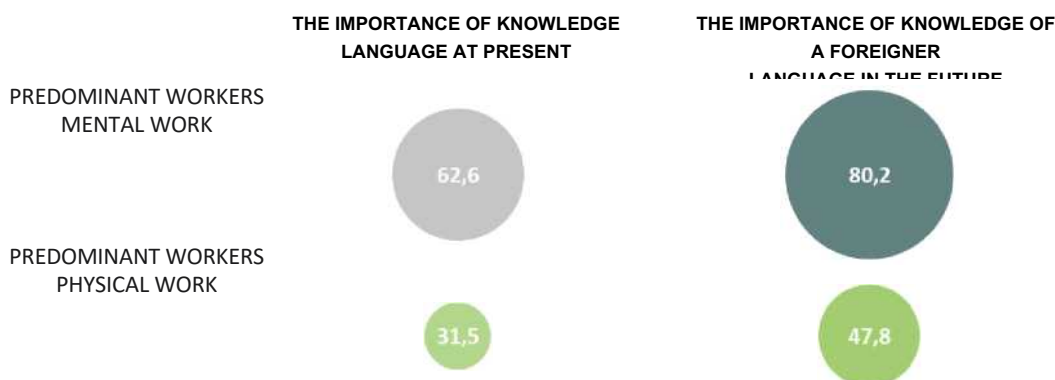
3.1.18 Knowledge of a foreign language

Surprisingly low is the expected value of **foreign language knowledge** in the future (2030). Currently, according to respondents, knowledge of a foreign language in the performance of work is only important at 47 points out of 100. A shift in importance is expected in the future, but it is not

as is the case with other skills. With a **gain of 64 points, knowledge of foreign language in complex categories was placed in the penultimate position.** The reason for a lower score could also be a significantly different assessment of importance in dividing into two categories of workers.



The aforementioned difference in the assessment of the importance of **knowledge of the foreign language** is visible in the following evaluation. For workers with a predominance of physical work, the level of importance is currently only 31.5 points, which is half as low as for workers with a predominance of mental work.



The highest shift in the importance of **Foreign Language Knowledge** is expected in the housing and catering sector.

KNOWLEDGE OF FOREIGN LANGUAGE					
I Ubytovacie a stravovacie služby		A Poľnohospodárstvo, lesníctvo a fishing		P Vzdelávanie	
súčasnosť:	budúcnosť:	súčasnosť:	budúcnosť:	súčasnosť:	budúcnosť:
53,9	78,3	37	60	46,1	68,3

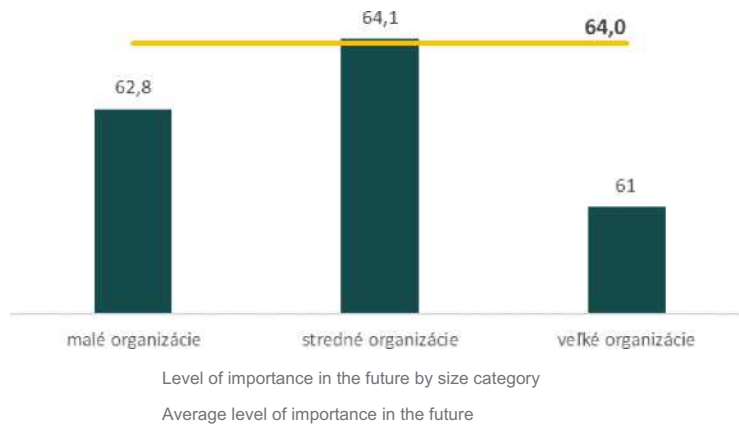
According to respondents, **knowledge of a foreign language** will be important in all sectors of the national economy by 2030. The expected decline in the importance of this knowledge is not expected by respondents in any sector. The lowest increases in the importance of **Foreign Language Knowledge** are expected in the Information and Communication sectors (from the current value of 51.7 to 63.3 in

2030) and in the Construction sector (from the current value of 45 points to 56.8 points). Respondents in the mining and quarrying sector expect the lowest level of importance in 2030.

Respondents representing both domestic and foreign organisations perceive the current and future importance **of effective teamwork** at a similar level. From the point of view of today, a higher level of importance is captured among representatives of foreign organisations.



The expected importance of **knowledge of a foreign language** is on average 64.0 points in the future. Similarly, the importance of the central organisations is perceived. It is given less importance to small and large organisations.



3.1.19 Environmental literacy

Among all skills assessed, **Environmental Literacy** has achieved the highest increase in future importance compared to the present value. This is an increase of more than 18 points. This result may indicate that the topic of **Environmental Literacy**, according to respondents, is beginning to come to the fore, which is confirmed by foreign trends.

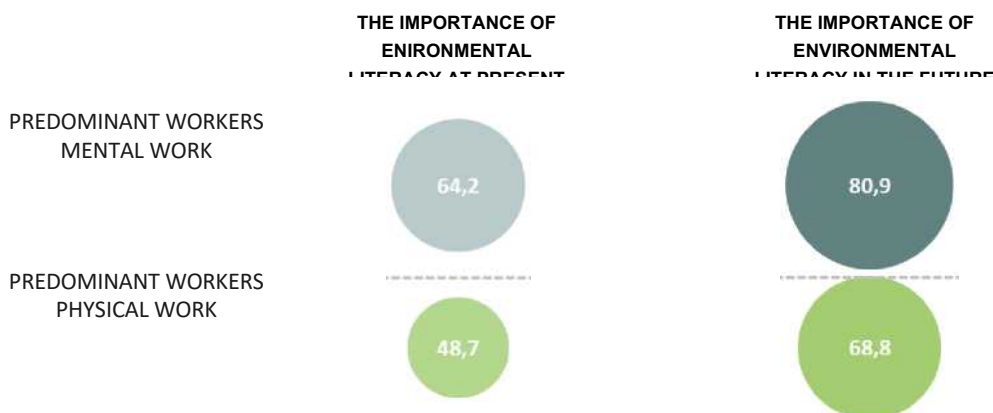
THE IMPORTANCE OF ENVIRONMENTAL LITERACY AT PRESENT



THE IMPORTANCE OF ENVIRONMENTAL LITERACY IN THE FUTURE



Environmental literacy will be greatly needed by both workers with a predominance of mental work and those with the predominance of physical work. For the first mentioned category, respondents expect an increase of up to 80.9 points.



In terms of the SK classification of NACE Rev. 2, three sectors were evaluated, where respondents expect the highest rate of increase in importance of the skills examined. These are the following sectors:

ENVIRONMENTAL LITERACY

The average increase in **the importance of environmental literacy** in all sectors of the national economy is at 18 points. Respondents do not expect a decline in the importance of this skills in any

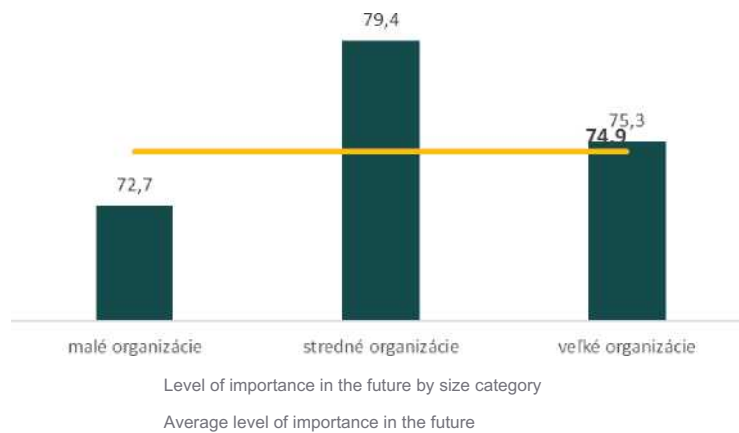


sector by 2030. Respondents expect the lowest gain in importance by 2030 in the mining and quarrying sector (from the current value of 53.8 to 66.3 points). The same lowest increase (by 12.5 points) is expected by respondents in the financial and insurance sector, but where the baseline is different – currently the average level of importance of this skill is 76.3 points and respondents expect an increase to 88.8 points.

Respondents representing both domestic and foreign organisations evaluate the future level of importance of environmental **literacy** in the same way. Both types of respondents expect the skill examined to be important at 75.3 points out of a possible 100.



The expected importance of **environmental literacy** is on average 74.9 points in the future. Similarly, the importance of these organisations is perceived by large organisations. It is given less importance to small organisations, and higher to medium-sized organisations.



3.1.20 Technical Literacy

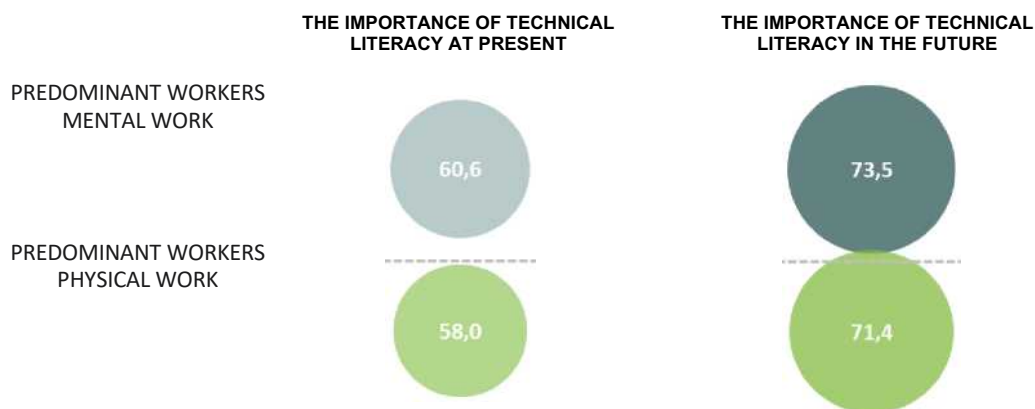
Technical literacy is also one of those skills for which the dependents expect a significant increase in importance (comparison of present and future expected importance).



It is interesting to evaluate the division of workers into the two categories listed below.

In the future (by 2030), respondents expect a level **Technical** the Importance of

literacy in both categories at a similar level. The same is true of values expressing the current level of importance.



When assessing the TOP three sectors in terms of the highest expected increase in importance, a similar starting position (current value) can be observed for all three sectors. These are the sectors most frequently found in the analysis in this part of the evaluation.

TECHNICAL LITERACY

The lowest increase in the importance of **Technical Literacy** is expected by respondents in the Financial and Insurance Activities sector. The current value of importance is rated by respondents at 81.3 points,

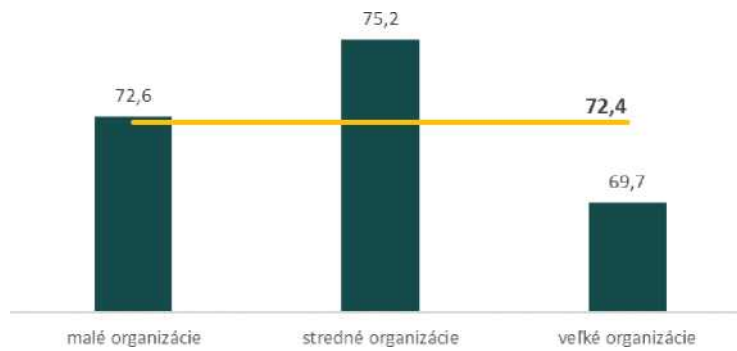


and the expected increase by 2030 is projected to increase this value by 3.6 points. Another sector with the lowest expected increase in importance of **Technical Literacy** is Transport and Storage, where respondents assume an increase in importance from the present value of 63.8 to 68.8 points. Administrative and support services can be considered the sector with **the lowest future importance of Technical Literacy**, according to respondents. The expected level of importance in 2030 is 61 points.

The importance **of technical literacy** is perceived by respondents in the breakdown by type of ownership at a similar level. On average, they expect future importance at 73 points out of a possible 100.



The expected importance **of Technical Literacy** is an average of 72.4 points in the future. Similarly, small organisations see their importance. It is given less importance by large organisations, and higher by middle organisations.



Level of importance in the future by size category

Average level of importance in the future



KAPITOLA Č. 4:

Prienik východiskových štúdií
s prieskumom v Slovenskej republike

4. INTERSECTION OF BACKGROUND STUDIES WITH SURVEY IN THE SLOVAK REPUBLIC

Following the completion and evaluation of the questionnaire survey under the conditions of the Slovak Republic and comparing the results with the baseline studies, a cross-section with the FWS study was found in several areas.

The McKinsey study analysed the results of individual testing of respondents in defined future skills and found correlations between multiple factors (education level, age, etc.). Since the present study has a different target group and is not an individual assessment, it uses in the questionnaire survey a selection of higher cognitive skills needed in the future, as defined by the McKinsey study, but the link between the two studies is not further investigated.

4.1 Results of the questionnaire compared to the FWS study

As the studies in question do not use the same scope of the future skill period, the results are comparable at principle level, but not equivalent to the results of the two studies. The following view illustrates the penetration of the FWS study with the results of the questionnaire survey in the Slovak Republic and compares the order of analogous future competences among each other.

RANKING OF FUTURE SKILLS IN THE FWS STUDY

RANKING OF FUTURE SKILLS IN THE QUESTIONNAIRE SURVEY IN THE SLOVAK REPUBLIC

RANKING OF FUTURE SKILLS IN THE FWS STUDY		RANKING OF FUTURE SKILLS IN THE QUESTIONNAIRE SURVEY IN THE SLOVAK REPUBLIC	
1	analytical and Innovative Thinking	1	effective teamwork (77.5 points)
self-	active learning	2	achievement of objectives (76.4 points)
	comprehensive problem solving	3	awareness and self-management (76.2 points)
	critical thinking and analysis	4	digital skills (76.1 points)
	creativity, initiative	4	planning and working methods (75.3 points)
	leadership and social impact use of technology	5	environmental Literacy (74.9)
	technology design and Programming Stress	7	mental flexibility (74.9 points)
	Resistance and Flexibility		developing relationships (74.9 points)
	justification	9	communication (74.5 points)
	emotional intelligence	10	analytical thinking (74.0 points)
	troubleshooting based on user experience	11	critical thinking (74.0 points)
	customer orientation	12	technical literacy (72.4 points)
	system analysis and evaluation	13	economic and financial literacy (70.3 points)
	negotiations	14	mobilisation (68.7 points)
use		14	entrepreneurship (66.2 points)
		15	understanding digital systems (65.4 points)
		16	numeracy (65.4 points)
		16	knowledge of foreign language (64.0 points)
		17	and development of software (58.0 points)
		18	

Below are the intersections of the FWS study and the questionnaire survey carried out in the Slovak Republic:

The results of the FWS study identified **analytical and innovative thinking as the most necessary** skill in 2025. In Slovak conditions, **Analytical thinking** is among skills with an average level of importance (74 points). At the same time, analytical thinking is the point difference between current and future importance in the penultimate position, with a difference of 6.8 points. However, it should be noted that the need for analytical thinking had a high score (66.4 points) even today, which is practically in line with the outcome of

the FWS study.

The fourth most necessary skill of the FWS study is **Critical Thinking and Analysis**. In the questionnaire survey in the conditions of the Slovak Republic, the increase between the current state and the need for **Critical Thinking** in the future was 8.5 points. As well as analytical thinking, it is one of the skills with an average level of importance with a value of 74 points.

Creativity, the initiative in the FWS study is at the fifth place of the most needed skills in 2025 and in the Slovak Republic has an analogy in the skills of **Entrepreneurship**. In terms of the difference in the value of needs at present and in the future, it is the eighth skill in order with the highest difference (12.5 points). At the same time, its future need is at a level of below-average importance (66.2 points).

Technology design and programming is the sixth most important skill in the FWS study. Compared to the Slovak equivalent, the **use and development of software** fulfils the assumption of an increase in the need for this skill. In the Slovak Republic, this is the sixth highest increase in the need for skills with a value of 12.8 points. Overall, it has the lowest point gain of all skills in the future (58 points), but it will be no less important skill of the future. It is highly likely that this skill will be more needed for a narrower group of workers and is therefore in the general assessment of workers with the predominance of mental work with a lower point gain.

The FWS study analysed Stress **Resilience and Flexibility as one of the necessary skills of the future**. The present study assessed the skill of **Mental flexibility**, which is considered analogous to the FWS study. In terms of the difference between its current and future needs, the average difference was 10.6 points. At present, the mental flexibility in the questionnaire survey has achieved a high score and the result corresponds to data from the FWS study, which ranked this skill among the most important in 2025. According to the value of her future needs, she is on average important skills (74.9 points).

Emotional intelligence, which according to FWS is the eleventh most important skill in 2025, has an analogy in the presented study in the development **of relationships skills**. Respondents to the questionnaire identified a change in the current and future skills needs at the level of 8.3 points. In the overall score, this is a skill of average importance (74.9 points).

CONCLUSIONS AND RECOMMENDATIONS

The future labour market will change with new technologies and innovation. Human resources will have to reflect these changes at a higher level of selected competences/skills. What will be the key was the examination of the present analysis.

As a country with a significant share of export performance and FDI levels, Slovakia is highly dependent on innovative trends introduced in individual sectors of advanced foreign economies. These trends affect the labour market in the Slovak Republic and create opportunities to increase the level of selected competences/skills of workers. If we want to remain competitive as a country, our workforce must also be ready to face and adequately prepare for these innovation challenges. This can be achieved through the preparation of the future working force in the formal education system, or through continuing adult learning, which enables us to equip existing workers with the important competences/skills needed to avoid losing their jobs in the future.

One of the relevant sources of these key skills for the future labour market is the results of the renowned McKinsey & Company international study (2021). These were examined in the present analysis from the perspective of how employers in the Slovak Republic perceive their importance now and in the future (year 2030). In the Slovak Republic, the survey confirmed the hypothesis of the McKinsey study “the **demand for technological, social, emotional and higher cognitive abilities will increase.**”

In line with the McKinsey study, the survey showed that digital skills will, according to employers in the Slovak Republic, be the most important competency element in the future (year 2030). Thus, employers operating in the national economy perceive an equally growing trend of digitalisation and digital transformation, which we will not avoid. Digital skills are one of the four elements of the Digital Compass, which aims to have at least 80 % of the population master basic digital skills.¹¹ Our education system therefore needs to reflect this trend and prepare the future workforce to adequately face this challenge.

An interesting finding is **the location of Interpersonal skills, which have come to the fore of importance in the future.** Empathy, humility, ability to cooperate, conflict resolution – these and many other sub-skills belonging to this group of competences/skills appear important for future workers in the survey carried out. This is an interesting finding, especially in the context of the gradual interference of digital technologies in our lives. The nature of work is changing as a result of the introduction of technological innovations, and it is necessary to pay more attention to developing those interpersonal skills that innovative technological

¹¹ European Commission, (2021). The Digital Compass photo the EU's digital decate. Available at: https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/europes-digital-decade-digital-targets-2030_en

processes can deprive us of. This is particularly important in order to preserve “humanity” despite technological advances.

All other competencies/skills examined also follow the trend of significance from the McKinsey study. Cognitive/Recognition, Self-Leadership and Mediumboro skills have achieved significant points in terms of importance in the future in the survey carried out in the Slovak Republic, confirming the assumption of the McKinsey study.

The surprising result is the location of Environmental Literacy in terms of the expected increase in importance. Among all the 19 skills studied, respondents expect the highest importance in literacy. This result creates the assumption that environmental challenges are also a key issue for employers operating in the national economy for the future. This only confirms the position of the Slovak Republic in the European area, which sets itself ambitious goals in this area.

Effective teamwork, achieving goals, and self-awareness and self-management are, according to the findings of the TOP three skills of the future. However, it is necessary to pay due attention to all the skills examined, as the findings in the present analysis attach significant importance to these skills in the future.

An in-depth evaluation of the skills examined brought an interesting view of the Slovak labour market. The assumption of a significant difference in the perception of future importance of the skills examined between domestic and foreign organisations has not been confirmed. The levels of importance achieved in these two groups of respondents were at a similar level, none of which differed significantly from the value of the second group. As part of this evaluation, it was interesting to monitor the skills Communication and Technical Literacy, which in the future are perceived as more important for organisations with foreign ownership. On the other hand, the vast majority of skills studied have gained greater importance among representatives of organisations with domestic ownership. The biggest difference in the perception of skills by representatives of domestic and foreign organisations was in the development of relations and mobilisation, which received a higher score among representatives of domestic organisations.

Representatives of the mid-size category organisations, which include organisations with a workforce of between 50 and 249, are expected to see greater importance for the future of the skills examined. With 13 of the 19 skills examined, representatives of this size category expect the highest importance. For these types of organisations, the skills examined in terms of importance will be the most significant compared to small and large enterprises.

For the Education sector, the skills examined will be a huge challenge. On the one hand, it is this sector that is responsible for preparing a future skilled workforce in order to minimise labour market disparities (the difference between the labour supply of school graduates and the demand in the labour market created by

employers). In addition, **the sector has seen the highest expected increases in the importance of the skills examined in total in 15 out of 19 skills in the survey results.** This finding is also confirmed by the fact that monitoring labour market developments is crucial for the education system. Linking the labour market with the education system requires a comprehensive solution, one of which is the NP SRI, which is implemented in the Slovak Republic with the aim of linking the requirements of employers with future skills of the workforce.

Introducing changes in the content of education requires expertise and sufficient time. In addition, it is important to take into account the fact that the first graduates based on the education system will be affected by these changes in educational curricula when entering the labour market for up to 5 years or more. In terms of human resources, the Slovak Republic would lose its competitiveness if the education system did not react in time to technological changes and new trends.

The submitted results of the questionnaire summarise a number of findings on future skills. **Following the results of the survey, it is recommended that:**

FORMAL EDUCATION

The requirements of employers and other labour market players reflected in the results of the questionnaire survey should provide input to representatives of those institutions of state administration that can fundamentally influence the **necessary curriculum reform** at the level of primary education as well as secondary and tertiary education. At the same time, it should be the basis for **updating the content of education in teaching and study fields, or also subject to the new accreditation process of higher education institutions within the content of study programmes.** Supporting the development of skills/competences as required by the labour market should be a prerequisite for the education system to prepare competitive graduates at all skill levels. It is considered necessary to start **working at the level of graduate profiles with the concept of competence** and the determination of the required level of transversal skills/competences to the relevant qualification level according to the National Qualifications Framework. In practice, this would mean that, regardless of the field of education, all graduates would have the same level of key competences that increase their applicability and flexibility in the labour market, etc.

FURTHER TRAINING

Effective and targeted adult learning reflecting the needs of the labour market is a key prerequisite for bringing benefits to society as a whole. Its objectives should therefore be pursued in the context of both employed and non-working persons. It is recommended to promote systemic changes that provide a workforce with modern, employer-required skills. In this area, it is essential **to set up a financial support scheme for effective corporate education at employer level.** At the same time, it is essential **to adapt**

the education of unemployed people in those transversal skills/competences that increase their flexibility and employability in the labour market, in this area it will be necessary to put in place a **system to verify the effectiveness and quality of the education provided** in terms of return on public resources for these activities.

It is necessary to proactively support workers with various trainings, webinars and further training in skills/competences, which have proved important in the framework of the questionnaire survey – training, training for workers using

identified changes to improve adaptability of workers and enterprises. The key to success seems to **support the motivation of** individuals to learn and actively engage in their own further education. This requires a change in the attitude of the state, employers and citizens themselves to the importance of lifelong learning in a person's life. The preparation of online training programmes freely available on the Internet for the general public, with the possibility of subsequent testing and obtaining a certificate/verification recognised in the labour market, appears to be an appropriate way to implement further training to acquire some key competences.

COMPETITIVE ADVANTAGE

Supporting the acquisition and deepening of skills/competences identified as most important by the questionnaire survey (possibly the increase in their importance is high) may confer a competitive advantage on the labour market.

From the point of view of workers, the acquisition and strengthening of such skills/competences represents a significant advantage in the event of a change of work or a change of qualification. Already today, candidates with language or digital competences are often preferred.

On the other hand, it is a significant advantage for employers if their employees have skills reflecting current trends and in competition they can provide a competitive advantage. It is therefore in the interest of both parties to work with the conclusions of this survey and to focus on further training in these areas. In this area, support for enterprise education through a scheme of individual learning accounts or corporate training programmes will be essential. Well-established business training and proven in practice can be the subject **of shared services** at company, sectoral or republic level.

STRENGTHENING SKILLS OF GENERAL INTEREST

Building on the results of the questionnaire survey, **digital skills** (such as understanding digital systems and using and developing software) are of particular importance for employers and other labour market

players and their importance will grow in all categories of workers in the future. It is therefore important that the general public is equipped with at least basic digital and software skills reflecting current trends.

This issue should therefore be included in both formal and continuing education and must be one of the priorities of the Slovak Republic. However, since it is in the self-interest of the employers themselves to have a high-quality workforce, they cannot rely solely on solutions from the state in this area. They should focus on motivating their own employees to upskilling/competences and creating the right conditions for them to do so.

RESPECT FOR EUROPEAN UNION REGULATIONS

As part of the European Union, the Slovak Republic is obliged to comply with the regulations of its institutions. One of the areas on which the current focus is on is the issue of climate change and the green economy. This issue already closely affects all manufacturing companies and this fact is reflected in the results of the questionnaire survey, in which **environmental literacy** has seen the highest leap shift of all the skills examined. Therefore, it is essential to include this issue comprehensively in the formal education process and also to reflect in the context of further education. At the same time, there is a need for general outreach in this area in order to ensure its subliminal perception among all residents in order to adopt a more sustainable lifestyle.

