

Support to the CIO Office of the Slovak Republic to Implement Action Plans in the Area of Digital Skills

D5.3: Project presentation

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PRE INVESTÍCIE
A INFORMATIZÁCIU





Agenda

- 1) Project summary 03
- 2) As-is situation analysis 07
- 3) Our recommendations 16

1

Project summary

About the project

Assessment of digital skills in Slovakia was requested in line with the Commission's program of Structural Reform Support Service for the provision of capacity building and provision of expertise geared towards the digitalisation of public services.



General objective

Support and augment further digitalization development of the SME sector in Slovakia in order to enhance cohesion, competitiveness, productivity, sustainable growth, job creation and investment in line with Article 4 of the SRSP Regulation

Specific objective

Support the Slovakian government with advice on how the authorities can further prepare the development of a National Plan of Activities to support SMEs.

Project activities:

In order to support the CIO Office of the Slovak Republic in the assessment and design of the support program, we provided following activities during our assignment:

- 1) Assessment of the current digital skills level Slovak SMEs
- 2) Identification of good practices from European countries leading digital transformation
- 3) Design of a short-term and 2 long-term policy recommendations
- 4) Identification of funding needs and opportunities

Research methods:

In order to collect required information defined in the project RfS, we used 3 basic information collection methods:

- 1) Desk research
- 2) Questionnaire of 400 SMEs and 10 Large Organizations
- 3) Focus groups

Selected methods allowed us to determine the current state of SMEs digital readiness with a particular focus on general digital skills.

Skills for digital age

As technology development accelerates, it is not sufficient to master only one skills set. Companies today need employees with diverse set of skills in order to succeed in digital transformation.

Skills set selection

We used **H-shaped skills** as the corner stone of the assessment during the project. **Organizations today expect to learn new skills faster and smarter** which requires also availability of social “soft” skills that enable faster learning and better collaboration in teams.

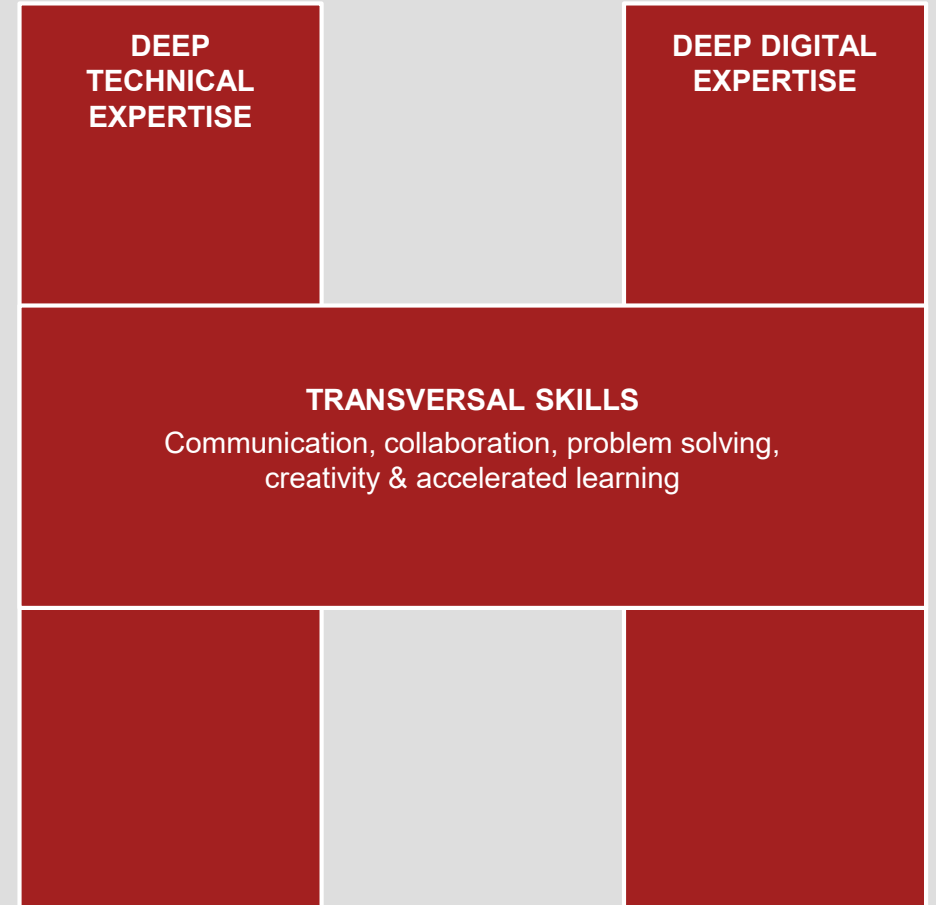
This approach will allow us to look at the skills needed from more perspectives, specifically:

- Deep knowledge of digital expertise
- Deep knowledge of technical expertise
- Ability to collaborate with other professional across disciplines

H-shaped **model concentrates** development of public policies **on the success of continuous learning** of workers. The concept has been introduced in the recent **The Lost Workforce: Upskilling for the Future** prepared by PwC Luxembourg.

H-shaped skills

Along with progress in technologies, a new form of skills combination emerges in the talent demand



European digital leaders

To explore potential that Slovakia can gain from digital transformation, we compared the country's digital performance to the top 10 European countries selected as the continental digital leaders.

Selection criteria

Our goal was to compare Slovakia not just to the European average, but to the most successful countries in tackling digital transformation. We believe top performing countries set the example for other countries to learn from their success stories.

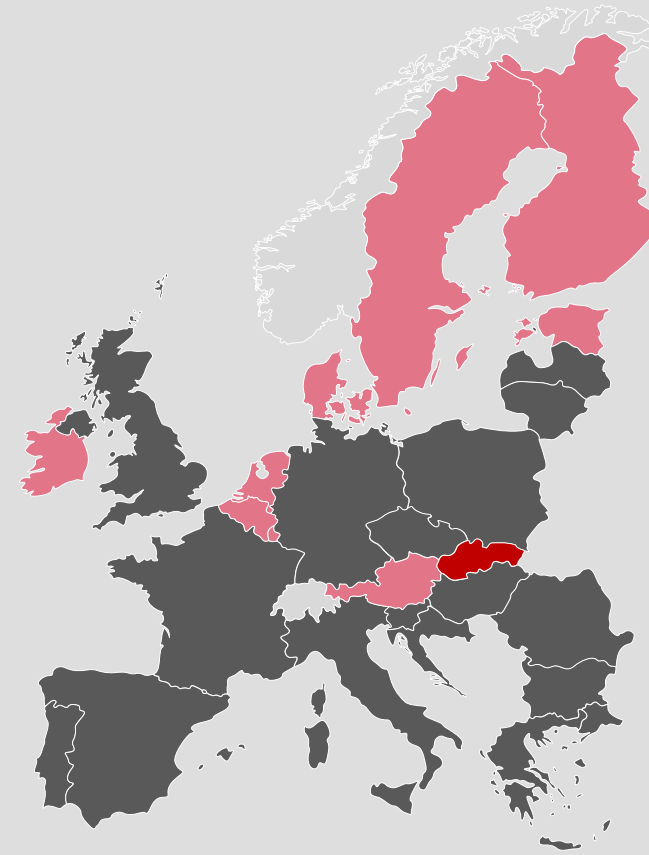
Following criteria were used during the selection process:

- Criterion 1: Higher HC DESI index score
- Criterion 2: Higher level of trade in economy
- Criterion 3: Similar population size
- Criterion 4: Higher value added for the ICT sector

Only the countries which met at least 3 criteria were used for further analysis. In case Slovakia current ranking was already high (Criterion 2) or a criterium did not measure performance (Criterion 3), we selected countries with similar ranking like Slovakia.

Selected countries

After evaluation of all criteria, we shortlisted 10 countries for comparison and identification of good practices



Higher
HC DESI index
44% vs. **61%**

>100%
Trade-To-GDP
192% vs. **128%**

Similar
population
5.4mil. vs. **6.6mil.**

Higher ICT
share in GDP
3,6% vs. **4,6%**

■ Slovakia

■ EU Digital Leaders: Austria, Belgium, Denmark, Estonia, Finland, Ireland, Luxembourg, Malta, the Netherlands, and Sweden

2

As-is situation
analysis

As-is overview

Slovak companies have positive attitude toward robotization and automation. Implementation of these technologies puts pressure for a talent that is currently limited. Business leaders already invest into skills development and would appreciate better public support.

Slovak digital environment

In order to fully support development of key skills for digital development, it was crucial to assess the whole environment affecting skills development, not only the skills perspective only. This approach allowed us to provide overall picture of current digital setting in the country.

We analyzed 3 main perspective during our assessment:

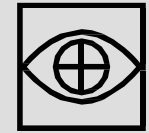
- 1) **Digital mindset and aspiration of companies**
 - Attitude toward digital transformation
 - Leadership innovation support
 - Understanding of technology
- 2) **Skills for digital age**
 - Level of general digital skills
 - Availability of technological and social skills
- 3) **Skill development activities**
 - Training for digital (companies' initiative)
 - Public development support

Key findings

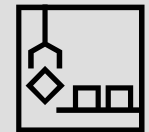
Businesses in Slovakia already invest into new technologies but lack free key talent to utilize investments



76% companies believe robotization and automation have a positive impact on their businesses



62% digital pioneers are typically companies' CEOs



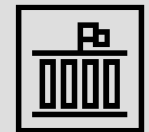
31% operations can be automatized or robotized



59% population have basic or above basic digital skills



74% companies struggle to hire employee with required skills



43% companies have sufficient information about publicly available support program

Skills for digital age: General digital skills

Level of general digital skills in Slovakia is similar to the EU average, but lags behind the level of the EU digital leaders. The country has one of the smallest shares of citizens with low general digital skills.

General digital skills are the skills individuals need in order to stay relevant in a digital world. We used the skills list as defined in the European Digital Competence Framework for Citizens (DigComp) developed by JRC¹ for our assessment.

The framework covers 5 competence areas:

- 1) Information and data literacy
- 2) Communication and collaboration
- 3) Digital content creation
- 4) Safety
- 5) Problem solving

According to EC's DESI Index², 59% of Slovaks (2pp more than the EU average) have basic or above basic skills, e.g. they are able to use the knowledge in at least one competence area. 33% (8pp less than the EU digital leaders) of the citizens have above basic general digital skills in all competence areas.

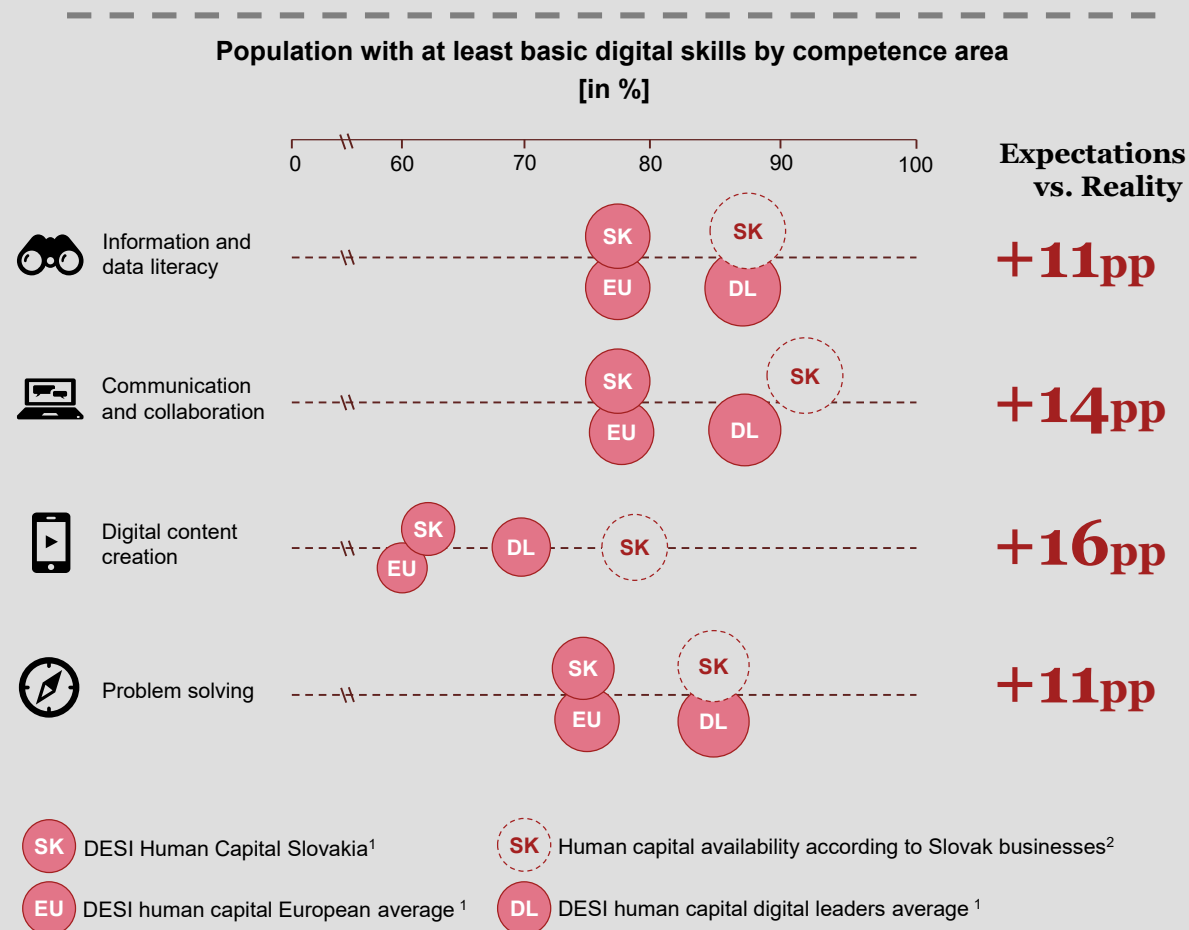
Sources:

¹Joint Research Centre; DigComp 2.1: The Digital Competence Framework for Citizens with eight proficiency levels and examples of use; [link](#)

²European Commission; Digital Economy and Society Index; [link](#)

Level of digital skills

Slovak business leaders think 18% more people can perform daily digital tasks than the EU estimates



Sources:

¹Eurostat; Individuals' level of digital skills; 2019; [link](#)

²PwC Questionnaire

Skills for digital age: Technological skills

Availability of technological skills in Slovakia is reaching its critical levels.

Availability of skills

85% of companies struggled to hire a technology skilled employee¹. It is a **nation-wide problem** as the struggle-to-hire score is very similar across the regions and industries.

This problem may arise from the fact that **Slovakia produces less technological experts** when compared to other countries.

According to Eurostat², the Slovak workforce has more jobs in technology and knowledge-intensive sectors than the EU average to some extent (4.3% to 4.1%), but lags behind EU digital leaders (4.9%). Yet, the country lags behind production of future technological experts. **The country produces 15.8 technological experts per 1,000 citizens**, 3.5 persons (18%) less than the EU average³.

Sources:

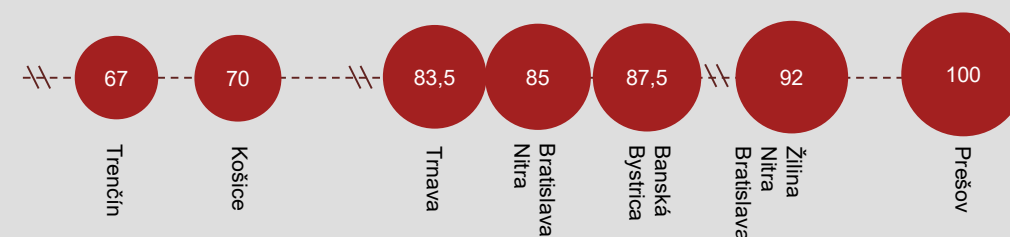
¹PwC Questionnaire

²Eurostat; *Employment in technology and knowledge-intensive sectors at national level, by sex (from 2008 onwards, NACE Rev. 2)*; [link](#)

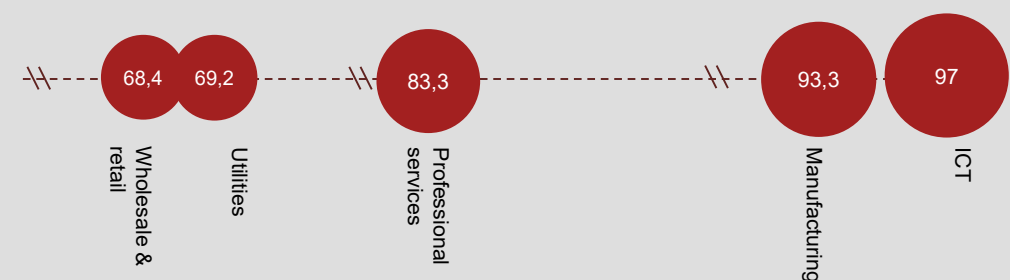
³Eurostat; *Graduates in tertiary education, in science, math., computing, engineering, manufacturing, constructions, by sex – per 1000 of population aged 20-29*; [link](#)

Struggle-to-hire score – technological skills

[by regions, in %]



[by industry, in %]



Note: Only sectors with representative sample were selected

Skills for digital age: Technological skills

As the country does not produce critical mass of technological specialists, its labor market becomes limited and companies cope with number of barriers when looking for a talent.

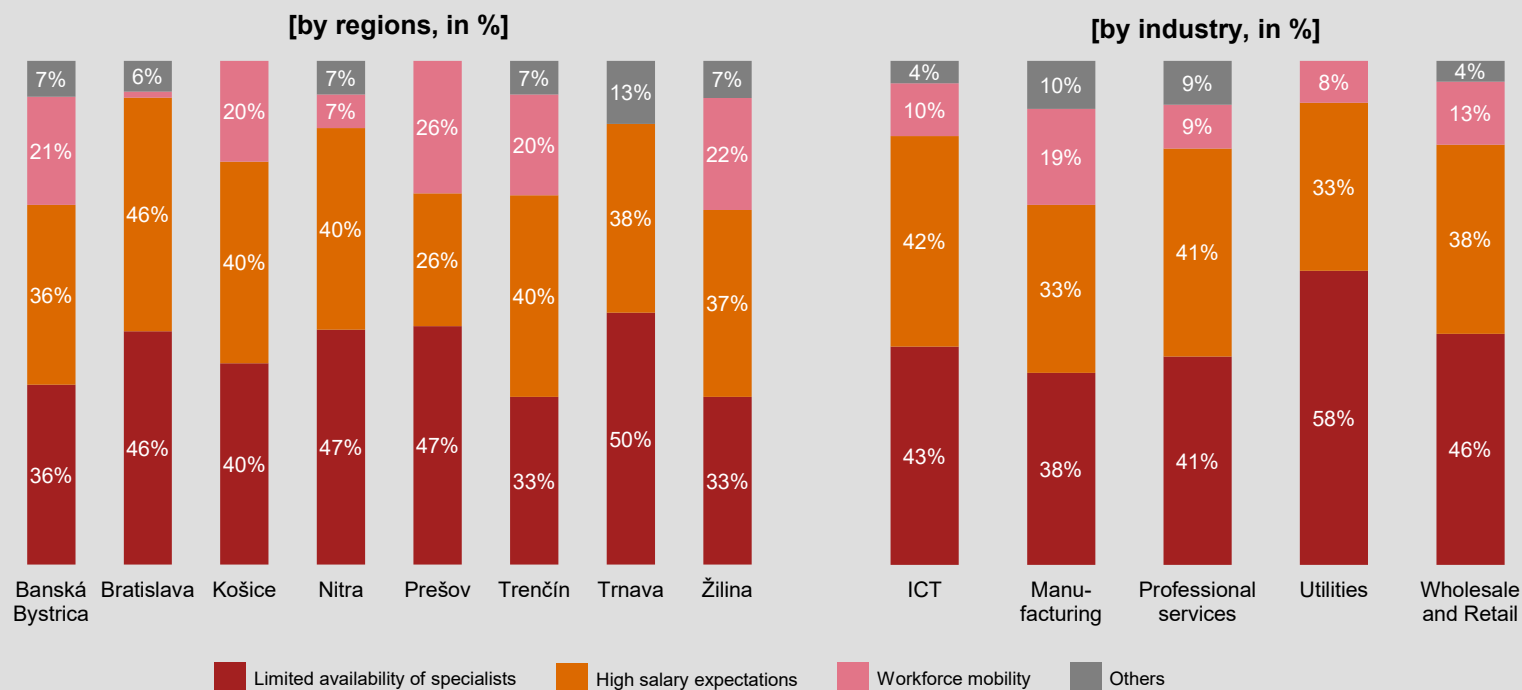
Companies across all regions and industries cope with 2 main barriers today:

- 43% says availability of skills they are looking is limited.
- 41% thinks salary expectations are high.

In addition, more than 20% companies in middle and western Slovak regions must also tackle with low workforce mobility. This is not a general problem across industries, 19% of manufacturing companies, an industry with the second highest automation estimation (as already described in this report) must face this issue.

65% of enterprises across the regions and industries thinks higher availability of technological skills would have a positive impact on their further growth.

Main hiring barriers – technological skills



Source: PwC Questionnaire

Skills for digital age: Social skills

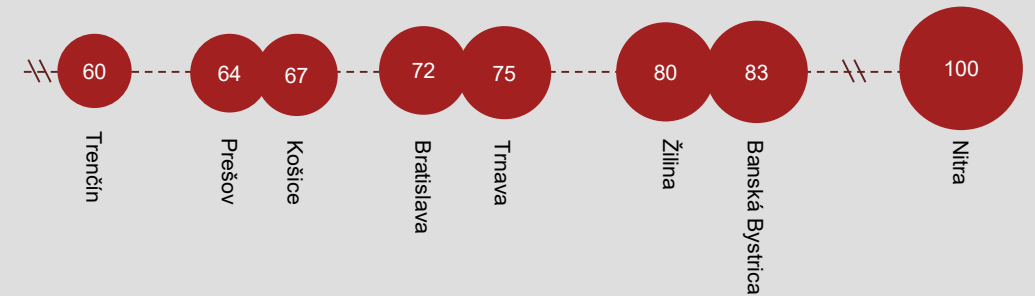
Social skills allow employees to work together and learn new skills brought by technologies.

Availability of skills

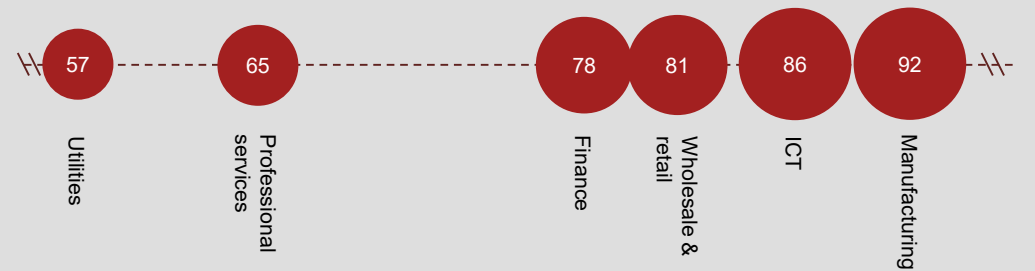
74% of companies in Slovakia struggled to hire an employee with social skills last year. Unavailability of the skills in some regions (Nitra, Banská Bystrica, Žilina) or industries (Manufacturing, ICT) is even higher, reaching critical values. This situation strengthens hiring barriers which does not allow companies to find an expert with specific social skills.

Struggle-to-hire score – social skills

[by regions, in %]



[by industry, in %]



Note: Only sectors with representative sample were selected

Skills for digital age: Social skills

When looking for a socially skilled labor, companies must face similar issues like when looking for a technological talent.

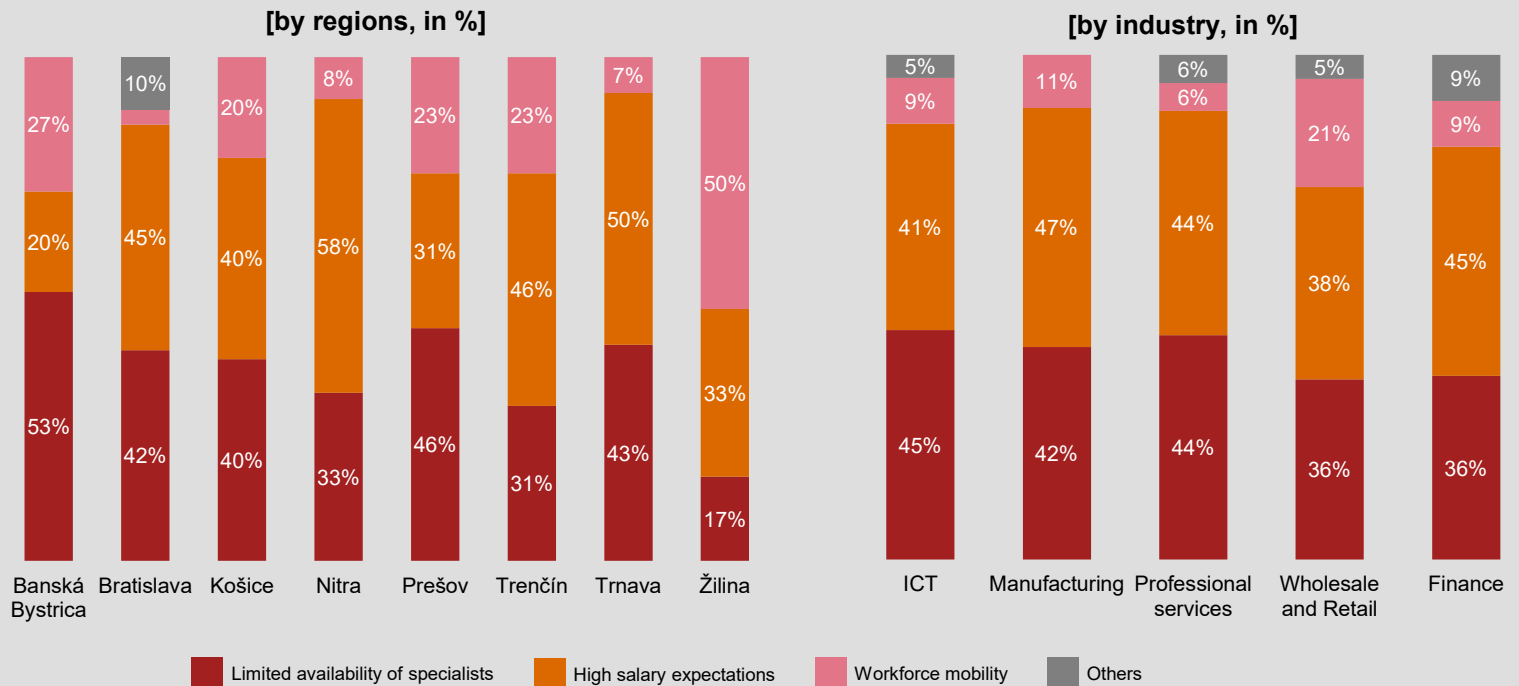
Companies must solve 2 main barriers today:

- 41% says availability of skills they are looking is limited.
- 42% thinks salary expectations are high.

67% companies thinks higher availability of social skills would positively impact their further growth.

Impact of each barrier differs across regions as well as industries. Whereas middle and eastern regions of Slovakia must struggle with both major barriers as low workforce mobility, regions of western Slovakia cope primarily with high salary expectations. E.g. while **Žilina copes mainly with relocation issues (50%)**, this is not a problem in western Slovakia (less than 8%) which **cope with the highest salary expectations in the country (~51% of problems)**.

Main hiring barriers – social skills



Source: PwC Questionnaire

Skills development activities and public support (1/2)

Number of Slovak companies already invest into development of the skills for digital age, but people are reluctant to participate. Business leaders are open to the government support.

Development activities

64% companies (3pp higher than the EU average) provided a training to their employees.¹ Yet, employees are unwilling to participate - only 45% of the population participated in any non-formal education throughout a year.²

Companies most often choose either internal training or look for external professional support. 35% – 36% companies selected one of these options. Only 22% consider online as viable option.³

Public support

57% companies do not have sufficient information about supporting programs in Slovakia. 33% say the support could help their businesses. When asked about the use of the programs, only 16% succeeded. Companies do not trust existing programs, but believe higher transparency would increase their interest in application.⁴

Sources:

¹Eurostat; Enterprises providing training by type of training and size class - % of all enterprises; [link](#)

²Eurostat; Participation rate in education and training by age; [link](#)

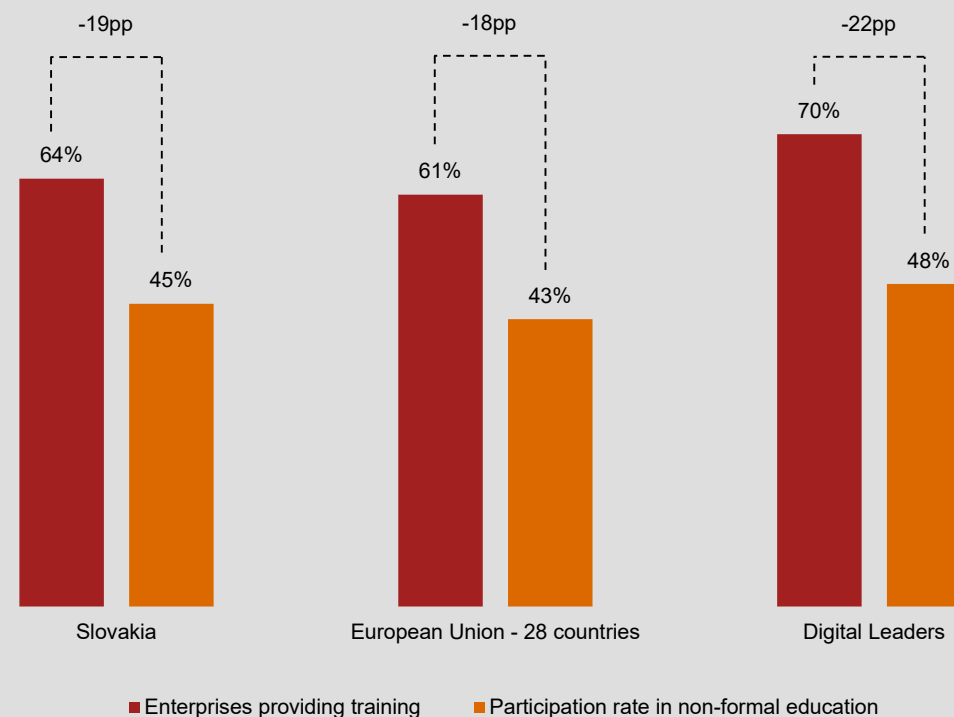
³PwC Questionnaire

⁴Slovak Business Agency; Effectiveness Analysis of Supporting Programs for SMEs; [link](#)

Training offerings

Although businesses offer training courses, less people enrol in any course through a year

Companies providing training vs. citizens participation [in %]



Sources: Eurostat

Skills development activities and public support (2/2)

Investment in skills development

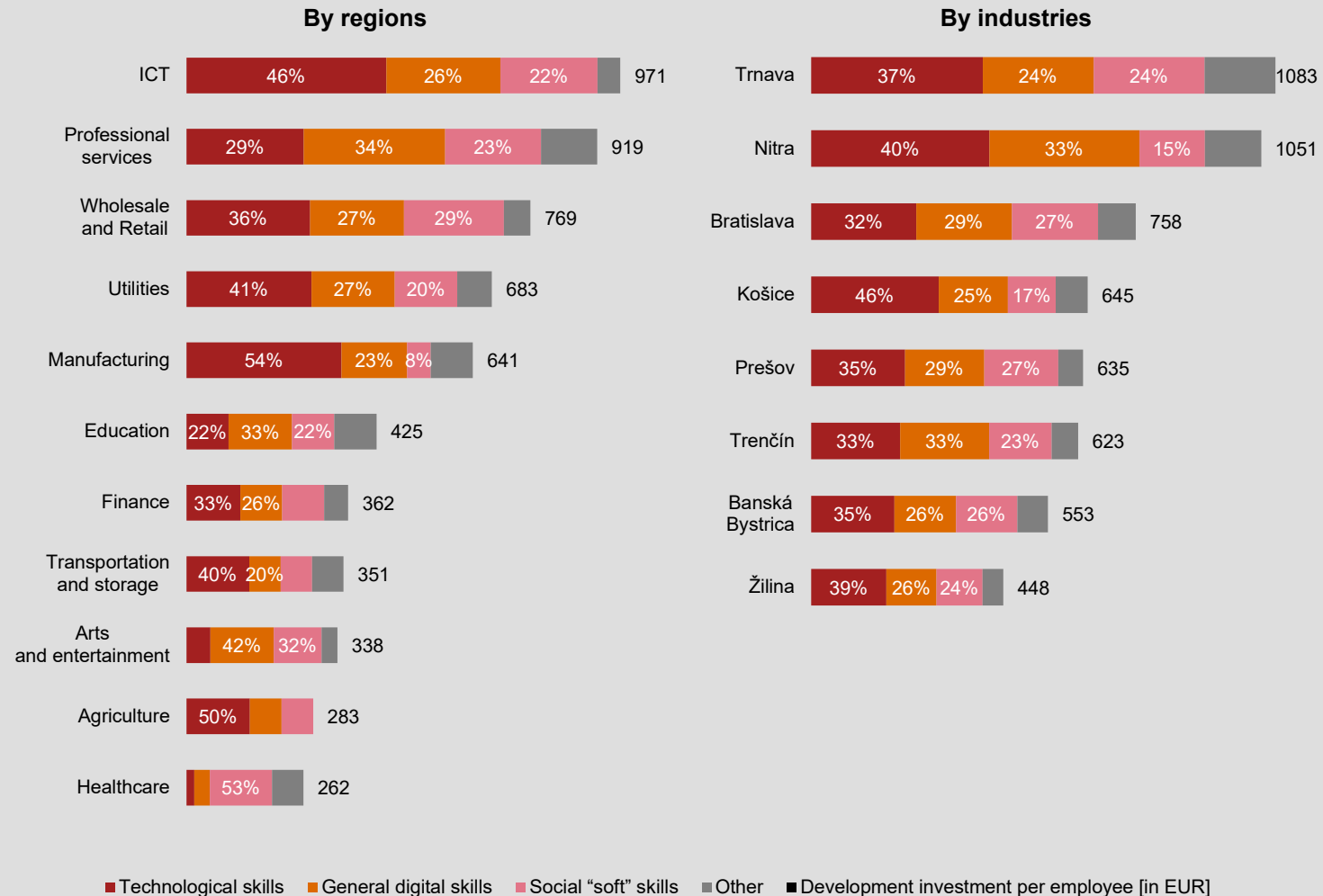
43% Slovak companies have human capital development plan – a plan that clearly defines what key skills company and positions will company need and develop in an upcoming period of 5 years.

Companies invest ~ EUR 730 p.a. into skills development per 1 employee. 3 sectors – ICT, professional services, wholesale and retail, and 2 regions (Trnava, Nitra) tend to invest more than the national average - almost 50% more (EUR 1,050) than the national average. 88% of companies agree these investments help to successfully increase selected skills and competencies.

Development areas

Businesses primary focus on development of technological skills (36%), followed by general digital skills (29%), and social “soft skills (24%) of all training activities. Companies in The focus is similar almost across regions as well as industries.

Skills groups development preferences [in%]



3

Our
recommendations

Recommendation #1: Slovak digital upskilling program

We recommend to pilot and implement tailor-made national upskilling program to support companies and their employees whose activity will be radically transformed by major technology changes

The main goal of the program is to support all companies' workforce which activities will be transformed towards new functions. The program underlines importance of a proactive and preventive strategy for the development of employees' skills in order to secure professional careers in a sustainable way.

It aims to anticipate the impact of these technological developments on employment by offering affected employees tailor-made training and individual personalized support

The main objectives of the program are as follows:

- **Lead a company to anticipate changes** in work organization and invest more in the workforce skills development in order to reduce social and economic risk;
- **Increase employees' skills** to enable them to secure their career paths facing economic transformation;
- **Design and implement an operational toolbox and a solid regulatory and financial framework** between various stakeholders to ensure the smooth running of the program.

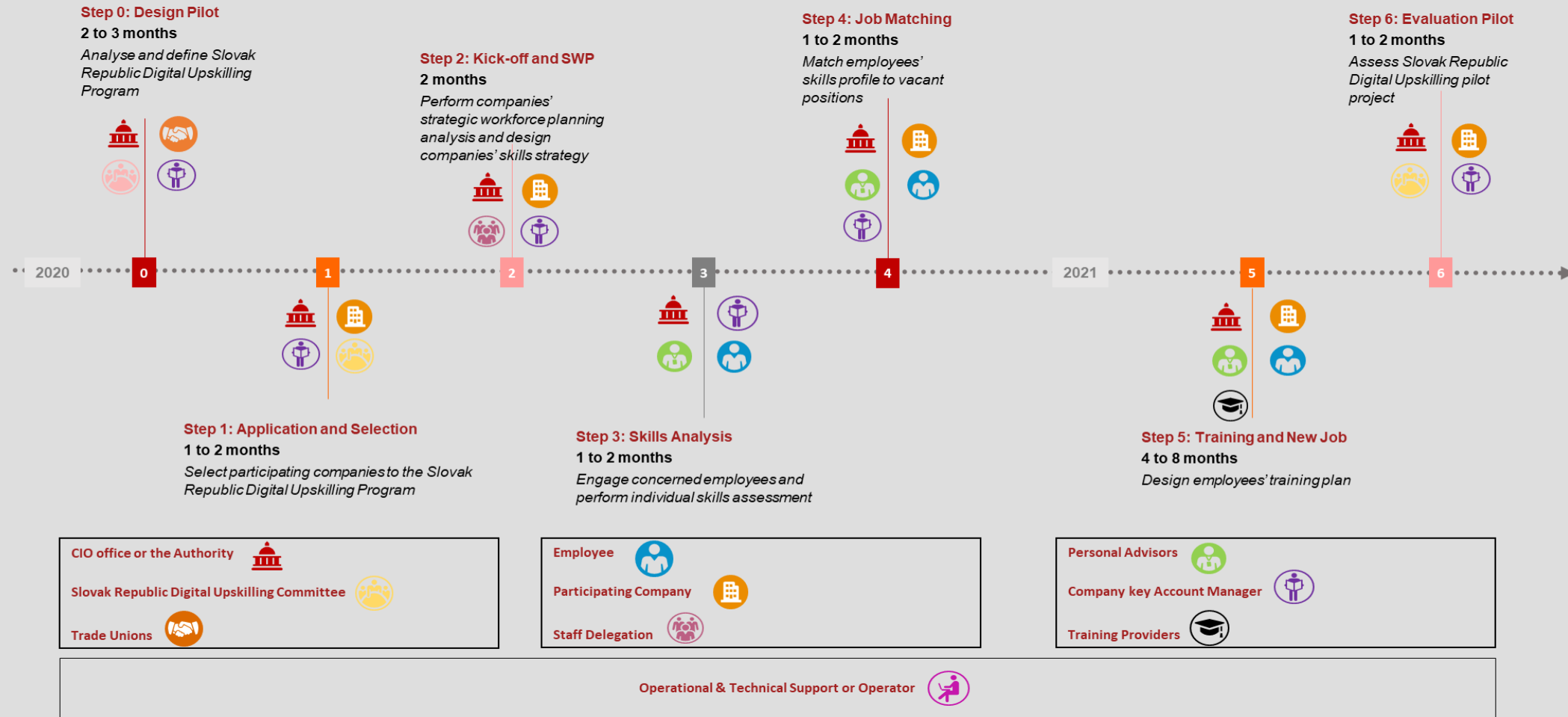
6 steps to upskill a company's workforce

Companies participating in the pilot will undergo a 6-steps upskilling process



Recommendation #1: Slovak digital upskilling program

The Slovak Digital Upskilling pilot project timeline proposal



Recommendation #2: Long-term upskilling program

If the pilot is proven successful, we recommend to implement the national digital upskilling program as an iterative, long-term program

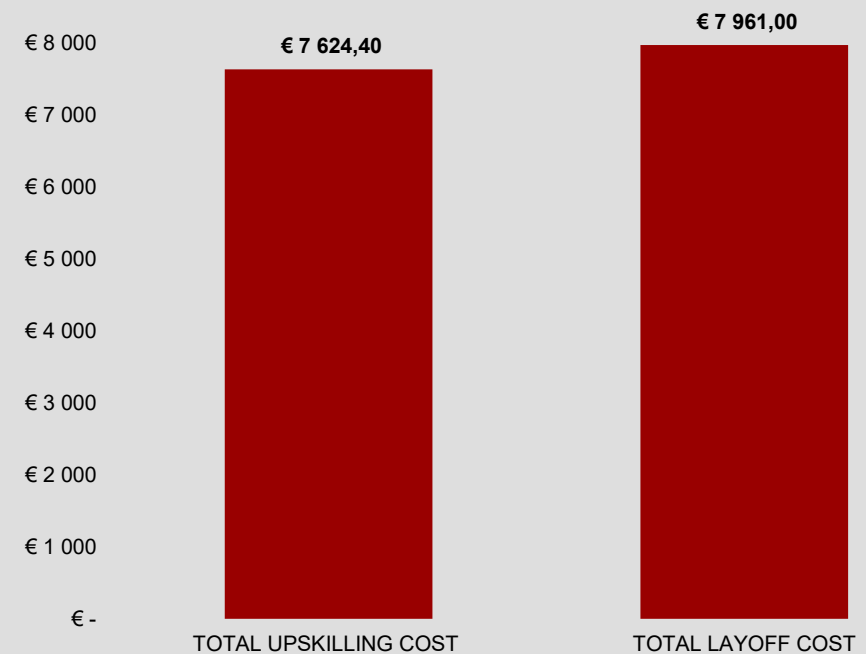
In the long run, we recommend establishing new organization dedicated to management of the program with clear and efficient management mechanisms relying on technology-based tools in order to scale the project from the pilot project to a pluri-annual rolling upskilling program.

We suggest following recommendations to build an iterative program in the long run:

- Aligning the national skills strategy and initiatives with the companies' needs;
- Mutualizing the tools and methodology developed during the pilot project to expand its use to multiple audiences;
- Adapting and complementing the current legal framework with the limits potentially identified through the pilot project in order to support the program and strengthen incentives for companies to participate (adapting the labor code, adapt and develop further life-long learning financing schemes, etc.).

Total cost of upskilling vs. layoff cost

Approximately €300,000 can be saved when upskilling 1,000 employees compared to their layoffs.



Recommendation #3: Upskilling workforce of the future

It is crucial to start boosting skills of the country's future workforce directly in schools from primary ones to universities. Yet, these activities must be focused on the skills with the highest demand among Slovak businesses.

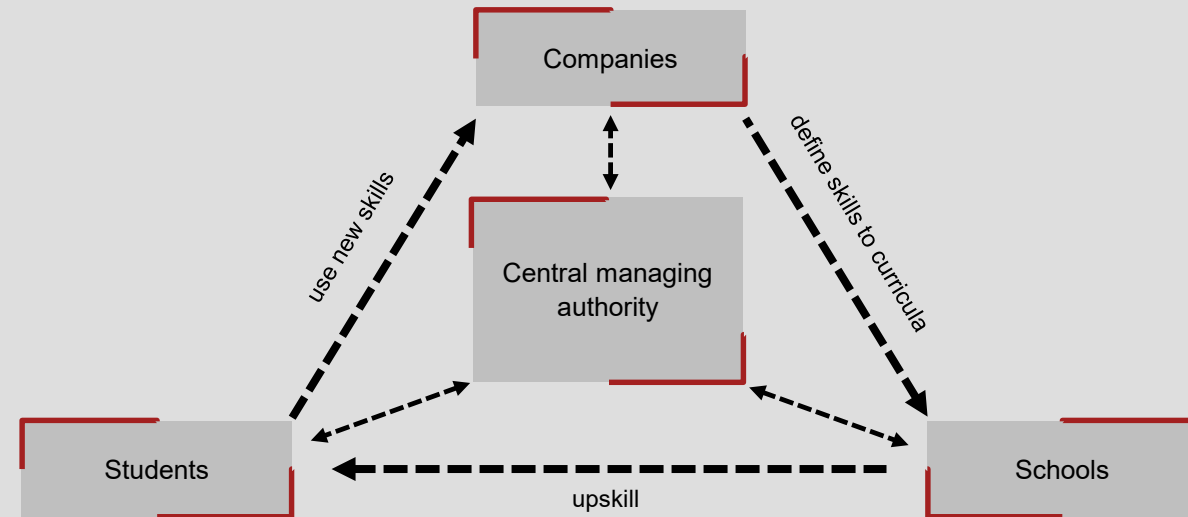
We recommend implementation of the future workforce upskilling initiative to improve pupils, students and graduates' employability by identifying the skills gap between students' competencies and the requirement on the market.

Objectives of the initiative are as follow:

- **Strengthen basic habits of pupils** so that they are capable to grasp new skills later in life
- **Improve graduate employability** by developing a solution that identifies the gap between the skills demand in the job market and those of the students;
- **Identify the relevant curricula enhancements** required to complement the required skills profile for the Slovak job market;
- **Manage skills supply according to the needs of businesses** by regulation of study programs enrolment;
- **Suggest and develop new university programs** that would fit the market needs based on the gap analysis between the skills demand in the job market and those of the students.

Future workforce upskilling initiative stakeholders

Functional cooperation between all stakeholders must be managed by a centralized authority.



Thank you



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