

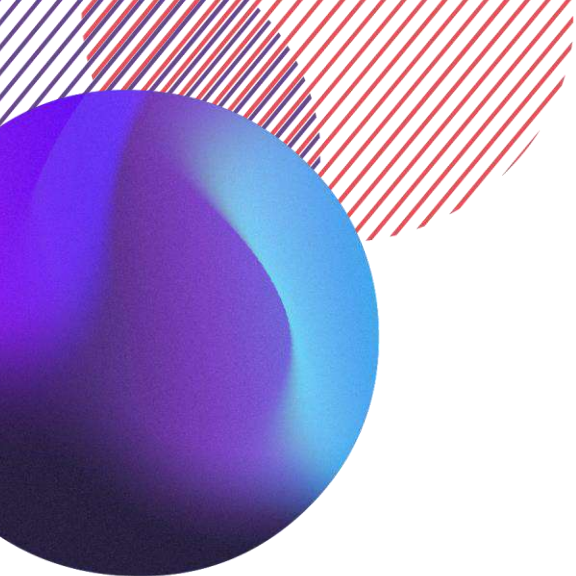
# Skills matching – good practices and successful approaches

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# Aim of the presentation

- Highlighting successful international approaches and good practices in using skills match approach
- The selection of presented approaches and practices – where possible – takes into account the context and the needs of Moldova and Ukraine





# Concept of skills-based matching and skills mismatch

# Skills-based matching in the labour market



- **Skills-based matching** in the labour market refers to aligning individuals' specific skills with job requirements, emphasizing competencies over traditional qualifications or occupations like degrees or job titles.
- According to the **International Labour Organization** (ILO, 2015), effective skills matching involves assessing future labour market prospects and addressing potential **imbalances** between the demand for and supply of skills.



# Skills mismatch

**Skills mismatch** refers to an imbalance between the skills and qualifications possessed by the workforce (supply) and those needed by the labour market (demand) (CEDEFOP, 2024).

At a **micro-level**, skills mismatch could be defined as the gap between an individual's job skills and the skills demanded in the job market and may involve both unemployed and employed individuals.



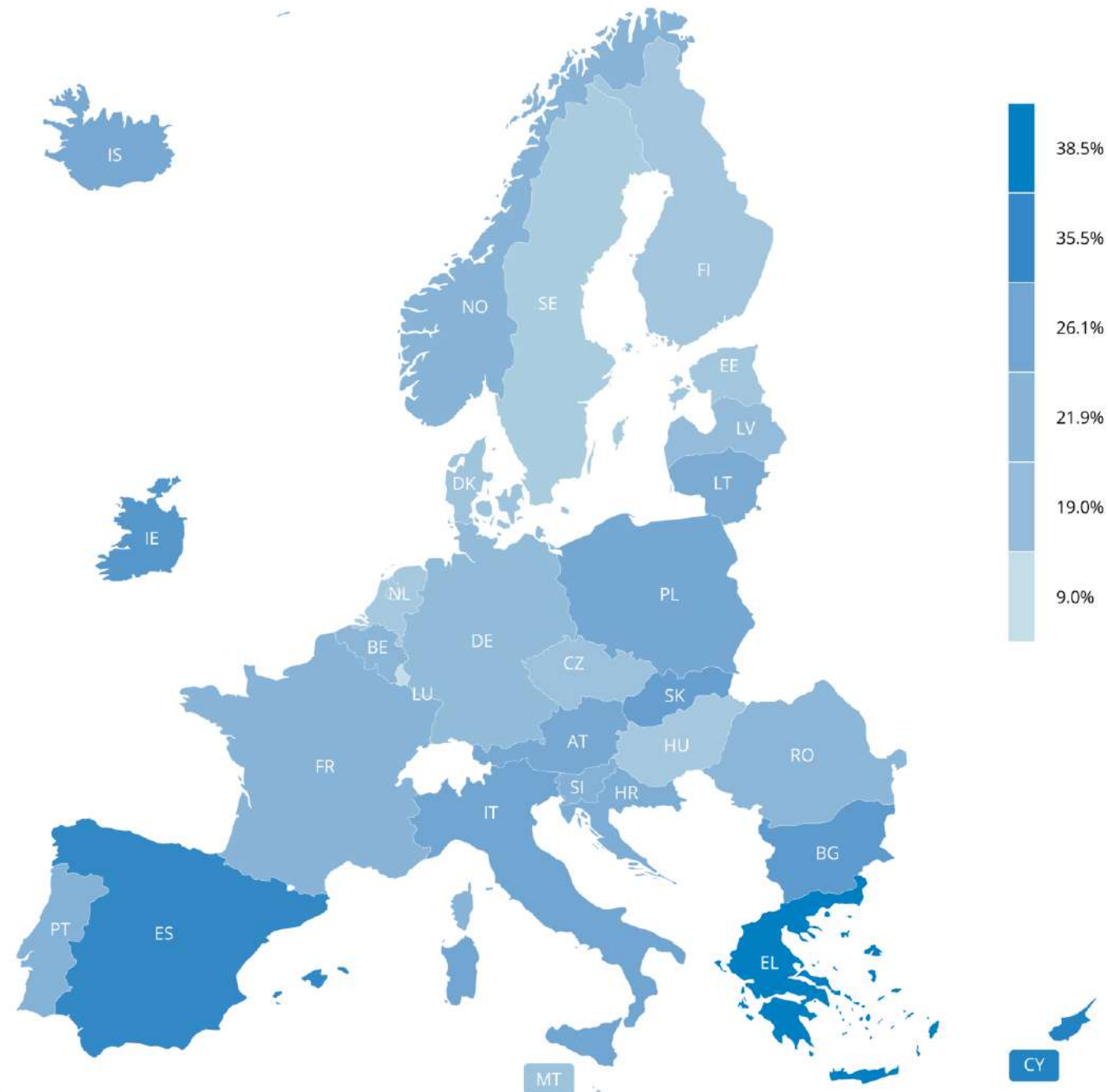
# Skills mismatches

Skills mismatch can take different forms:

- **Skill Shortage:** The demand for a particular type of skill exceeds the supply of the workforce with these skills.
- **Skill Surplus:** The supply of the workforce with a particular type of skill exceeds demand in the job market.
- **Skills Obsolescence:** The workforce's skills are outdated for performing a job adequately or are no longer needed.
- **Overskilling:** The workforce has more skills than required to perform a job adequately.
- **Underskilling:** The workforce has fewer skills than required to perform a job adequately



# Educational mismatch (%) by age group 25-34 in 2020



**Dataset** [European Union Labour Force Survey \(EU LFS\)](#)

**Source** [Eurostat](#)

**Indicator** [Over-qualification rate \(of tertiary graduates\)](#)

# Types of skills mismatch

- **Vertical mismatch** occurs whenever firms require a certain skill level, which is not available in the particular labour market, or when workers are more (less) skilled than the required skill or competences in their job.
- **Horizontal mismatch** has to do with the type of skills at any given level of education, because the type of education (e.g., field of study) is inadequate for the current job.



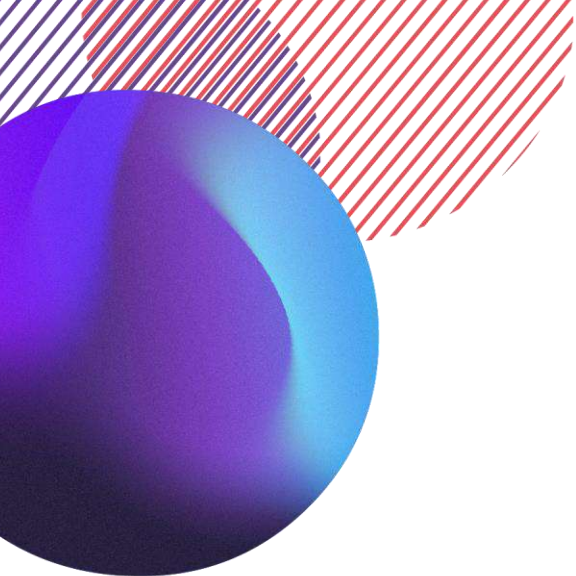
# Prerequisites of effective skills-based matching



Effective skills-based matching requires:

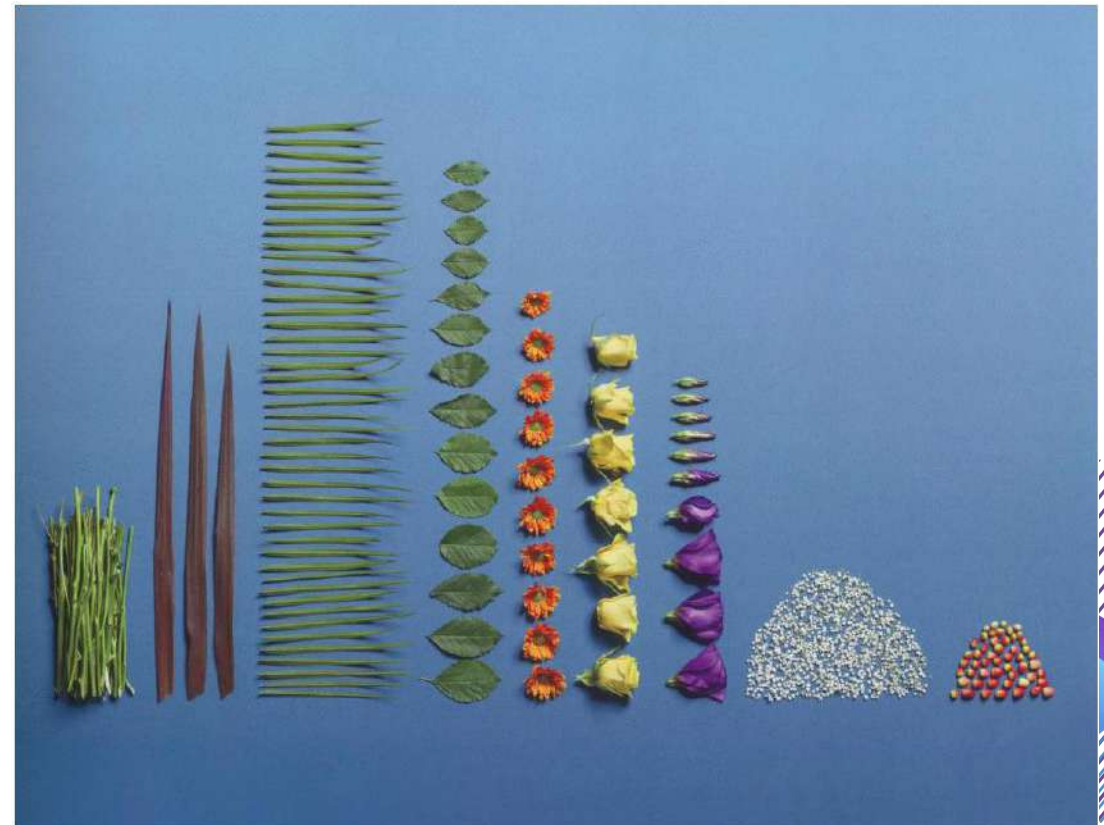
- Detailed and up-to-date information on labour market skills needs (not occupations!), including skills taxonomies / classifications
- Tools to effectively assess and validate employees'/candidate skills (assessment / profiling tools)
- Supporting mechanisms including vocational/career guidance, upskilling/reskilling supports, etc.





# Labour market information focused on skills

# From „chaos” to „taxonomy”



# ESCO classification

<https://esco.ec.europa.eu/en/classification>

- **ESCO (European Skills, Competences, Qualifications and Occupations)** is the European multilingual classification of **Skills, Competences and Occupations**.
- ESCO works as a **dictionary**, describing, identifying and classifying professional occupations and skills relevant for the EU labour market and education and training.
- ESCO provides descriptions of **3,039 occupations and 13,939 skills** linked to these occupations, translated into 28 languages (all official EU languages plus Icelandic, Norwegian, Ukrainian, and Arabic).



# ROME taxonomy

<https://www.francetravail.org/opendata/repertoire-operationnel-des-meti.html?type=article>

- **The ‘Répertoire Opérationnel des Métiers et des Emplois (ROME)** is the French national classification of occupations.
- ROME is used - apart from France – in Belgium and Luxemburg, and to some extent – in the Netherlands VDAB (in COMPETENT system)
- Currently (as from 2023) the ROME 4.0 is being used



# Skill measures used in the skills, technology and management practices survey (USA)



## Skill and task requirements

- Cognitive skills (maths/numeracy, reading, writing, problem-solving)
- Interpersonal skills (including teamworking)
- Physical job demands/physical skills

## Computer use (digital skills)

- Computers
- Frequency of use
- Use of 14 specific applications
- Use of advanced programme features
- Job-specific and new software
- Training times
- Complexity and computer skills required
- Adequacy of respondents' computer skills
- Computer experience of non-users in previous jobs

## Machinery and electronic equipment

- Set up maintenance and repair
- Equipment and tool programming
- Mechanical and electronics knowledge

## Supervision, autonomy and authority

- Closeness of supervision, autonomy and repetitiveness
- Supervisory responsibilities

## General measures of skill

- Required education for job
- Required experience
- Employer-provided training
- On-the-job training
- Training in specific skills (literacy, math, customer service, sales, managerial skills, communication, quality control, technical skills)



# Classification of skills analysis and forecasting tools

Type of activity	Description
Descriptive statistics/stock taking	Estimates of overall demand and supply of skills and technology use, often based on collating data from various sources (for example sector skill studies)
Quantitative forecasting	Forecasting and projecting future demand for skills typically using econometric modelling
Skills and jobs surveys (questionnaire surveys)	Assessments of demand and supply of skills and technology use, usually with an assessment of the extent to which demand and supply are balanced
Graduate tracer studies	Using matched administrative datasets or surveys to track people through education and the labour market to see how the former influences the latter
Qualitative research	Use of non-quantitative techniques to gauge in-depth information about current and future skill demand/supply and technology trends, e.g. via company case studies, use of focus groups
Foresight	Critical thinking about the future of skills supply/demand and technology trends using participatory methodologies
Big data	Use of web sourcing combined with text mining and machine learning approaches to collect and classify data about skills, vacancies, technologies



Source: Cedefop (2021). [Understanding technological change and skill needs: skills surveys and skills forecasting. Cedefop practical guide 1](#). Luxembourg: Publications Office.

# Skills-OVATE



<https://www.cedefop.europa.eu/en/tools/skills-online-vacancies>

- Skills-OVATE offers detailed information on the jobs and skills employers demand based on online job advertisements (OJAs) in 32 European countries.
- Skills-OVATE provides information on occupations, skills and regions based on international classifications: ISCO-08 for occupations, NACE rev. 2 for sectors and NUTS-2 for regions.
- There are two ways to display information on skills: via ESCO version 1 or O\*Net.



# OSKA forecasts the need for Estonian labour force and skills



<https://oska.kutsekoda.ee/en/>

- The OSKA system creates a cooperation platform that enables the exchange of information between employers, training providers, and educational institutions to comprehensively analyse the growth potential of different economic sectors and their needs and to facilitate the planning of education provision at different levels of education and by types of school, as well as in the fields of retraining and in-service training.
- Once a year, OSKA prepares a forecast for the next 10 years.



# VDAB Skill Framework



## Skill Cloud

*Mapping from skill-expressions to standardized forms*

## Skill Tagger

*Detection of Skill Cloud skill-expressions and annotation with standardized forms*

## Skill Navigator

*For any piece of text, decide which Skill Cloud skills are similar to it*

## Skill Seeker

*Detection of new skills*



# VDAB Skill Framework



- The first step - **Skill Cloud** - measures and visualises the association between different expressions. The Skill Cloud links textual expressions based on semantic and linguistic relations and defines the standardised forms using a scoring mechanism in graph components of the linked data to detect the dominant form.
- The **Skill Tagger** reduces a text to a basic form by removing HTML tags and special characters etc. The Tagger then searches for known Skill Cloud expressions and annotates them with their standardised form. For example, in the textual expression 'We expect you to be a true team player' it will recognise the word group 'team player' as a known skill expression and will annotate the given text with its standardised form, in this case 'working in a team'.



# VDAB Skill Framework



- The **Skill Navigator** can tell the user for any given text (e.g. job description or function title), which known skills are close to it, even when these skills or their known Skill Cloud forms do not appear literally in the text. Technically, it does so by mapping known skills and the given text to a 72-dimensional numeric space. Subsequently the distance between such coordinates can be computed.
- Finally, the **Skill Seeker** identifies skills that did not surface in step 1 (the Skill Cloud). It does so by looking for positions (text parts) in a text where skills can be expected to appear (based on the Skill Tagger annotation process) and then verifies whether these text parts contain expressions that are not known by the Skill Cloud. This provides a list of a candidate's new skills that could be added to the Skill Cloud, which is manually validated to guarantee the quality.





# Skills assessment and profiling tools and practices

# Skills assessment – PES perspective

- Skills assessment processes and procedures are usually **well-established in PES** in Europe.
- In recent years development of new of tools and practices aimed at analysis of jobseekers skills for the purpose of skills-based job matching and counselling, by:
  - shifting from qualification and occupation perspective towards **skills-based profiling**,
  - comprehensive **assessment of skills** including job-related and „soft” skills
  - **multi-level** skills assessment including self-assessment (usually through online testing), counsellors support (interviewing, professional tests), practical assignments, etc.



# Skills assessment – PES perspective

- PES report further plans of development of new skills-based approaches and procedures for both assessment and recognition/validation.
- Initiatives undertaken aim at building a **comprehensive skill-focused system**, often based on the idea of individual learning (training) accounts, with the view of strengthening:
  - promoting and developing skill-based matching in PES services,
  - tools and procedures of skills assessment / testing,
  - Integration of skills data/information into single database used in PES services.



# Skills self-assessment tools

Tool	Link and description
<b>EU Skills Profile for Third Country Nationals</b>	<p><a href="https://ec.europa.eu/migrantskills/#/">https://ec.europa.eu/migrantskills/#/</a></p> <p>The multilingual EU Skills Profile Tool is intended for use by organisations offering assistance to Third Country Nationals. It helps to map the skills, qualifications and work experiences of the third country nationals and to give them personalised advice on further steps, e.g. a referral to recognition of diplomas, skills validation, further training or employment support services.</p>
<b>OECD Skills Profiling Tool</b>	<p><a href="https://oecd-skillsprofilingtool.org/home">https://oecd-skillsprofilingtool.org/home</a></p> <p>This tool assesses a set of skills to help you (and your career guidance counsellor) find out what your strengths are, and suggests some jobs that make use of those skills to help you decide on your next career move.</p>



# Skills assessment at Belgium LeForem PES



## AVAILABLE ON-LINE TESTS

- At registration, the jobseeker create his/her **secured personal space**
- Within the personal space, the jobseeker finds information and tools in order to support his/her insertion pathway on the labour market.
- Among the tools, the jobseeker has the opportunity to pass online assessments



### JOB SCREENINGS

50 jobs covered



### DIGITAL SKILLS

Level 1- Level 2 – Level 3



### BASIC SKILLS

French, maths, ...



### FOREIGN LANGUAGES

in April 2023

French for foreigners – English

Dutch – German

**Declared information**  
1<sup>st</sup> level of objectivation of the job expectation

**Checked Information**  
2<sup>nd</sup> level of objectivation

**Certified information**  
3<sup>rd</sup> level of objectivation

On-line registration tool

My Profile

Job expectation scan

Skills scan

Skills development

Certification and skills recognition

Registration as jobseeker

Self-profiling  
Th jobseeker identifies (or not) one or more job positioning (RomeV3)

Automated on-line diagnosis and/or contact with a counsellor

Check through on-line screenings

Vocational training pathways or specific modules

Certification of learning outcomes

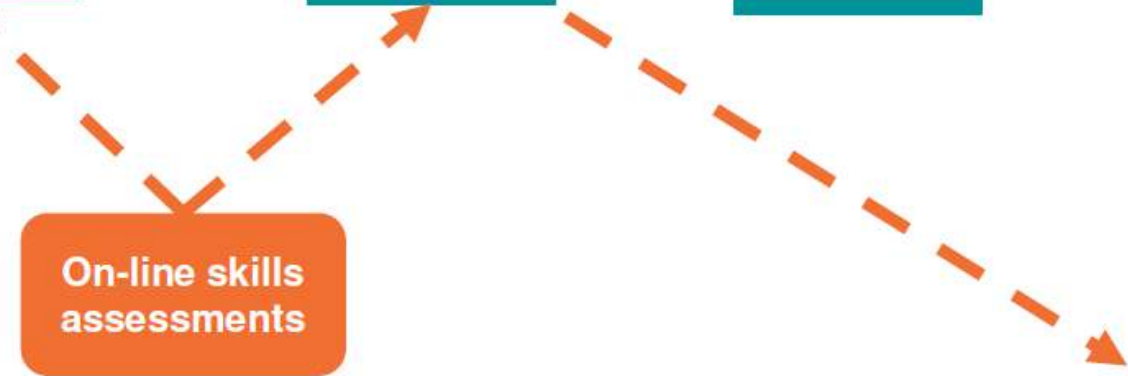
Administrative informations ...

Diplomes, certificates, job experiences, CV, ...



On-line skills assessments

OR  
Skills recognition  
[CVDC | Site de la validation des compétences \(validationdesc ompetences.be\)](http://CVDC | Site de la validation des compétences (validationdesc ompetences.be))



# Digital skills self-assessment tools

Tool	Link and description
<b>Europass Digital Skills</b>	<p data-bbox="685 411 1857 508"> <a href="https://europa.eu/europass/digitalskills/screen/home?referrer=epass&amp;route=%2Fen">https://europa.eu/europass/digitalskills/screen/home?referrer=epass&amp;route=%2Fen</a> </p> <p data-bbox="685 554 1865 815">           Europass platform includes digital skills test, for skills that are important for working, studying, accessing services and buying products. The test covers skills in: information and data literacy, communication and collaboration, digital content creation, safety, and problem solving.         </p>
<b>PIX platform</b>	<p data-bbox="685 829 1014 872"> <a href="https://pix.org/en/">https://pix.org/en/</a> </p> <p data-bbox="685 918 1865 1228">           Pix is an online platform open for everyone to assess, develop, and certify the digital skills. The platform – run by French PES – allows to test digital skills. Through fun challenges and recreated real-life situations, one can learn to handle files and data, to explore the web and answer questions to grasp and further develop your digital knowledge.         </p>



# PIX emploi (France)

- Pix emploi is a short (20 questions) online test is based on the **EU Digital Competence Framework (DIGICOMP)**, but specifically adapted to the jobseekers and the job search context.
- Pix Emploi **can be used at every stage** of the jobseeker's path, starting two days after registration when every jobseeker receives an invitation to take the test. The test is designed to be easily used by both jobseeker and PES counsellor.
- Jobseekers can take the test **online or in a local agency with support from a customer service assistant.**



# Digital skills for employability

- **Digital skills** refer to the ability to use digital devices and technologies effectively and confidently.
- These skills encompass a wide range of competences, including basic computer literacy, internet usage, online communication, information retrieval, and digital security.
- Such skills enable individuals to navigate and utilise various digital platforms, applications, and services.



# PIX emploi (France)

## Skills assessed include:

- Sending, receiving an email
- Uploading an attached document
- Using a text editor
- Using a spreadsheet
- Using a search engine
- Surfing safely on internet
- Computer files management (documents, pictures...)
- Using some computer's connections (USB, HDMI...)
- Uploading and updating apps on a smartphone
- Using a smartphone

## Three levels of autonomy distinguished:



**Very limited  
autonomy**



**Moderately  
autonomous**

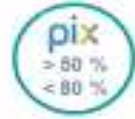


**Autonomous**

## Three objectives guiding the services provided for each group:



**To learn basic digital  
skills to access to its  
rights as a citizen**

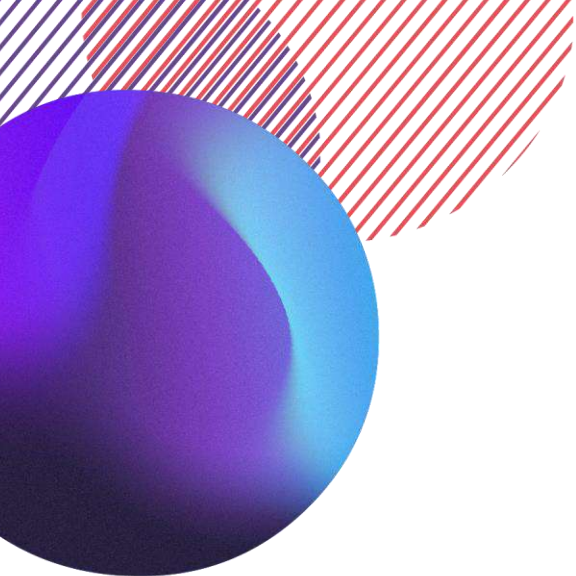


**To reinforce its  
knowledge to use  
PES digital services**

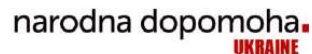


**To maximise the use of digital  
services and the possibilities  
to find a job**





# Supporting mechanisms for effective skills-based matching



# EU Digital skills and jobs platform

<https://digital-skills-jobs.europa.eu/en>

The Platform provides open access to a wide variety of high-quality information and resources for everyone interested in the broad topic of digital skills and jobs. Its smart search and filtering functions help you easily find what you need and connect with whom you need.

The platform caters to the needs of all users independently of their level of expertise.



# EU Talent Pool Pilot (EURES)

- [https://eures.europa.eu/eu-talent-pool-pilot\\_en](https://eures.europa.eu/eu-talent-pool-pilot_en)

Through the EU Talent Pool Pilot, you can create your CV and show your skills to more than 5 000 carefully validated and registered employers and EURES Members and Partners.

Aimed at people fleeing Russian aggression against Ukraine, benefitting from temporary protection in an EU Member State.





Co-funded by  
the European Union



# NEWCOMERS@WORK

STRENGTHENING THE EMPLOYABILITY OF  
YOUNG REFUGEE AND MIGRANT NEETS  
2022-1-PL01-KA220-YOU-000089667



## OUR GOAL

The social inclusion and empowerment of newly arrived young NEETs aged 18-25 with a refugee or migrant background through the improvement of their employability skills.

<https://newcomersatwork.eu/>



Co-funded by  
the European Union



narodna dopomoha.  
UKRAINE

# Career guidance as supporting mechanism

## Conclusions and recommendations:

- Guidance process needs to focus on the specifics of particular professions in terms of skill needs.
- Information on skills needed in professions should be easily available through a web portal bringing together all the information needed by career counsellors.
- Career counsellors providing guidance services need to work closely with employers, professional organisations and organisations conducting industry research in order to obtain regular information on employers' expectations and labour market potential.

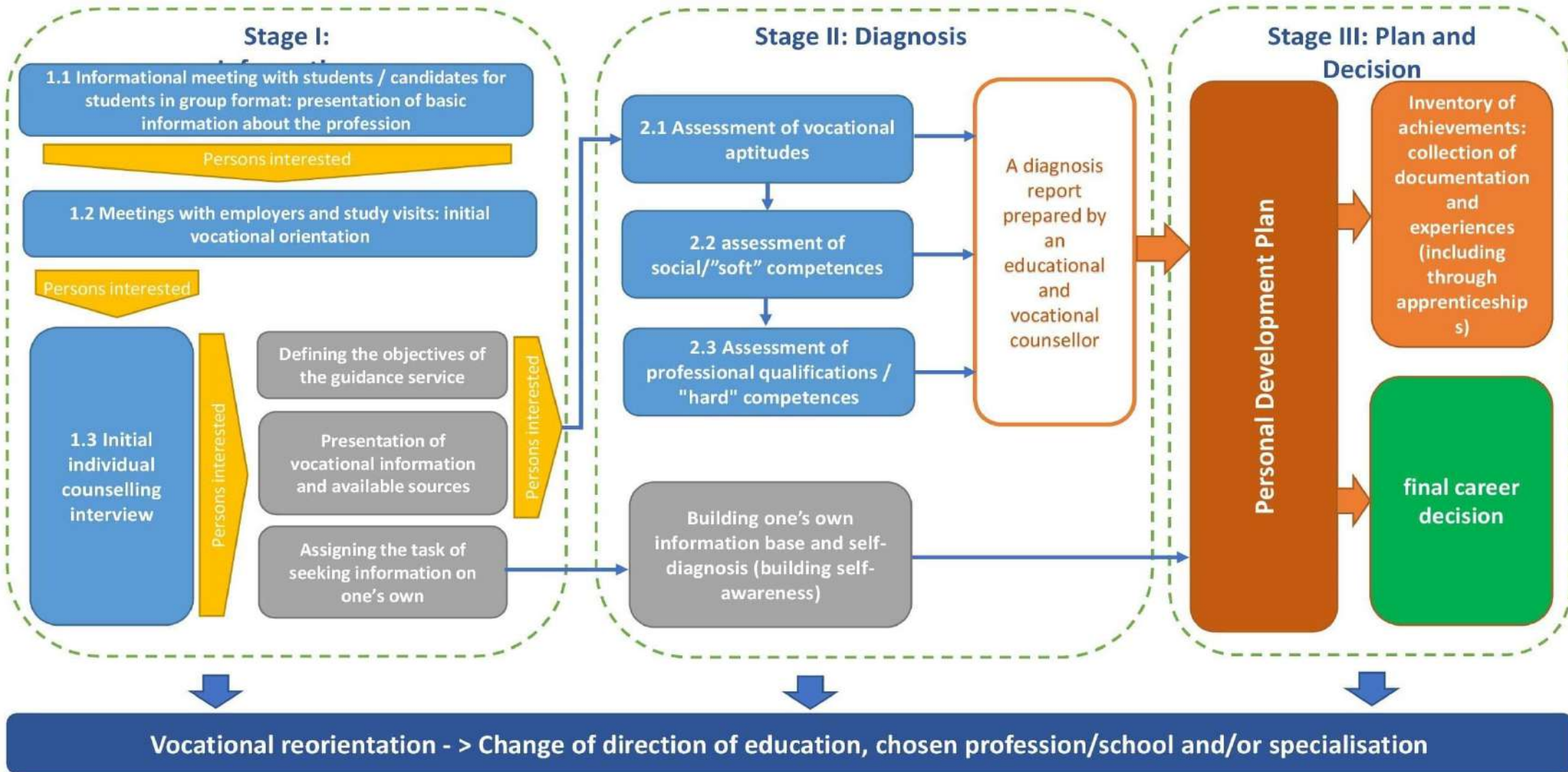
Development and promotion of the VET sector in Poland – How to promote and run a patronage class in Polish conditions based on the experience of Liechtenstein, Switzerland and Germany

**Analysis of the Dual Vocational Education System  
Based on the Examples of Liechtenstein,  
Switzerland and Germany**

Authors:  
Łukasz Sienkiewicz  
Marcin Budzewski



# Flow chart of the educational and vocational guidance service for VET students and candidates for students





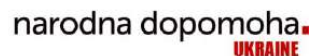
# Examples of Horizon Europe projects on skills matching

# TRAILS

<https://www.trails-project.eu/>



TRAILS seeks to build on current data in skills mismatches and create novel tools and databases, harnessing the power of Artificial Intelligence. It will empower Vocational and Adult Education training to match employers with educational opportunities to reallocate workers efficiently.



# SkillsPULSE



<https://www.skillspulse.eu/>

The project will provide a methodology for identifying the extent, causes, and implications of skills deficiencies in Europe. A series of indicators, including a Skills Shortage Index, will be developed and incorporated into a software tool for use by those responsible for labour market skills intelligence at both national and European levels.



# SkiLMeeT

<https://skilmeet.eu/>



**SkiLMeeT** is a research project carried out by eight research institutions, exploring how the digital and green transformation of European economies are changing the demand for skills.

We analyse the scope of skills shortages and mismatches, identify their drivers and propose innovative ways to reduce skills gaps.



# SKILLAB



<https://skillab-project.eu/>

The SKILLAB project aims at developing a holistic skills management and shortage identification platform that will monitor the demand of European organizations and entities for specific skillsets, the supply of skills by job-seekers and potential employees along with European policies on the subject and will propose targeted strategies, curricula development, policies and job advancement suggestions.



# Link4Skills



<https://link4skills.eu/>

At the heart of the project is the development of the **Link4Skills Navigator**, supported by AI and guided by the key principle of ensuring fair skill flows between sending and receiving countries.

Featuring an interactive map, advanced comparison tools, and real-time data integration, the Link4Skills Navigator is poised to revolutionize how labor market data is accessed and utilized.





# MEGASKILLS



<https://www.megaskills.eu>

MEGASKILLS aims to bridge the gap between education and the labour market through the research and design of an innovative and affordable game-based methodology for training and evaluating soft skills.





# Thank you!

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