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# Digital Individual Learning Accounts in the Visegrad countries

## WP2 Feasibility study



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## 1. Introduction

This feasibility study is a product of the project Digital Individual Learning Accounts in the Visegrad countries. The project is financed by the European Union.

The project is aimed at supporting Member States in developing an enabling framework for Individual Learning Accounts and, in effect, contributes to increasing the number of adult learners. The main objective of the project is to model and test a data model that would allow using AI technologies for personalised training recommendations and efficient spending through a delivery mode such as Individual Learning Accounts (ILAs).

This feasibility study provides the meritorious basis for the project.

- to assess the viability and practicality of a proposed project or course of action.
- before undertaking a major business initiative to determine whether it is technically, economically, and operationally feasible.
- to identify potential obstacles, risks, and opportunities associated with the project
- to provide decision-makers with the necessary information to make informed choices

In the methodological chapter of the feasibility study, we briefly review the EU concept of the Individual Learning Accounts. This concept is one of the starting points of the feasibility study, as the project as a whole is based on the ILAs. The methodology chapter sets out the objectives that the feasibility study aims to achieve. The presentation of the principles and use cases, as well as the logical structure of the project, will help to understand the methodology used.

Chapter 3 discusses the funding systems for adult learning, including the situation of ILAs in different countries. This is followed by an analysis of micro-credential schemes, also by country. Next, information on soft skills at EU level was collected. Within this, a strong focus was put on mapping the different frameworks. We also looked at soft skills development practices by country. At the end of the chapter, a summary is provided which analyses the findings from the perspective of the project.

The partnership's experts have collected and processed information on the data system on adult learning participants at national, EU and international level. In chapter 4, the conclusions drawn from this information are presented in a consensus format to inform the further planned activities of the project. Our conclusions no longer contain country-specific elements, but are valid for the whole ILAs data model, which is intended to be uniform at EU level. This chapter is based on background studies prepared by the experts in the consortium, which also include country-specific elements.

In collecting good practices, we first focused on the countries of the organisations participating in the Partnership. This was followed by an examination of good practices from European and non-European countries. In fact, by the term good practices we also mean unsuccessful projects, since valuable conclusions can be drawn from them as well. The case reports were evaluated for our project.

The empirical research report - based on 42 interviews in 4 countries - is chapter 6 of the feasibility study. It aims to complement the analysis in the previous chapters with practical aspects. The Guide for semi-structured interviews (+ version for international experts) used in the empirical research are included in the annexes to the feasibility study.

The project will use AI-based solutions as an analytical tool. For this reason, the feasibility study includes a specific chapter on the applicability of AI in adult education.

The final chapter of the Feasibility Study summarises the main lessons learned from the previous chapters, which will help to inform the development of the ILA data model in the next phase of the project.

The Study (carried out in the frames of Work Package nr. 2) is designed to map the learning accounts, micro-credentials, possible use of AI and other related environments to raise questions related to ILA-implementation; the design of the data fields and value sets as well as the running of the AI-based algorithm is a kind of test or experiment to answer those questions previously raised. Not only will the actual answers be provided in the Methodological Guide (to be written in Work Package nr. 5), but the remaining dilemmas and decision points will also be indicated. Therefore, the Feasibility Study should not be treated as a whole, finished document but as the first element of a developmental project.

## 2. Overview of methodology

In this chapter, we provide an overview of the methodological approaches used to prepare the feasibility study for the project. The chapter has been prepared with a view to ensuring clarity.

### 2.1. Overview of the EU concept of the Individual Learning Account (ILA)

Based on the Council Recommendation of 16 June 2022 on individual learning accounts 2022/C 243/03<sup>1</sup> document, the following situation analysis is given:

- Insufficient financial support for individuals is one of the main barriers influencing participation in learning.
- Many adults, especially among the low-qualified and those furthest from the labour market, are not motivated to take up training.
- One possible approach to addressing the problems outlined above is to provide people with direct support through training entitlements in individual learning accounts.
- Member States may establish additional training entitlements for individuals most in need, depending on the national context and the changing labour market. For instance, Member States could top up individual learning accounts in strategic sectors, to support the green and digital transitions.
- Individual learning accounts should allow people to accumulate and use training entitlements over a set period, to be defined at national level, so that they can take up longer or more costly training or train during economic downturns, in response to emerging skills needs.
- Individuals should be able to preserve their individual training entitlements independently of their labour force or professional status and across career changes.
- The possibility of allowing the preservation of individual training entitlements during periods in which the individual lives in another Member State.

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<sup>1</sup> Source: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32022H0627%2803%29&qid=1686034162455>

- There is a need for up-to-date public registries of recognised training through dedicated single national digital portals accessible to all, including people with disabilities, and, preferably, interconnected with the Europass platform.
- Adequate funding is a key feature of successful schemes for individual learning accounts. A national scheme of individual learning accounts could facilitate cost-sharing between various funding sources, such as public authorities, employers and funds managed by social partners, by allowing various funding sources to contribute to the individual learning account.

It is important to note that the recommendations apply to adult education as a whole, however, our project focuses only and exclusively on soft skill development within adult education. For this purpose, we understand soft skills as a concept defined by UNESCO (see Annex 2 Glossary). Moreover, we also examined three other general skills groups that are of a high importance in the current labour market and thus reflected in policies and frameworks promoted and/or developed by the EU: green skills, language skills and ICT (digital skills). The reason for including these groups is that they are also transversal and highly important based on the comprehensive EU goals in skills development and LLL related strategies.

## 2.2. Objectives

Based on the above, the main objectives to be achieved in the chapter:

1. To develop proposals for data fields describing the characteristics of adult learning participants in the ILA data model and to define possible values for the data fields.
2. To develop proposals for data fields describing the characteristics of training opportunities in adult learning or education in the ILA data model and to define possible values for the data fields.
3. Development of editorial recommendations for the design of data series on adult education participants and adult learning.

## 2.3. Professional concept

In this chapter, we list/explain the principles of our professional concept and provide practical examples in order to make it easier to understand the principles.

### 2.3.1. Basic principles of the project's professional concept

The project's professional concept is the following:

The most important principle applied during the preparation of the professional concept is that we always took forward EU aspirations and recommendations as a basis. EU recommendations are already available to all stakeholders. During the preparation of the feasibility study, we had a slight look at the stage of implementation of EU recommendations in practice (see Chapter 3). Since not all frameworks examined are fully implemented, we had to consider a future state of play: we are building an ILA data model in which all currently known EU recommendations are considered essentially implemented. Thus, the ILA data model reflects a future state to be achieved at EU level.

As it follows from a future state, the ILA data model cannot be based on real data. Some of the data used is not currently available or integrated to the extent necessary to be used in the ILA data model. The data fields and data series used in the ILA data model are created by the project expert team by

editing, analysing and further thinking about currently available information. One of the advantages of this solution is that the project does not fall under GDPR regulations.

The development of a matching algorithm and its implementation in the form of an information system would go far beyond the framework of the project, which would be able to assign concrete, practical trainings to persons. The purpose of the project is different. The aim of the project is to test the ILA adult education funding model at data level and to publish the experiences from a methodological point of view. It follows that the ILA data model deliberately does not contain data fields that would be relevant to the organisation of a particular training. For example, training in the ILA data model has no start date or training organiser. Details on this matter will be provided later.

### 2.3.2. Practical examples

Two cases of practical applicability of the ILA data model are presented in this chapter.

The human resources development manager of an SME prepares a training offer for employees. The ILA uses a data model to define training parameters and record training participants' data. In accordance with company policy, with the help of previously trained AI, SME employees are assigned to trainings, thus the amount of SME-level training costs is calculated. After that, he/she consults with the company management and agrees on a 90% training cost compared to the original training cost. It then runs the AI again with a 90% budget, creating a new employee and training association list with a lower budget. Since the trainings defined using the ILA model are not specific trainings, the SME Human Resources Development Manager contacts a training company. It submits the training request (training parameters and numbers) derived from the ILA model to the training organising company, for which the training organising company is looking for specific trainings.

A Member State receives EU funding for the development of digital competence for citizens, so the cost limit for training and training development is known. Also known in the form of indicators is the number of participants in trainings. With the help of the ILA data model, on the one hand, the members of the target group can be parameterized, and on the other hand, the training needs can be modelled, based on which the robustness of the trainings to be procured and/or developed increases, and its specification can be prepared more easily with the help of modelling.

## 2.4. Content of the feasibility study

In the feasibility study, the different content elements have been given a separate chapter.

It is important to note that due to the large amount of information available, the feasibility study was established in two steps. In the first step, several hundred pages of background studies were prepared with the full processing of the available information. In the second step, background studies were evaluated and summarised considering both the limitations of the feasibility study and the direct needs and criteria of the data model development.

Of course, the Partnership also ensures public access to the background studies created within the framework of the project; however, full quality assurance was only provided in the case of this feasibility study, i.e. quality assurance is not complete in the case of background studies.

### 2.4.1. Mapping the environment determining the possibilities of soft skill development

In this chapter, we describe adult education systems in V4 and several other countries, which have a significant impact on the practical implementation of the ILA recommendation published by the



Council of the EU. We then map what steps have been taken in each V4 country to make ILA feasible. The topic of micro-credentials is closely related to the concept of ILA and is therefore covered in detail in the background study prepared for this chapter.

The topic of soft skill training opportunities is explored along the following logic:

- First, we explore the state of play of international terminology on soft skills and define what we mean by soft skills in the context of this project.
- Then, we map the systemic approaches to soft skills in the EU, including European frameworks and classifications that provide a transparent picture of the qualifications or occupations acquired in each country, but also of the aptitudes, skills or competences required to exercise them.
- The analysis of the data contained in the frameworks and classifications can be key to the data model and can influence the AI-based algorithm to recommend the level of training for each individual.
- An indispensable part of our analysis is the frameworks beyond the above, which include competences that can be acquired through formal, informal or non-formal learning, that help employees (and entrepreneurs) to thrive in the 21st century labour market, and that are essential for their active participation in society.
- The overview of the frameworks briefly describes the main objective, structure and usability of the framework.
- Taking all this into account, and responding to the demands of the labour market, we propose the soft skills that can be part of the data model and underpin the empirical research we will carry out in the project.

In the last part of the chapter, proposals for the creation of the D-ILA data model are developed.

#### 2.4.2. Analysis of adult learning solutions and databases

As a first step, the Partnership developed a set of criteria to analyse each country from the perspective of an ILA data model. The considerations are as follows:

- General information about the adult education system
- Overview of available sources of information
- Background relevant to the ILA data model
  - o Legislative framework
  - o Statistical system
- Analysis of the information content of available databases
- General conclusions
- Conclusion on data fields for training and trainees
- Conclusion on the composition of the target group

It is important to note that we were not looking at the feasibility or possibility of implementing ILA in a particular country. The focus was always on identifying potential data fields and the composition of data series from an ILA data model perspective.

The country-by-country analyses prepared in accordance with the developed criteria were combined into one document, the background study. The background study shall contain all information, data and analyses as well as links that have been used to inform the recommendations set out in the relevant chapter of the WP2 feasibility study.

#### 2.4.3. Collection of good practices

In collecting good practices, we first focused on the countries of the organisations participating in the Partnership. This was followed by an examination of good practices from European and non-European countries. In fact, by the term good practices we also mean unsuccessful projects, since valuable conclusions can be drawn from them as well. The case reports were evaluated for our project.

#### 2.4.4. Empirical research: conducting and evaluating interviews

Empirical research is an activity within WP2. Resulting empirical research report is included as Chapter 6 into the Feasibility study. In the given project scope and time frame it is not possible to carry out an extensive “full-range” (representative) survey. Moreover, the extensive initial desk research and the professional insights of participating partners covered policy approaches in adult education (AE) funding schemes and soft skills policies to a large extent, so it is not necessary to assess these areas with further empirical research. Thus, the initial proposal of empirical research examining broader motivations and opinions of policy makers, training providers, HR professionals, international experts, equity experts etc. in order to better shape the data model inputs. With this in mind, our research will take the form of a targeted inquiry using qualitative methods (semi-structured interviews).

#### 2.4.5. Exploring the application possibilities of artificial intelligence

Our project to create and test the ILA data model does not aim to develop AI algorithms. The purpose of applying AI-based solutions is to test the data model with the help of some ready-made solution. Since AI is not developed in the project, the AI chapter of the feasibility study looks at adult education in general, examining the application possibilities of AI in a broader context.

#### 2.4.6. Create a list of potential users of the ILA data model

In order to make the ILA data model widely applicable, we have collected a list of actors for whom the ILA data model is relevant. Some of these actors were personally interviewed during the empirical research phase of the feasibility study, while the other actors on the list could be contacted during the dissemination phase. Due to data protection considerations, the list does not contain personal data.

#### 2.4.7. Experiences and recommendations

This is the summary chapter of the feasibility study, in which the experiences of the previous chapters are summarised.

#### 2.4.8. Attachments

The Annex contains a table linking the commitments contained in the approved project proposal and the individual chapters of this feasibility study. With the help of this, interested parties can get an accurate picture of the implementation of the commitments included in the tender in practice. The following annex is a glossary summarising the terms used in this paper and their definitions. The Annex

also contains the methodological guide for empirical research and guide for interviewers. Details of the stakeholder list in tabular form are also set out in the Annex.

## 2.5. The process of building the ILA data model

An overview of the logical structure of the project explains/highlights the role of this study:

1. Development of the data field structure of the AEL Data Sheet
2. Designing the data field structure of the data sheet containing person-related data
3. Structuring the data rows of the AEL Data Sheet (number of rows not yet defined)
4. Editing the data rows for the AI training data table containing person-related data (300 rows as committed in the proposal)
5. Linking the AI training person-data database and the Adult Training data sheet by assigning training to the 300 person-data rows
6. Train AI on the basis of the 300 person-linked dataset + their assigned trainings
7. Populate the live data table with person-related data with data rows (600 rows as committed in the application) to which no training is assigned
8. Run a trained AI, as a result of which the AI assigns training to the 600 data rows based on the logs previously learned. The AI uses the same data table containing training as it used for training.
9. Create a final result table (600 rows of data: person-related data + associated trainings)

## 3. Mapping the environment for soft skill development opportunities

The chapter discusses the funding systems for adult learning, including the situation of ILA in different countries. This is followed by an analysis of micro-certification schemes, also by country. Next, information on soft skills at EU level is collected. Within this, a strong focus is put on mapping the different frameworks. We also looked at soft skills development practices by country. At the end of the chapter, a summary is provided which analyses the findings from the perspective of the project.

### 3.1. Situation analysis of adult training funding systems

The funding systems for adult learning are examined mainly in the Partnership countries. Several notable examples from other EU countries are included.

#### 3.1.1. Adult training funding systems in Czechia

In Czechia, there is no unified coherent system for CVET as such, nor for CVET funding. Adult education in Czechia is provided within a few independent frameworks. They are (a) regular schools (within the official school's system), (b) employers, (c) public employment service, (d) free market.

##### *AE provided by schools<sup>2</sup>*

The school's system consists of basic schools (comprising primary and lower secondary education<sup>3</sup>), secondary schools, tertiary professional (vocational) schools and higher education institutions. In

<sup>2</sup> A network of schools providing initial education for children and adolescents before they enter the labour market. They can be public or private, but are subject to the rules and regulations of the state (Ministry of Education, Youth and Sports).

<sup>3</sup> The names of education types and schools may vary from country to country. In the Czech Republic, compulsory schooling is currently 9 years. Lower secondary education corresponds to approximately 11-15 years of age and is usually provided in

theory, adults can enter any school educational programme. In practice, adults most often attend part-time or distance programmes specifically designed for them. Schools are decisively funded from public budgets (especially through the budget of the Ministry of Education, Youth and Sports and through the budgets of regional authorities). Concrete financial flows and allocation systems slightly differ in different school levels/types. Most formal education (leading to a formal qualification level) in public schools is provided free of charge. Private schools and tertiary professional schools collect fees from participants. Non-formal part-time or distant courses are mostly provided for a payment.

#### *AE provided by employers*

AE provided by employers is usually funded by them. There are several forms of incentives and grants that (mainly) employers can apply for. These schemes are often project-based initiatives co-funded from EU structural funds. Due to their temporary nature, conditions change according to the state administration policy priorities (e.g. anti-crisis programmes, investment incentives in selected industries etc., see an example of POVEZ programme below). Employers can also apply for a subsidy to retrain their employees within the framework of the active labour market policies (ALMP – see below).

#### *AE provided within the public employment service (PES)*

The key part of the active labour market policies provided by PES is the so-called „re-training“. It is funded from the state budget (through the budget of the Ministry of Labour and Social Affairs), but a large part of training is provided also within projects co-funded from the ESF and managed by the Labour Office.

The financial resources are transferred to the Labour Office which then distributes them further to its regional branches. The LO branches cover the course fees for the participants and may also contribute to other retraining-related costs. The training programmes must be accredited (mostly the accreditation is provided by the Ministry of Education, Youth and Sports, but also other ministries in case of specific programmes). The training provider submits an application with a description of content of the training, forms and methods used (including assessment of learning outcomes). If approved, the accreditation is valid for three years, then it must be renewed.

There are several schemes how LO funds the training:

- retraining of registered job-seekers (unemployed)
- retraining of people interested in changing their job (may be employed)
- retraining of employees applied for by their employer (in order to prevent employees from losing their job)

Retraining of individual applicants (unemployed persons and persons interested in changing their job) has two forms:

1. **Retraining arranged by the Labour Office.** Regional branches of the Labour Office contract a pool of training courses according to the situation in their region (needs of the unemployed people and of the labour market). The training courses are then recommended to registered individuals and the costs are covered provided that the individual participates in the course.

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the second cycle of primary schools. Higher secondary education can be either general (grammar schools) or vocational and corresponds to approximately 15 - 19 years of age. For a diagram see e.g. <https://eurydice.eacea.ec.europa.eu/sites/default/files/inline-images/CZ.jpg>

2. **Choice-based retraining.** Individuals may also search a course according to their own preference (the course must be accredited by the Ministry of Education). If the Labour Office approves the choice, it provides funding for the course. Total amount for one person is limited to 50.000 CZK (ca. 2.130 EUR) in the period of three consecutive years. The condition is that the individual attends the course and fulfils course requirements (e.g. an exam). In case the Labour Office decides to fund the training, it issues an endorsement for the applicant confirming that after they successfully complete the course, the cost will be paid to the training provider.

A new initiative based on the national Recovery and Resilience Plan is being prepared in 2022-2023 that aims to significantly widen the choice-based retraining opportunities and increase the participation. The scheme should be developed into a form of individual learning accounts pilot (see chapter 3.2.1).

If an employer applies for retraining of their employees, the LO covers the costs of the training, while the employer covers the wages of the participants during the course.

#### *Free market training*

Free-market training is not regulated and is based on principles of demand and supply. Most of it is funded by participating individuals, but there are also various subsidised programmes provided by non-profit or public organisations for public benefit.

#### *Example of a successful AE programme funded from the ESF: Support of vocational training of employees (POVEZ)*

Since 2009 a series of ESF co-funded programmes have been in place that have enabled financial support for training of employees. Among them there have been especially two consecutive projects titled Support of vocational training of employees I and II (POVEZ I and POVEZ II). The overall goal of the programme is to support the adaptability of workforce in the situation of ever changing labour market requirements. It tackles mismatch between skills available and skills needed by the employers as well as low flexibility of the workforce.

The main target group of the project are employers, incl. self-employed individuals and non-profit organisations, with an exception of employers based in the capital city of Prague. The Labour Office periodically issues calls that specify the conditions. Interested employers apply to the call and if the grant is awarded, they obtain a significant contribution to the costs of the specified training of their employees and full reimbursement of their wages for the period of their training. The grant covers a certain percentage of the training costs based on the rules of the public financial support (e.g. de minimis condition).

For the current POVEZ II project (2015-2023), the concrete conditions are following:

- up to 85% of training cost covered
- reimbursement of wages of employees undertaking training up to 100%
- training can be realised by an internal trainer as well as external training provider, in personal as well as electronic form
- employees on parental leave are also eligible for support
- training of Czech language for new employees from foreign countries is also eligible for support

- specific as well as general training (incl. soft skills) is eligible for support; courses need not to be accredited by the Ministry of Education (see above)
- participation of employees older than 54 years is favoured
- courses of any length are supported, with a preferable length being over 40 hours per employee
- applications are evaluated by the Labour Office, with a main focus being improving local/regional labour market situation and positive impacts for the company and the individual employee.

### 3.1.2. Adult training funding systems in Hungary

The following is an overview of the financing of adult education in Hungary, broken down into sub-sections by the actors involved.

#### *State - Supply-side financing: vocational education and training*

Thanks to the legislative changes in 2019-2020, two pillars of the training structure have emerged: vocational education and training for the labour market, the former defined as vocational education and the latter as vocational training. Regardless of which one an adult participates in, he or she will be subject to an adult learning contract.<sup>4</sup> In the reformed training system, the first and second apprenticeship and a vocational training course are also provided free of charge, with indirect funding from the state. State vocational training institutions may be subsidised through the maintainer's own budget or through a cooperation agreement with another maintainer on the basis of its church, nationality, social support or public service of major importance.<sup>5</sup>

#### *State – Tax relief for vocational education and dual training*

The State may provide additional support for the provision of basic vocational training. Under the Vocational Training Act<sup>6</sup>, a dual training establishment is entitled to claim a tax credit on the basis of the pro rata cost of the vocational training, as defined in the Social Contribution Tax Act.<sup>7</sup>

#### *State – Training loan for trainees*

With the development and introduction of the training loan, a unique opportunity has been created in the Hungarian adult education support system. Training loans can be used for vocational training, part-time vocational training, vocational training for a licensed qualification or training of major importance for the national economy.<sup>8</sup> The State provides the possibility for the trainee to benefit from the training loan, as defined by law, in connection with an adult education relationship for a period of more than three months for vocational education or training, entered into with a vocational training institution that has a cooperation agreement with a state-owned company (Student Loan Centre) operating the training credit scheme.<sup>9</sup> Under the current rules, the training credit is conditional on the trainee having completed secondary education.

<sup>4</sup> Source: <https://vmkik.hu/felnottek-szakmaszerzesi-lehetosegei>

<sup>5</sup> Source: <https://net.jogtar.hu/jogszabaly?docid=a1900080.tv>

<sup>6</sup> Act LXXX of 2019 on Vocational Education and Training

<sup>7</sup> On 1 January 2022, the vocational training contribution, which companies and businesses were obliged to pay, ceased.

<sup>8</sup> Forrás: <https://diakhitel.hu/kh-intezmenyeknek/>

<sup>9</sup> Forrás: <https://net.jogtar.hu/jogszabaly?docid=a1900080.tv>

### *State – Adult education grants for persons undergoing training*

Adult education institutions may pay a bursary to persons in training if they are not eligible for or have not applied for a training credit. The condition is that it must be vocational training under the Vocational Training Act, or vocational training preparing for a part of a profession as a non-vocational institution, or education or training partly or wholly financed from public funds or EU funds (exceptions: internal training and education and training organised under the law), and the training must last at least 50 hours. Scholarships can also be awarded for courses of major importance for the national economy. The maximum amount of the grant is 75%<sup>10</sup> of the guaranteed minimum wage, but in the case of training of major economic importance, it may be granted at the rate of two months' guaranteed minimum wage per month.<sup>11</sup>

### *State – Dedicated State Fund: National Employment Fund*

The purpose of the establishment of a separate State fund is to finance some of the State's tasks partly from sources outside the general government budget.<sup>12</sup> Chapter LXIII, National Employment Fund of the Finance Act<sup>13</sup> includes subsidies for vocational training. The main purpose of the National Employment Fund is to provide, inter alia, the financial resources necessary for vocational training (adult education) subsidies.

### *Employers' involvement in the financing of adult education*

The continuous availability of skilled labour has a significant impact on the performance and competitiveness of the economy. Low employer burden sharing has been striking in the past, even by international standards: Hungarian employers' spending in this area was clearly among the lowest among OECD countries, according to a 2012 OECD publication.<sup>14</sup>

According to the Central Statistical Office's (CSO) Information Database, the share of enterprises supporting training, employing more than 10 persons<sup>15</sup> was 38% in 2020, which shows a decreasing trend (2010: 49%, 2015: 44%).<sup>16</sup> Training costs accounted for 0.7% of total labour costs in 2020 (of which enterprises with 250 or more employees: 0.5%, medium-sized enterprises with 50-249 employees: 1.3%, and small enterprises with 10 to 49 employees: 0.9%). The average training cost per participant was 243 400 HUF; the highest training cost was in medium-sized enterprises, with an average of 678 883 HUF (large enterprises: 114 278 HUF, small enterprises: 478 124 HUF).<sup>17</sup>

In the light of the above data, not only financial resources but also a change of mindset would be needed in the financing of adult education in Hungary, because many companies still base their production on cheap labour. At the same time, enterprises capable of producing higher added value

<sup>10</sup> Guaranteed minimum wage, in 2023: 296 400 HUF gross.

<sup>11</sup> Source: <https://net.jogtar.hu/jogszabaly?docid=a2000011.kor>

<sup>12</sup> Source: [https://www.allamkincstar.gov.hu/hu/koltsegvetesi-informaciok/koltsegvetes\\_merleg\\_5](https://www.allamkincstar.gov.hu/hu/koltsegvetesi-informaciok/koltsegvetes_merleg_5)

<sup>13</sup> Act XXV of 2020 on the 2023 Central Budget of Hungary

<sup>14</sup> Annual labour costs of employer-subsidised non-formal education as a percentage of GDP for employed persons aged 25-64 in 2007: OECD average: 0.36%, Hungary: 0.11% (lowest value at the time, along with Greece).

Source: [https://www.oecd-ilibrary.org/education/education-at-a-glance-2012\\_eag-2012-en;jsessionid=zoiW0X9QRRRrVw10ocYLxd91qhAd41pBuAv99SF6T.ip-10-240-5-84](https://www.oecd-ilibrary.org/education/education-at-a-glance-2012_eag-2012-en;jsessionid=zoiW0X9QRRRrVw10ocYLxd91qhAd41pBuAv99SF6T.ip-10-240-5-84) [408 p.]

<sup>15</sup> Percentage of enterprises as a proportion of all enterprises that supported (partly or wholly financed) the participation of their employees with a work contract in some form of vocational training.

<sup>16</sup> Source: <https://www.ksh.hu/oktatas>

<sup>17</sup> Source: <https://www.ksh.hu/oktatas>



require a highly skilled workforce, for which regular training of employees is essential.<sup>18</sup> To achieve a positive shift, in particular the domestic SME sector needs to be strengthened, which often lack resources. In the human resources policy of larger companies, training their employees has become a key element of market adaptation and a means of motivating employees, but their ability to attract and retain resources is much stronger than that of smaller, mainly domestically owned enterprises.

#### *The role of NGOs in the financing of adult learning*

The most important role of civil society organisations in their very diverse and diversified activities is their active participation in social responsibility, but they also play a significant role in adult learning. They can secure the resources necessary for their operation and the implementation of their programmes from various sources (budget support, EU support, donations, etc.), they cannot accumulate profits but can use them to achieve their objectives – thus they participate in the financing of adult education in Hungary. In many cases, they provide training to specific target groups who are disadvantaged in the labour market and who have drifted to the margins of the labour market. According to CSO records, in 2021 there were 7,825 registered non-profit organisations whose main activity is education.<sup>19</sup>

#### *EU funding in the adult education funding system*

As set out in the Partnership Agreement for the current cycle, from 1 January 2021 to 31 December 2027, the programmes directly or indirectly related to the funding of adult education will be:

- GINOP Plus will support the improvement of the content of vocational education and training and higher education, the operation of continuing training and incentive systems, and the improvement of equal access to education and training.
- In the EFOP Plus, support for lifelong learning for inclusion (aimed not obtaining a vocational qualification, but at competence development).
- DIMOP Plus supports the digital development of human services and the digital skills of citizens.

#### *Hungary Recovery and Resilience Plan - Recovery and Resilience Facility (RRF):*

Hungary's Recovery and Resilience Plan (RRF) aims primarily at countering the economic and social impacts of the coronavirus epidemic and increasing the resilience, sustainability and preparedness of the economy for the challenges and opportunities of the green and digital transition.<sup>20</sup>

### 3.1.3. Adult training funding systems in Poland

The promotion of adult learning was not a priority during the first two decades of transformation and there was no established agency to ensure quality, conduct supervision in this area, or to promote adult learning. Private training companies have been operating according to laissez faire principles.

<sup>18</sup> When assessing the Hungarian situation, it is necessary to mention that, according to the changes in the legislation on adult education, training courses of less than 6 hours, as well as occupational safety and fire protection training for employees, are no longer included in the internal training of enterprises, and these do not have to be reported in the data reporting related to training (and thus do not appear in the statistics).

<sup>19</sup> NGOs are made up of associations, foundations and civil societies. This definition became clear in 2011, according to the interpretation of Act CLXXV. Previously, and to date, the CSO reports on non-profit organisations, with associations and foundations being the classic NGOs. Source: <https://core.ac.uk/download/pdf/327111464.pdf> [p. 48]

<sup>20</sup> Source: <https://www.palyazat.gov.hu/helyreallitasi-es-ellenallokepessegi-eszkoz-rrf> RRP Summary



Public institutions and agencies, usually under ministerial supervision also organise training, and award qualifications according to the relevant laws governing such qualifications (e.g., heavy machinery operation in the construction sector, electrical work or aviation), but practices and quality assurance mechanisms have varied. More emphasis was placed on adult learning after Poland joined the EU. The first policy instruments financed by the European Social Fund were designed to support the supply side of the adult education market, i.e., private and public training institutions and labour offices, which organised training for the unemployed, although these instruments proved largely ineffective. Dębowski et al. (2010) suggested that distribution of public funds was not based on learners' or employers' expectations and the system was therefore unable to motivate training institutions to align their offers to labour market demands.

Currently there have been efforts to better coordinate adult education policy and funding. Poland introduced the Baza Usług Rozwojowych – a register of providers and services (education, training, coaching) and the Integrated Qualifications Register (IQR) providing detailed information about all qualifications referenced to the National Qualifications Framework (NQF). It is expected that solutions within the IQS will be better linked to public employment and counselling services (Cedefop 2019b) and with the resources available from the National Training Fund, which was also established in 2015 (OECD 2019a, 106). But the process of changes is ongoing and not completed.

There is no coherent funding system for adult training in Poland. Funding mechanisms – similarly as the whole landscape of adult education in Poland – are dispersed and vary according to the particular subfield of the adult education system in Poland. Government, employer and individual expenditure on adult learning is relatively low in Poland and could be better coordinated and shared.

Adult education and training in Poland is provided within by a diverse range of public and private institutions. According to Poland's Human Capital Survey (Bilans Kapitału Ludzkiego, BKL), there were nearly 16 000 providers of adult education and training in Poland in 2014 (Szczycka, Turek and Worek, 2014). These include: a) education and training institutions operating under the Ministry of Education and Science jurisdiction b) education and training institutions operating under other ministries or national agencies jurisdictions, c) private training providers offering courses for adults interested in extending their competences, d) chambers of crafts and e) higher education institutions.

The funding mechanisms depend on the type of education offered and the type of provider. Adult learning funding in Poland is largely directed to institutions (supply-side funding), although some regions, for example, Małopolskie region has experiences with education vouchers targeted to adults and enterprises to finance skills investments.

In principle, education and training offered by public institutions (schools, VET centres, higher education institutions) is free of charge for learners. This education is financed from the state budget subsidy administered mainly by the local authorities. Schools or training providers receive subsidies based on the number and types of learners and based on whether learners passed the examination organised by the Central Examination Board. Therefore, the subsidy consists of two parts: per enrolment and per exam passed.

Unemployed learners and employers might receive subsidies from the National Training Fund. The NTF is a part (2%) of the Labour Fund, which itself is funded from a levy on employers (2.3% of the basic salary per employee). The budget of the NTF is about 53 million EUR (2019). Any enterprise can apply to the NTF for an 80% refund of training costs, while micro-sized enterprises can apply for 100%, up to a maximum of 300% of Poland's average monthly salary per employee (equating to about 3 200 EUR,

per employee in 2018). In 2017, over 18 000 enterprises received KFS funds, half of which were micro-sized enterprises. The NTF is administered by different actors to achieve a wide range of priorities. The Minister of Family, Labour and Social Policy sets priorities for 80% of the NTF budget. In 2019, these priorities included supporting adult learning to fill occupations experiencing skills shortages, and supporting low-educated adults, disadvantaged groups, teachers and trainers in VET, and people older than 45.

European Structural and Investment Funds (ESIF) have helped raise total investments in adult learning and encouraged cost sharing between governments, employers and individuals. The state, the European Commission and enterprises co-fund several temporary adult learning programmes. Poland's Partnership Agreement 2014-2020 allocates 4 billion EUR from various funds within the ESIF – the ESF, the European Regional Development Fund (ERDF) and the European Agricultural Rural Development Fund (EARDF) – to “Investing in education, training and vocational training for skills and lifelong learning”. The co-financing from the ESF is targeted at employers and employees from micro, small and medium-sized enterprises. National and local governments and enterprises participate in funding. This support can be between 50% and 80% of the course/service costs. The highest co-financing is prioritised for enterprises with a smaller number of employees (up to ten). For larger enterprises to receive the higher level of co-financing, they need to meet other criteria, such as operating in industries with the largest development potential or regional strategic value, providing learning for older or low-skilled adults.

There are plans to link the public funding with Integrated Qualification Register (Zintegrowany Rejestr Kwalifikacji) – meaning that, state subsidies channelled to learner or employers could be provided only to courses leading to qualifications from the Integrated Qualifications Registry.

There are numerous initiatives targeted to provide funds directly to learners, mostly financed from the European Social Funds, but they are fragmented and usually are one-time initiatives without the necessary continuity. One of the good examples might serve the Loans for Education project. “Loans for Education” (2017) targeted adults (working, self-employed and out of work) who wanted to develop their skills and competences. Adults could apply for a loan of up to 100 000 PLN to finance selected postgraduate studies, courses or training (except for first, second and third cycle studies) that lasted no longer than 24 months. Loans were interest-free and could finance the entire cost of training/study. The repayment period was up to three years. Completing the studies or the course was the basis for redeeming 20% of the loan. For people who were unemployed and who during or after the training took up employment, or for those with incomes below the national average, the remission could be subject to 25% of the loan. As part of the first call, which was opened in September 2017, almost 1 700 applications were submitted, and over 1 000 loans were granted. More than half of borrowers (52%) were women, and almost every tenth loan was granted to non-working people who wanted to increase their qualifications.

Given the number of actors involved in funding adult learning in Poland, and the limited data available on subnational, enterprise and individual spending, effective coordination will be highly important. Performance monitoring and performance-based funding are relatively more developed in Poland's VET and higher education systems and could potentially be adapted to publicly funded adult learning.

### 3.1.4. Adult training funding systems in Slovakia

Participation of adults in education in Slovakia is one of the lowest compared to other EU countries (4.8% in 2021) and OECD countries (3.8% in 2021). In contrast to other European countries where the highest participation is among the unemployed, in Slovakia is among the employed. Critically low participation in learning is present among the long-term unemployed. Motivation of adults to learn decreases with age. Education takes place mainly in companies and employment increases with the level of education.<sup>21</sup> Despite these facts, there is no systematic and sustainable financing of adult education in Slovakia.

Education for the labour market is carried out by the Ministry of Labour, Social Affairs and Family (MoLSAF SR) through active labour market policies (ALMP) increasing employability in the form of education and training for the labour market intended for jobseekers, financial contributions for retraining and competence courses (under the Act on Employment Services), implementation of graduate practice and activation activities. Until 2021, ALMP was mainly funded from the EU sources under the Operational Programme Human Resources (only in the Bratislava Self-Governing Region from the state budget).<sup>22</sup>

According to OECD, in Slovakia only 6.3% of the total active labour market policy funding was spent on education and training in 2016<sup>23</sup>, making it one of the lowest allocations in OECD countries.

The key measures of the MoLSAF SR in the field of education and training for the labour market are the REPAS+ and KOMPAS+ programmes and some other smaller project-based schemes.

REPAS+ offers registered jobseekers the opportunity to acquire vocational knowledge and skills in a retraining course of their choice and under the conditions of the scheme. The costs of the course are covered by the Office of Labour, Social Affairs and Family, together with a travel and subsistence allowance. In 2021, the highest demand was for retraining courses in accounting, tax and finance (22.40%), care courses (15.88%), vocational courses related to the driving profession (13.67%), security guard courses (13.05%), as well as courses in beauty services (10.84%) and welding courses (6.02%). In 2021, the training allowances in the form of a retraining course (REPAS+) amounted to a total of 2 457 013 EUR.

KOMPAS+ supports the development of selected key competences of jobseekers in the form of competence courses, in particular communication skills, personal development (including managerial and entrepreneurial competences), computer and language skills. As with REPAS+, the jobseeker can choose the course and the provider, and the Office of Labour, Social Affairs and Family reimburses the training costs and the travel and subsistence allowance. In 2021, 606 478 EUR was spent on competence courses; the highest demand was for computer courses (78.70 %).

The Ministry of Education has no subsidy scheme to support adult education. It has provided one-off financial support in the last few years to support the activities of the Association of Universities of the Third Age within the framework of the National Programme for Active Ageing and to the Association of Adult Education Institutions for the implementation of the Lifelong Learning Week. The last major

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<sup>21</sup> <https://www.minedu.sk/data/att/22182.pdf>

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[https://www.upsvr.gov.sk/buxus/docs/SSZ/OAOTP/Vyhodnotenie\\_AOTP/Vyhodnotenie\\_AOTP\\_za\\_rok\\_2021.pdf](https://www.upsvr.gov.sk/buxus/docs/SSZ/OAOTP/Vyhodnotenie_AOTP/Vyhodnotenie_AOTP_za_rok_2021.pdf)

<sup>23</sup> <https://www.oecd-ilibrary.org/sites/bb47eb91-en/index.html?itemId=/content/component/bb47eb91-en>

support for adult education providers was the ESF-funded call NedisKVALIFIKUJ sa!<sup>24</sup> in 2016 from the Human Resources Operational Programme, which was allocated 26 million EUR. 157 projects of both public and private sector organisations were implemented under the call.

Further education in the framework of accredited courses, the register of which is kept by the Ministry of Education, Science, Research and Sport of the Slovak Republic<sup>25</sup>, is financed by the participants from their own resources, or from the employer's resources, or within the framework of implemented projects.

Similar is the current set up of funding of validation of prior learning, which according to the current legislation represents the process of obtaining a certificate for 'verifying professional competence' for the purpose of operating a trade required by the Trade Licensing Act. Currently, the pilot ESF project The System of Qualifications Verification is being finalised, under which a sample of approximately 200 participants will have the opportunity to obtain a qualification based on the process of validation of the results of prior learning. After the pilot phase, a fee for validation services is envisaged, based on the technical difficulty of the qualification concerned.

Indirectly, adult education is supported through tax benefits under the Income Tax Act<sup>26</sup>, which allows tax exemption of the amount spent by the employer on the education of an employee that is related to its regular activity.

Changes in the financing of some measures for the development and support of adult education should be brought about by the forthcoming Act on Lifelong Learning (or the Act on Adult Education), for example in the form of individual learning accounts, where support of 200 EUR per year and an individual is foreseen (in the pilot phase planned from the EU funds).

### 3.1.5. Notable international examples

For the international examples, countries with especially advanced and complex AE funding systems were selected, with sufficient explanatory information available. These systems involve a high number of various partners/stakeholders and although decentralised in many ways, provide a consistent, reliable, nation-wide system enabling sustainable funding of individual adult education, often using multiple channels.

#### France

Since 1971, adult training has been a right recognised by French law<sup>27</sup>. The responsibility for adult education is shared by all the economic and social partners involved (each of which can act independently):

- the State, the regions and the social partners define the framework and supply of continuing training: the criteria and arrangements related to AE provision are generally based on interprofessional agreements signed by the social partners of different sectors of activity and confirmed by public authorities;

<sup>24</sup> <https://www.minedu.sk/21112016-vyzva-na-predkladanie-ziadosti-o-nenavratny-financny-prispevok-na-podporu-celozivotneho-vzdelavania-oplz-po12016dop141-01-vyzva-uzavreta/>

<sup>25</sup> <http://isdv.iedu.sk/>

<sup>26</sup> <https://www.zakonypreludi.sk/zz/2003-595>, (Section 5(7))

<sup>27</sup> Law 71-575 of 16 July 1971

- the State, the regions and the social partners (via the skills operators) and companies manage the financing of AE;
- the State, the regions, companies and public or private training bodies are responsible for the provision of training as such.

As far as learners are concerned, AE can be undertaken by all adults over 18 years of age. Admission procedures depend on the status of each learner: employees, jobseekers or people with special needs.

In 2018, the legislation<sup>28</sup> reformed the Personal Training Account (CPF), which lists the rights acquired by employees throughout their working lives and until they retire, as well as the training from which they can benefit. The law also created *France Compétences*, which is responsible for organising, leading and regulating the vocational training sector.

The main source of funding for continuing vocational training in France are the companies. Companies have a legal obligation to finance continuing training. Any company that employs people is concerned by the contribution to vocational training, the amount of which depends on the number of employees in the company and the total payroll. The effort to finance vocational training lies in a single contribution, collected by a single body, the skills operator (OPCO). Companies with fewer than 11 employees contribute 0.55% of the wage bill, companies with 11 or more employees contribute 1% of the wage bill. There is also additional contribution above the legal minimum that applies to companies belonging to a branch or professional sector that has concluded a training agreement. Companies are free to participate beyond the statutory liability.

The Regions are the second largest funder and are mainly responsible for financing training for jobseekers. The State finances in particular the training of the most disadvantaged groups (disabled people, prisoners, foreigners, illiterate people). Other public bodies involved in AE funding include Agefiph (association managing the fund for the professional integration of people with disabilities), Unédic (National Professional Union for employment in industry and trade managed by social partners) and Pôle Emploi (public employment service agency), local and regional authorities other than the Regions (departments, municipalities, etc.) and individual training purchases. In reality, the distribution of funding for continuing vocational training does not strictly correspond to that of the categories of public concern. A single scheme may involve several funders. Also, the European Social Fund is involved in financing programmes to promote employment and inclusion.

#### *Training for jobseekers*

The registration fees paid by jobseekers differ according to their age. For young people, there is a scheme which allows them to train free of charge. Individuals of 16-25 years of age who are not in employment or training can conclude a contract under the Youth Guarantee with their local mission. Under this contract, training can be paid for and an allowance can be given to the learner. For individuals over 25, the educational costs and mobility costs (transport, accommodation, etc.) of the training can be fully or partially covered by Pôle emploi. If the training is partially financed by the Pôle Emploi, the learner can utilise their personal training account (CPF) if they have one. The personal account accumulates the training rights acquired by the employee throughout their working life (in Euros) and the training courses for which they can use it. The individual can consult the balance of the account at any time on the My Training Account website.

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<sup>28</sup> Law 2018-771 of 5 September 2018

### *Training for employees*

If the individual is in employment, several mechanisms can finance their training. The company, which wishes to ensure that its employees adapt to their jobs and maintain their ability to hold their jobs (particularly following technological developments), can finance the training of its employees within the framework of a skills development plan. This plan distinguishes between two types of training:

- Compulsory training (application of collective agreements or conventions)
- Other (non-compulsory) training

The plan may also detail other types of action, such as skills assessment, validation of acquired experience or plans to combat illiteracy. The training of individuals can be funded also through 11 Skills Operators (OPCO) that have been approved by the Ministry of Labour and are responsible for a particular sector of the economy. The OPCOs support companies with fewer than 50 employees in developing skills, analysing training needs and changing professional qualifications. Finally, employees can finance their training themselves by utilising their personal training account (CPF).

### **Austria**

Main institutions responsible for adult education and training in Austria are the Federal Ministry of Education, Science and Research (BMBWF<sup>29</sup>). Important role in allocation of funding for adult education plays also Public Employment Service Austria (AMS<sup>30</sup>). Non governmental organisations – educators are often supported by the Ministry (BMBWF) and they are an important part of the system of adult education and training in Austria: The federal government has concluded three-year service agreements since 2009 with the Austrian Conference of Adult Education Institutions (KEBÖ). KEBÖ brings together 10 important non-profit adult education associations. The agreement states goals linked to the public funding for these institutions.<sup>31</sup>

Important source of financing AE are ESF programs focused on sustainable integration of disadvantaged adults in society, education and the labour market, removing barriers, creating equal opportunities as well as professionalisation and quality development. ESF projects are co-financed by the BMBWF. An important programme, co-funded from the ESF, is for example the Adult Education Initiative<sup>32</sup>. It provides an opportunity to catch-up basic education (basic skills) and acquire compulsory school-leaving certificate for adults. An amount of money provided within this program is quite high: in the field of compulsory school-leaving certificate, in the period from 2018 to 2021, it was around 12.3 millions EUR each year. Such programmes significantly increase the number of educational activities completed and reach especially the socially and educationally weaker segments of the population.

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<sup>29</sup> <https://www.bmbwf.gv.at/Themen/eb.html>

<sup>30</sup> AMS – Arbeitsmarktservice Österreich, [www.ams.at](http://www.ams.at)

<sup>31</sup> In terms of legislation, the requirements and criteria for granting subsidies are laid down in the 'Federal Financing Act on the Funding of Adult Education and Public Libraries from Federal Funds' (Bundesgesetz über die Förderung der Erwachsenenbildung und des Volksbüchereiwesens aus Bundesmitteln, see on-line on

<https://ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=10009356>)

<sup>32</sup> „Initiative Erwachsenenbildung“, [www.initiative-erwachsenenbildung.at](http://www.initiative-erwachsenenbildung.at). The initiative is based on an agreement pursuant to Art. 15a B-VG between the federal government and the provinces.

In general, there is a range of support measures and programs covering costs of adult learners. This is organised and provided by local authorities, Public Employment Service Austria (AMS, [www.ams.at](http://www.ams.at)), interest groups (trade unions, Chambers of Labour and Commerce), associations or foundations.

ESF co-financed website [Erwachsenenbildung.at](http://Erwachsenenbildung.at) provides database of in total 124 different funding programmes in adult education sector, where the support is given mainly based on socio-economic criteria (age, education level, labour market status...) and a certificate of attendance of a course in a certified adult education institution. This portal serves as a reliable signpost for information on adult education in Austria, but does not offer a database of courses, only a geographically sorted list of links to them.

The certification of the educational institution in the national quality assurance system for further education (e.g. Ö-CERT<sup>33</sup>) is often a condition for funding the course. Quality assurance is one of important parts of adult education system, the Ö-CERT mark is awarded by the federal and state governments on the basis of a legal foundation<sup>34</sup> and it is an example of good practice in monitoring and promoting the quality of adult learning. Quality assurance marks should be considered as a part of our course datasets.

#### *Measures supporting financial availability of adult education*

**Grants** are usually used to support specific groups of adults, e.g. the unemployed, people with disabilities, people in need of social support. Grants usually cover part of the whole price of course or exam, also e.g. travel or living expenses could be paid.

**Loans** could be obtained for initial and also for further education; they can be taken out from four private credit institutions (so-called 'building societies') with a maximal amount of 30 000 EUR per person with a maximum duration of 12 years.

**Vouchers** are another of financing instruments used for further adult education in Austria; similar to grants they usually cover education and exam costs. They are mainly used by provincial departments of the Chamber of Labour. In this case the supported persons must be members of the Chamber of Labour. An example would be „AK-Bildungsgutschein<sup>35</sup>“, where members of the Chamber obtain 120 EUR for education in one of 4000 courses provided by educators from the given list. In some cases, the amount is higher: parents on maternity leave receive 170 EUR and members visiting courses in the field of digitalisation receive 120 EUR more (a total of 240 EUR). The flyer<sup>36</sup> with training offer includes a list of training organisations, which includes e.g. adult education institution BFI Wien<sup>37</sup> and VHS Wien<sup>38</sup> (in German speaking countries a well proven form of adult education centres „Volkshochschulen“).

**Individual learning accounts** are used in some provinces, the funding is usually provided from provincial budgets. The requirements for using the accounts are similar to vouchers and grants (labour market status, certified educational institutions, educational level...).

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<sup>33</sup> [Ö-CERT \(oe-cert.at\)](http://oe-cert.at), quality assurance system for adult education in Austria.

<sup>34</sup> 15a Agreement on Ö-Cert, Federal Law Gazette II No. 269/2012

<sup>35</sup> [https://wien.arbeiterkammer.at/service/broschueren/Bildung/Bildungsgutschein\\_2022.pdf](https://wien.arbeiterkammer.at/service/broschueren/Bildung/Bildungsgutschein_2022.pdf)

<sup>36</sup> [https://wien.arbeiterkammer.at/service/broschueren/Bildung/AK\\_Kursbuch\\_Fruehling\\_2023.pdf](https://wien.arbeiterkammer.at/service/broschueren/Bildung/AK_Kursbuch_Fruehling_2023.pdf)

<sup>37</sup> [www.bfi.wien](http://www.bfi.wien)

<sup>38</sup> [www.vhs.at](http://www.vhs.at), Wiener Volkshochschulen GmbH.



These direct types of AE financing are used as incentives by governments, municipalities and others to support concrete groups of adult population (unemployed, parents on maternity leave, low skilled, immigrants...) or to support development of some skills (e.g. digital skills).

There are also indirect funding instruments for further education in Austria: **tax incentives and educational leave**. Tax incentives are constructed as lowering of the tax base (tax deductibility of costs). It is possible only for training programmes relevant for the occupation (languages, IT courses included). Educational leave<sup>39</sup> could be agreed between employer and employee from the seventh month of employment for minimal 2 months and maximal 1 year. After 4 years, the educational leave could be repeated. During the educational leave, the employees can get unemployment benefit from the national unemployment insurance if they meet the conditions. However, these indirect ways of financing adult education do not have a significant potential to influence the design of our learning account model, because the courses attended by people on educational leave are paid in the same way as by persons in other circumstances.

### Denmark

Adult education programmes in Denmark are typically provided by state-funded self-governing institutions such as adult education centres (VUC), vocational education and training colleges, labour market training institutions (AMU-Centre) and higher education institutions. Non-formal education is provided by state-funded self-governing institutions such as folk high schools (Folkehøjskoler) and the municipal evening schools. There are also private providers.

All authorised adult education and training programmes are publicly funded, but the public subsidy only covers part of the costs and a user typically pays a fee. Providers receive 'taximeter' funding (taximeter grant per full-time equivalent participant, a fixed rate per programme) and must negotiate budgets and targets with the Ministry of Education annually. European funding also plays no role in financing adult education and training. The fee paid by users of the training in average corresponds to approximately 100 EUR per week and it is generally paid by the employer.

Public financial support for AE is realised through two funding schemes:

1. State support for AE (SVU). It is dedicated to support mainly education in basic and secondary schools (general education) and at the tertiary level. In order to be able to receive SVU the learner has to be studying full-time and be pre-approved or enrolled for a SVU-approved education. The learner can receive SVU for a maximum of 40 weeks. Education programmes approved for SVU are:
  - Preparatory adult education (ISCED 2).
  - Dyslexia programmes for adults (ISCED 2).
  - General adult education (ISCED 2).
  - Single subject courses at lower secondary level (ISCED 2).
  - Special needs education (ISCED 2).
  - Danish education for adult immigrants and others (ISCED 2).
  - Higher preparatory single subject course (ISCED 3).
  - Upper secondary school (ISCED 3).

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[https://www.oesterreich.gv.at/en/themen/arbeit\\_und\\_pension/bildungskarenz\\_und\\_bildungsteilzeit.html](https://www.oesterreich.gv.at/en/themen/arbeit_und_pension/bildungskarenz_und_bildungsteilzeit.html)



- Entrance examination for engineers (ISCED 3).
- Ship's mechanist (ISCED 4).

#### Higher education

- Higher education based on The Open Education Act.
  - Special modules.
  - Master degree according to the Danish University Law.
  - Other types of adult continuing education according to the Danish University Law.
  - Part-time single subject university courses according to the Danish University Law.
2. State grant system (VEU). It is dedicated to supporting professional education. Participants in vocational adult education are entitled to a fixed allowance financed by the state if they meet the eligibility criteria called 'VEU' allowance. The eligibility criteria are:
- Participating in the course.
  - Have a loss of income.
  - Being employed.
  - Educational level not higher than a vocational education.
  - Not receiving public benefits.
  - Not having a training contract e.g. as an adult apprentice.

The level of allowance corresponds with the current level of unemployment benefit. In 2018, the amount available was 4 300 DKK (578 EUR) per week. If the learner receives regular wage from the employer during the course, the employer is entitled to receive the grant instead.

Expenditures for the allowances are covered by The Employers' Reimbursement Fund. It collects obligatory fees from all employers. The fees are fixed amounts derived from the number of employees (in FTEs). In case of employees who undergo trainings during their working time and are entitled to their full wages, the employer receives the support as a partial reimbursement of their employees' wages. Besides that this amount can be increased by the contribution from the collective training fund established by private employers, up to 85% of the regular wage of the employee in training. Also other expenses such as travel or accommodation can be covered from other public sources.

If the learner is unemployed and meet the eligibility criteria of their unemployment insurance fund, the expenditures are covered by the job centres.

### 3.2. Situation analysis of individual learning accounts (ILAs)

The situation analysis on individual learning accounts covers 7 countries, including 4 countries participating in the Partnership.

#### 3.2.1. Situation analysis of individual learning accounts (ILAs) in Czechia

Until recently, there was no tool corresponding to common EU understanding of the ILAs<sup>40</sup> in Czechia. The only comparable tool was the so-called "choice-based retraining" (see below). A significant progress has been made in the context of the European Council Recommendation on Individual

<sup>40</sup> See e.g. Council recommendation on individual learning accounts to boost training of working-age adults (<https://www.consilium.europa.eu/en/press/press-releases/2022/06/16/council-recommendation-on-individual-learning-accounts-to-boost-training-of-working-age-adults/>)

Learning Accounts (June 2022) and the Czech National Recovery and Resilience Plan (2021). Since 2022, the Ministry of Labour and Social Affairs has been developing a new tool to boost adult education via subsidies for individuals. The tool will at the same time serve as a pilot for foreseen introduction of individual learning accounts.

The programme is financed within the National Recovery and Resilience Plan and as such is aimed specifically at training in the field of digital competences and Industry 4.0. In this way, the development of skills needed most for the digital transition and Industry 4.0 is supported. Transferable as well as specific digital skills are taken into account. Expected duration of the programme is three years (2023-2025). In this period, citizens may apply for any training courses that they choose from the provided database of courses and they get 82% subsidy for the course price, maximum amount of total subsidy for one person being 50000 CZK (ca. 2130 EUR) within 3 consecutive calendar years.

In the beginning of 2023 a database of training courses was opened within the website of the Ministry of Labour, which is referred to as Database of re-qualifications and training courses (so called “e-shop”).

The e-shop integrates three types of courses, the first two of them being traditionally offered by the Labour Office (a, b), and the third one (c) being the new component of the system (the so called digi re-training):

- a) Traditional accredited re-training courses that have been for long term mediated by the Labour Office (PES). These are provided mainly to the unemployed people, but also to applicants who seek training for advancement in their career. Participation in these courses is paid for by the Labour Office and the range of training subjects is not specifically limited, besides the decision of the Labour Office who arranges tenders for the accredited training providers in the selected fields deemed appropriate according to the labour market situation. In the e-shop, the applicants for these courses are redirected to the Labour Office.
- b) Choice-based re-training courses that differ from the abovementioned in one important feature: it is the participant (the unemployed person or an applicant seeking for a change in their career) who selects the course and applies for funding at the Labour Office. The applicant must be registered at the Labour Office and the course can be chosen from the list of re-trainings accredited by the Ministry of Education. If the Labour Office grants the approval, it covers the full cost of the course up to 50 000 CZK (successful completion of the course is a condition).
- c) Training courses newly provided within the above mentioned programme that are aimed at digital and Industry 4.0 related skills (digi re-training). It is assumed that digital education of any kind improves the applicant's employability, thus the suitability of the course for the particular individual does not need to be examined in detail by the Labour Office. The courses can be inserted to the e-shop by their providers freely with only minimum requirements (see below). The providers do not need to comply with the usual legislative requirements for re-training providers within PES (no accreditation or any certification is necessary). Any citizen can apply for these courses and directly register for them through the e-shop. All the relevant information about the course is provided, such as the provider, duration, dates, venue (personal as well as online courses are provided), number of participants per class, previous requirements, if any, etc. The cost of the course with the subsidised amount is also indicated. As stated above, the maximum funding is 82% of the cost up to the amount of 50 000 CZK (upon successful completion of the course).

The goal of the e-shop is to significantly increase a pool of training providers, offered courses and number of training participants. It aims to represent a communication platform for training providers, Labour Office and clients while everything is administered online. In the first stage training providers are being invited to insert their training offers to the database. The Ministry of Labour also launched a massive public information campaign to attract citizens to apply for the training.

### 3.2.2. Situation analysis of individual learning accounts (ILAs) in Hungary

One of the persistent challenges faced by Hungary is to increase the participation of its citizens in adult education. Although the proportion of people participating in adult education has been increasing, the overall participation in Hungary remains low in comparison with other EU Member States. While in some Baltic States the proportion of people participating in adult education is close to 20%, and the EU average fluctuates around 10%, in Hungary this proportion is only around 6%.<sup>41</sup> Moreover, the digital and green transitions and the disruption caused by COVID-19 have brought about significant structural changes in the labour market and have fundamentally changed the skills needs of many jobs. The rapidly changing labour market needs are pointing to the increasing role of on-the-job training on the one hand, and adult education systems on the other, as well as on their flexibility and ability to react quickly.

With this in mind, the Hungarian Government has already launched a number of measures to increase the number of citizens participating in adult education such as: (i) Introduction of training scholarship in vocational education (obtaining the first two basic professions („alapszakma”) and one vocational qualification („szakképesítés”) is free of charge in vocational training centres) (ii) Introduction of a training loan system in adult education (low-interest loan for training costs) or (iii) Development of programs supporting corporate training. Another important measure in line with European priorities<sup>42</sup> is the introduction of Individual Learning Accounts. This means making a personal account with a budget available that may be spent on quality assured training.

Hungary had submitted a tender for Technical Support Instrument (TSI) regarding ILA developments even before the Recommendation was accepted. The Hungarian Government is highly committed to use the TSI HUN-ILA project as the single preparation measure for the higher-level national introduction and roll-out project of the ILAs, based on the results of the HUN-ILA TSI Project. This would further enable lifelong learning solutions to meet the adult learning EU 2030 headline targets defined by the Porto Declaration of the European Pillar of Social Rights<sup>43</sup>, 8 May 2021.

The EU technical support will be used to developing and implementing the Individual Learning Accounts and their enabling framework, consisting of the relevant list of legal acts and list of technical texts, procedures, and references subject to change, the proposed direction and depth of the change and the timing of change that would be necessary for a successful roll-out of the Individual Learning Accounts in Hungary. This should consider all elements of the enabling framework as defined in the approved Council Recommendation on Individual Learning Accounts (16 June 2022).<sup>44</sup> Their introduction is expected to result in a significant contribution to enhancing the upskilling of adults

<sup>41</sup> Participation rate in education and training (last 4 weeks), 2021. URL:

[https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Adult\\_learning\\_statistics&oldid=568260](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Adult_learning_statistics&oldid=568260)

<sup>42</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021DC0773>

<sup>43</sup> <https://www.consilium.europa.eu/en/press/press-releases/2021/05/08/the-porto-declaration/>

<sup>44</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52021DC0773&from=EN>

through enabling and incentivising them to participate in training. It will therefore contribute to closing existing gaps in access to training, increase participation in adult learning and help adults successfully manage labour market transitions in Hungary. The project will provide a fully functional proof of concept and an approved roadmap for the higher-level roll-out plan of the Individual Learning Accounts in Hungary to support the introduction of an individual learning account system and will build on a recently finished SRSP project - "Technical support to improve the quality and relevance of the adult education system." and also on the European level evaluation results of the survey on the effectiveness of adult learning in Europe.<sup>45</sup>

ILAs will be developed and implemented based on the results of the TSI project to increase competence and training levels. The programme aims to support the introduction of ILAs in a value of more than 5 million EUR, thus demonstrating the intention to achieve the policy objective. The classification of the ILA project under the specific objective will be reviewed in the light of the outcome of the TSI project.<sup>46</sup>

### 3.2.3. Situation analysis of individual learning accounts (ILAs) in Poland

The promotion of adult learning was not a priority during the first two decades of transformation which began in the 1990s and there was no established agency to ensure quality, conduct supervision in this area, or to promote adult learning. Private training companies have been operating according to *laissez faire* principles. Public institutions and agencies, usually under ministerial supervision also organise training, and award qualifications according to the relevant laws governing such qualifications (e.g., heavy machinery operation in the construction sector, electrical work or aviation), but practices and quality assurance mechanisms have varied.

More emphasis was placed on adult learning after Poland joined the EU. The first policy instruments financed by the European Social Fund were designed to support the supply side of the adult education market, i.e., private and public training institutions and labour offices, which organised training for the unemployed, although these instruments proved largely ineffective. Dębowski et al. (2010) suggested that distribution of public funds was not based on learners' or employers' expectations and the system was therefore unable to motivate training institutions to align their offers to labour market demands. In Poland, the involvement of people in improving their competences at further stages of life as part of formal and non-formal education is among the lowest in Europe. This situation has not changed for over ten years, despite a significant increase in public expenditure, particularly from the European Social Fund. This is also one of the paradoxes of the Polish education system - Polish students achieve one of the best results in the PISA study, they are very motivated to participate in higher education, and after finishing school education, participation in lifelong learning collapses. For this reason, work is being carried out aimed at supporting adults, including work on individual educational accounts.

The lack of clarity over training outcomes and quality assurance undermined the decision-making processes of individuals and firms, which discouraged participation in learning or its finance. When the new EU programming period for 2014-2020 was in its planning stages, there was broad consensus that

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<sup>45</sup> „An in-depth analysis of adult learning policies and their effectiveness in Europe” provides an overview of existing research on adult learning policies to support the implementation of the European Agenda for Adult Learning.

<https://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=7851&type=2&furtherPubs=yes>

<sup>46</sup> Economic Development and Innovation Operational Programme Plus - GINOP Plus 2021-2027 version 3.3 2 November 2022.

the state should act to reduce the asymmetry of information on the training market, increase the transparency of spending, and introduce quality assurance mechanisms (Kocór & Worek 2017).

The search for effective solutions coincided with the development of the European Qualifications Framework (EQF) and support for the development of national qualifications frameworks. The subsequent introduction of the Integrated Qualifications System (IQS) Act in 2015 resulted in a new institutional framework for the adult education sector. The IQS Act aimed to integrate formal general, vocational and higher education and non-formal adult education (including private training providers and providers operating under the auspices of ministries). The inclusion of market and regulated qualifications in the IQS is voluntary (see Dębowski et al. 2018, 411-423).

At the moment of writing, no further information was acquired.

#### *Works on the concept of individual education account*

In June 2022 a debate around individual educational accounts began in Poland when the Ministry of Education and Science announced the creation of a 'new' educational portal: **edukacja.gov.pl**. It is difficult to find information on whether this new educational platform will be created based on the already existing platform on the website: <https://zpe.gov.pl/>. It is known that the current educational platform did not meet the expectations. It was supposed to support remote education, but teachers and students did not want to use it [Rzeczpospolita, 09/06/2022, online]. Currently the Integrated Educational Platform contains materials that were created with the funds of the European Union as a part of the European Social Fund: Operational Program Human Capital 2007-2013 and Operational Program Knowledge Education Development 2014-2020 (<https://zpe.gov.pl/>).

For some reason, the Ministry decided to develop a new educational platform. According to the plans, the platform +edukacja.gov+ is to fulfil five tasks [Kolasa, 24.09.2022, online]:

1. group all educational services in one place,
2. assure comprehensive access to information on science and education,
3. combine primary/secondary education and higher education,
4. integrate all educational services and tools,
5. and gather individual accounts of each student.

The aim of the article is to determine the development opportunities for an individual educational account in Poland as part of an educational platform. This goal will be achieved by analysing the content of the Integrated Educational Platform in terms of its functionality. It is worth pointing out what was missing in the existing solutions taking into account the idea for a new educational platform. The analysis of the platform's content according to the tasks listed above was carried out in March 2023 and allows us to point to several conclusions.

#### **Functions of Integrated Educational Platform**

The Integrated Educational Platform aroused the greatest interest among Internet users immediately after its introduction. Chart 1 shows the decreasing interest in the educational platform and the need to conduct a broad information campaign on the old and new functionalities of the platform.

#### **Chart 1. Integrated Educational Platform in Google Trends**



**Source:** Google Trends

If the educational platform is to **group all educational services in one place**, at the beginning it is worth determining the definition scope of this term. It is difficult to find a clear definition of an educational service. Simply put, the term refers to services that are related to education [Infor, 28.10.2008, online]. Their common feature is that they enable the acquisition of knowledge and skills needed in life and at work. The examples of educational services divided according to the area of education are: foreign language learning and supplementary education (e.g. preparatory courses for the final exam, vocational studies, career counselling, scientific education). In terms of the service recipient, educational services are: education for children (e.g. creative classes), education for students at the primary and secondary level, additional educational classes for university students, supplementary education for adults, education for seniors. Educational services can also be divided according to the form of classes, and so they can be lectures, exercises, seminars, training, courses, workshops, presentations, films.

### Another educational solution

The portal is to operate on the model of the pacjent.gov.pl service. The announced website is to include the following functionalities:

- remote learning tools,
- online community,
- educational materials for students and teachers,
- tools for continuous research of students' and teachers' needs,
- **the student's educational account.**

According to the assumptions, the individual educational account is to collect information about each user (pupil, student, graduate) on their education, professional achievements and qualifications but also to characterise the competences that will be useful in, among others, building a professional career. The idea of the individual educational account is to allow the user managing their own education from primary school to the third age universities. It is difficult to find information on whether the registration of pupils, students and graduates will be voluntary or top-down, so everyone would have the account on the platform, but its activation would be needed on the 'student's' side.

The Ministry itself points to the following benefits of having an educational account [MEiNTech, online]:

- the possibility of settling matters related to online education,
- access to digital versions of documents,

- information on the needs of the labour market in the specific region in the long term, recommendations for competence development,
- personalised learning programs (proposed).

As pointed out by Kulasa [24.09.2022, online], deputy director of the Digital Transformation Center, each person will have their own portfolio and will be able to use it both when applying for school/university and applying for a job. The possibility of data mobility will also be a functionality of such a solution.

### 3.2.4. Situation analysis of individual learning accounts (ILAs) in Slovakia

Individual learning accounts as a tool to motivate higher participation of adults in learning was introduced by the Strategy for Lifelong Learning and Guidance for 2021-2030. In Slovakia, there is an equivalent in the form of training accounts, known as REPAS and KOMPAS instruments for jobseekers, but their use so far does not reflect the objective of greater involvement of the wider adult population, not just the unemployed.

The term 'individual learning accounts' used in Slovakia, without a clear definition, is in fact a narrowed term encompassing a relatively wide range of individual learning schemes for adults, ranging from savings accounts to education accounts and education vouchers<sup>47</sup>.

The basic characteristic of individual schemes is the full or partial financial support of users of defined learning activities in order to increase adult participation in learning<sup>48</sup>.

Although the existing barriers to adult learning are diverse, the financial barrier is a non-negligible barrier for many potential participants in adult learning<sup>49</sup>. The cost of education was the second most important reason for non-participation cited in the 2016 survey (EU average 32%, Slovakia 33%).

The financial contribution can be used for the courses registered in the register of providers and for career guidance listed in the relevant part of the information web portal (ideally also with a mobile app), or for other activities such as validation of prior learning.

For the implementation of ILAs in Slovakia it is recommended:

- Integration of provider support with direct participants support (from supply to demand).
- Emphasis on individual autonomy in the choice of learning activities in the area of transferable skills defined by the state.
- Residents aged 16+ (excluding those in formal education for attaining a level of education) and migrants with a residence permit.
- Duration of the scheme until the allocated budget is spent.

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<sup>47</sup> The differences are briefly explained, for example, in OECD (2019a). Individual education vouchers are the most commonly implemented instrument, with the main difference between vouchers and accounts being the absence of the possibility of fund accumulation in the case of vouchers.

<sup>48</sup> We use the broader term learning activities to include any kind or form of education, or more specifically learning. Relevant literature may also include terms such as 'training programmes' or just 'training'. A particular scheme specifies the types of training according to its objectives. If the objectives are vocational education and training oriented, schemes tend to be referred to as training schemes, such as the move from 'learning accounts' to 'training accounts' in Scotland (ILA and ITA).

<sup>49</sup> Adult Education Survey 2016. The very next barrier was family reasons. The main barrier was considered by respondents to be the timetable (schedule), freely translatable as time mismatch (EU average 41%, Slovakia 49%, Eurostat [trng\_aes\_176]).



- To use the term individual learning accounts (ITAs), although a more accurate name would be individual learning vouchers. This is because the term is already established and we do not consider the change in terminology to be crucial.
- the main objective of the ILAs should be to achieve a higher level of adult participation in education.
- A cumulative maximum contribution for ILAs should be 200 EUR for those interested in participating in the scheme. This means that the contribution from the State is not claimable and that participants sign up until the allocated budget for a given cycle is spent. In the event of a lower priced activity, it should be possible to re-apply for the scheme if there are still funds available. Based on the available international data, we estimate participation of approximately 2% of the population.
- For the design of the ILA scheme itself, we can draw on the existing experience with REPAS/KOMPAS instruments. This is a long-standing scheme which is in principle an individual training voucher for jobseekers under the Employment Services Act, funded by the ESF, in which a jobseeker chooses a training course from the existing offer of vocational and competence courses, which is then approved by the Labour Office.
- In view of the gradual implementation of validation of prior learning in Slovakia the activities related to this process, in particular participation in examinations or compilation of a portfolio with a qualified career counsellor among the activities funded through ILA should be a part of the ILA scheme.
- Inclusion of the migrants without Slovak citizenship but with a residence permit or a granted asylum in the ILA scheme should be possible. Language courses or courses to attain a level of education for migrants are part of a number of foreign ILA schemes as a form of support for integration, although we believe that the integration of foreigners should be addressed by separate schemes of more direct support.
- To ensure successful implementation, it is essential to address the availability of information on the activities offered. Information should be concentrated in one place, e.g. a web portal which would contain: 1) basic information on available courses, including their content, price, format and geographical location, and 2) a platform providing information that represents some form of general career guidance.

### 3.2.5. Notable international examples

In this chapter, the ILA system in other relevant countries is reviewed.

#### **France**

The French model of ILAs (the Compte Personnel d'Activité (CPA) – personal activity account) was introduced to respond to changes in the labour market and to become part of a broader reform of the French labour market. The system has been implemented since January 2017. Overall, it is an example of a rather complex and ambitious system that has multiple functions, although the educational ones predominate. It was intended, among other things, to help provide for citizens in various life situations that require a reduction in work activity; and also to decouple social rights from the employment relationship (contributions are concentrated in a personal account linked to the individual citizen, not to their employment relationship).



The CPA is made up of three personal accounts, for each of which different rules apply. Any working person aged 16 and over can open an account, this also applies to self-employed and unemployed people, the account is held under a social security number and can be managed online. The individual accounts are:

1. Individual Training Account (CPF) – dedicated specifically to training – see below.
2. Individual Job Risk Account (C2P) – enables employees to earn points per year if they are exposed to risks in the workplace. The points provide entitlement to some benefits including vocational training (the other include e.g. or reduction in working hours for a period of time etc.)
3. The Civic Engagement Account (CEC) – is for people who perform voluntary activities (such as military and civilian service, volunteer firefighters, civic association etc.) They may qualify for some number of hours of professional training.

**The Personal Training Account (CPF)** can be used to pursue training and gain qualifications throughout the working lives of citizens. It is automatically credited at the beginning of the year following the year worked and remains accessible regardless of changes of employers or in case of unemployment.

The following groups are entitled to the account:

- Employees 16 years of age or older,
- Apprentices aged 15 and over,
- Jobseekers (do not need to be registered),
- Persons enrolled in labour market orientation or labour market integration programmes,
- Self-employed persons.

Special credit is available for minors without a vocational qualification. The regional government will give them sufficient credit on the CPF to complete their vocational training.

CPF holders can use the credits as they choose to:

- Obtaining a certified qualification
- Preparation for an examination validating knowledge acquired informally,
- Preparation for setting up a trade/business.

It is also possible to finance training beyond the CPF credit, provided that either the labour office, the training institution, the employer, the employee or a collective agreement makes an additional contribution. The CPF makes it possible to cover the costs of training but does not offer wage compensation. This can either be provided by the employer or the use of the CPF can be combined with a training leave, which includes wage compensation. The training request is at the initiative of the employee. It may be requested during or outside working hours. If the training takes place during working hours, the employer's consent is required.

Employers contribute to this scheme 0.2% of their employees' gross wages (if the enterprise employs more than 10 employees). Additional payments, for example on the basis of a collective agreement, are possible.

From 2014 to 2018, the CPF granted hours of training. To pay for training through the CPF, a third party (such as a joint sectoral training fund for employees or Pôle Emploi for jobseekers) had to provide

additional funds to supplement the basic hours credited. However, since September 2018, the CPF has been credited in Euros, with full-time employees receiving 500 EUR per year and low-skilled employees receiving 800 EUR per year (with caps of 5 000 and 8 000 EUR, respectively). The switch to Euros was intended to provide individuals with greater transparency about the amount of funding available to them and to encourage competition in the training market by allowing demand to guide investment.

Originally, only certifications listed by social partners were eligible for CPF funding, creating a complex system that was challenging for individuals to navigate. However, the Law of 2018 expanded eligibility to include all certifications and introduced a digital application that enables individuals to purchase training online without the need for a third party. The governance of CPF, which included numerous stakeholders, made utilising it a complex matter until 2018. Thus, the new law established a state-wide body, France Compétences, to centralise funding and regulation of training. This system reduced the role of collective stakeholders, including sectors of industry and joint sectoral training funds, which were previously responsible for collecting and funding contributions for continuing training for employees.

The shift to a single, mandatory certification for training providers seeking public funds has addressed issues arising from the initial phase of CPF implementation, such as the multitude of certificates and labels and the mixed assurances they offered. With the removal of lists, this simplification should make the system more accessible to individuals. However, guaranteeing the quality of training goes beyond certification; it also depends on content and teaching methods. Since these factors are difficult for individuals to assess, evaluations by public funders of training actions and their outcomes, and the communication of these outcomes to the public, remain crucial. Furthermore, the shift to a single, mandatory certification may disadvantage small training providers and limit diversity in training provision.

To further promote personal autonomy in training, a free career guidance service called Conseil en Évolution Professionnelle (CEP) was introduced alongside the CPF. Initially, it was assigned to public employment service operators for the unemployed and joint training funds for employed people. However, the Law of September 2018 allocated funding and entrusted the CEP to the private sector.

## **Wales**

As a remarkable example of ILAs implementation, the older Welsh scheme can be described. It was launched in 2003, open to all British or EU citizens resident in Wales aged 18 or over and aimed at people on low incomes and with low levels of qualifications. The main goal of the scheme was to increase participation in education of the target group and to help them move off welfare dependency.

The maximum amount of support was £200 per year (the average real contribution was less), and only registered providers, 38 public and 34 private institutions, could provide education. The first year of implementation was relatively slow, not all providers were well informed about the correct procedures, so many applicants did not receive support. In the following year, the rules were adjusted towards more flexibility and the information and promotion campaign was also intensified. The scheme was evaluated in 2007 with positive results, e.g.: 3/4 of the participants felt better after finding a new job, 53% declared that they found a job as a result of the training, 83% claimed that their knowledge and skills had improved and finally 92% were satisfied with their participation and the use of the training account. The most frequent fields of training for participants were ICT (42%), health and social services related fields (17%), education and employment, or languages and communication (both the last 8%).

Overall, the implementation was rated as highly successful. The Welsh design of the Learning Accounts is an example of a relatively small and simple scheme where a clearly defined target group and objectives lead to successful implementation. The use of only registered providers is obviously important, and it is instructive to note that even on such a relatively small scale, participant awareness and promotion must not be underestimated.

This scheme was closed in 2011.

The Personal Learning Account (PLA) scheme was introduced in 2019 as a pilot program in two colleges in Wales, with the aim of supporting employed people aged 19 and over to upskill or reskill in the Health, Engineering, Construction, and Digital sectors. However, during the Covid pandemic, the scheme was expanded to include all furloughed workers throughout Wales, regardless of salary. Additionally, the program became eligible for employers to provide funded flexible learning opportunities to their employees.

The courses and qualifications offered through PLA have been approved to meet the skills gaps and sector priorities across Wales, in collaboration with the Regional Skills Partnerships. The Welsh Government provides funding for the course costs, making it accessible for individuals to undertake learning that fits in with their existing family and work commitments.

The Personal Learning Account (PLA) scheme has significant benefits, including the ability for colleges to mainstream their provision and keep up-to-date with industry standards, allowing learners to be better prepared for employment. PLA also enables learners who are employed to study at times that suit them, which is a positive factor for those who may have family or work commitments. The targeted interventions of the scheme also mean that local and national needs can be addressed quickly. However, one issue of PLA is the lack of financial input from learners, which can lead to higher drop-out rates. Additionally, there can be a confusing message in terms of college/employer relationships, with the scheme offering free priority qualifications while colleges are also expected to generate commercial income.

### **Netherlands**

An older but well documented example is the Dutch experiment from 2001-2008 that included an evaluation of the ILA scheme compared to the control group of people without the ILA. At the beginning, the Dutch government was considering how to increase the motivation of adults for further education and also how to strengthen the demand side of the education market. As a result, two pilot projects were carried out in 2001-03, involving around 3000 employees and 100 companies. Each participant received a grant of 450 EUR from the Ministry, the amount could be increased by the employer or by the participant and had to be used within a period of 18 months. Recruiting participants was not easy, as low-educated employees had little experience in organising their own training. With the help of employers and an intensive publicity campaign, the aforementioned 3 000 participants were eventually recruited. The most important reasons for participation were personal development (61% of participants) and better functioning in their current job (39% of participants).

A few years later the Dutch government approved a research project comparing two groups: 637 employees with the use of a learning account (again with a grant of 450 EUR) and 629 employees without the possibility of using a learning account. The research was carried out between 2006 and 2008. The participants' level of education was rather low, they were young (average age 38 years), 75% were male and more than 60% had not received any training in the previous year.

The experiment was evaluated in great detail and the results showed some differences between the groups, although they were not as pronounced as might initially have been expected. Participation in training using ILAs was only about 10 percentage points higher than for individuals who did not use training accounts (54% vs. 44%). Both groups cited their own personal development as the most important reason (about 70% of both groups). The group without an education account mainly cited improving their position in their current job as another reason, whereas the group that had the opportunity to use the ILA preferred a more general improvement in their position in the labour market. An important finding (although perhaps not too surprising) is that people with low education and low incomes do not have much motivation and willingness to save for education (i.e. to use learning accounts as savings accounts), but with reasonable intentions and motivation use ILAs more in the form of a one-off voucher (a grant). More generally, this points to the fact that the parameters of the chosen model (scheme) work in conjunction with each other, not in isolation.

A current arrangement in the Netherlands is called the STAP ("Stimulating Labour Market Position") budget. It was introduced in 2022. Dutch job market participants, composed of employees, entrepreneurs, and job seekers, can take advantage of up to 1 000 EUR (incl. VAT) for training and development purposes. The primary objective is to empower applicants in keeping their existing jobs or finding new employment opportunities. The budget can be utilised for various purposes such as enhancing skills in a specific domain or personal development areas including leadership and communication.

Individuals can apply for a STAP budget once per year through the website of the UWV (Employee Insurance Agency). The budget is restricted to training activities listed in the Training Register of the DUO (Dienst Uitvoering Onderwijs). Upon application, if approved (typically within four weeks), the budget is paid out to the relevant training provider. The STAP account is only granted for a training program that begins within three months of the closure of the relevant application period of two months, except for multi-annual education which has a longer application period of five months.

### 3.3. Situation analysis of microcredentials (MCs)

Micro-credentials (MCs) are a response to the growing need for the provision of well-designed, small-scale learning that responds to the learner's interest in acquiring new specialised knowledge and skills. They are also a recognition that traditional vocational training with almost lifelong relevance is not possible in the new context and that lifelong learning is a competitive necessity. In the EU recommendation, micro-certificates are used as evidence of learning outcomes after short, transparent courses. The ILA data model is tentatively planned to include micro-certificates. This chapter provides an overview of the current situation of micro-certificates in the different countries.

#### 3.3.1. Situation analysis of microcredentials (MCs) in Czechia

Microcredentials are compatible with the National Register of Qualifications<sup>50</sup>, the nationally recognized vocational qualifications system, where the certification of non-formal and informal learning outcomes could be obtained, based on a certified exam. The system was developed in 2005 and is based on a public register of complete and partial qualifications. There are also qualification and assessment standards used for examining the qualifications. There are currently 1455 professional qualifications and 1036 authorised persons certified to examine persons. Qualification levels

<sup>50</sup> <https://www.narodnikvalifikace.cz/en-us/>

corresponding with EQF (European Qualifications Framework) are also included. Especially the partial qualifications and their certification are in line with the idea of microcredentials, but are not directly applicable or transferable.

The technical system of issuing MCs should be based on block-chain technology and on ideas of Public Private Partnership. The consortium will be composed of representatives of companies and institutions relevant to the sector for which the consortium will issue MCs. Interest in MCs is expected to be high in some sectors (e.g. in the IT sector this type of training makes a lot of sense), less or no interest in others (e.g. crafts). The system should be in line with the National Qualifications Framework and based on competences, not learning outcomes. MCs will not be linked to length of learning. The MCs should be interconnected with EUROPASS. At the moment the project proposal is being prepared to carry out the feasibility study of MCs implementation (with help of EU funding). The Czech approach to microcredentials is still taking shape and the final form may be different from here described intent.

The Ministry of Labour and Social Affairs is responsible for retraining provided via Labour Offices and various projects. Currently, a large database of retraining and further education database has been established and is now gradually being populated with courses entered by training companies. A significant number of these courses have the characteristics of courses leading to microcredentials, accredited retraining courses are also included. But the current idea of MCs system does not include those courses, even if it is possible, that there will be a way to use MCs also for services of this ministry (before all PES).

#### *Micro-certificates in HEIs ecosystem*

Higher education institutions in the Czech Republic are aware of the concept of microcredentials and seek ways to use it. Although they are not named as micro-certificates, universities already offer courses of this type. However, they are more a complement to their educational offer. These are different types of further education courses offered to the general public and usually charge a fee (they could also be funded by a grant, for example).

#### *Micro-certificates in the private sector*

Education corresponding more or less to micro-certificates is also taking place in some companies; the most prominent example is IBM and its platform SkillsBuild. Google plans<sup>51</sup> to work with micro-credentials in a way, which enables in the future to gain a qualification on a level of Bachelor degree, which would mean significant change in educational landscape. Private educators offer quite often own certification after completing their training (e.g. private IT educator Engeto offers certificate "ECPB - ENGETO Certified Python Beginner"<sup>52</sup>). In general, private educators use certification in many different ways and it could hardly be understood as micro-certificates, because of the very variable level of transferability and recognition. Recruiters look at courses taken rather than certifications when selecting employees.

### 3.3.2. Situation analysis of microcredentials (MCs) in Hungary

Hungary's objectives according to the RRP is as follows: to transform the higher education training system with a practical focus, to establish training and regulatory cooperation with VET and innovation,

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<sup>51</sup> Information from presentation on a conference <https://czv.zcu.cz/akce/trendy-microcredentials/>

<sup>52</sup> [https://engeto.cz/python-akademie/?gclid=CjwKCAjwL6OiBhA2EiwAuUwWZYsDcX63bTyk-mKwNvChwfnY4DYfc2WR5m8JIRrPZIM6KyDb2PulbRoCm6MQAvD\\_BwE](https://engeto.cz/python-akademie/?gclid=CjwKCAjwL6OiBhA2EiwAuUwWZYsDcX63bTyk-mKwNvChwfnY4DYfc2WR5m8JIRrPZIM6KyDb2PulbRoCm6MQAvD_BwE)

and to strengthen the system of further training, upskilling and reskilling related to higher education in alignment with labour market requirements. In the context of the digital and green transition, it is particularly important that labour market expectations are mainly related to improving and extending the digital and green skills of the working age population. Higher education has a key contribution to make to the development of these skills at tertiary and post-secondary level, and the regulatory environment should prioritise serving these needs. Education reforms in higher education institutions will contribute to increasing the role of these institutions in adult education in the future. As a result of development, adult participation in education and training will grow, enhancing the adult population's skills and competences, thereby their labour market opportunities will improve. The rationale and need for short-time training programmes and what is known as micro-credentials are becoming increasingly evident, as they enable high flexibility in tailoring different training courses to labour market requirements and in personalising and making readily available skills development.

The following key Target has been identified in relation to micro-credentials:

- Investment 1 - Institutional innovation and strengthened activities in higher education
- At least 557 of the students/individuals participating in adult training in higher education will be credited with a micro-certificate in 19 micro-credential courses.

Based on the objectives above, the following projects have been launched:

- RRF-2.1.1-21 Sectoral modernisation of higher education and training
- RRF-2.1.3-21 Institutional innovation in higher education courses and services adapted to the core activities of the higher education institution and strengthening adult learning in higher education

The project partners are working to create the conditions for the emergence of micro-credentials:

- Training sections, modules or short training periods clearly define the outputs of short learning programmes (learning outcomes) and the achievement of learning outcomes with control developing a system to monitor and monitor the achievement of learning outcomes.
- Integration of micro-certificates into the training system, quality-assured classification in the Hungarian Qualification Framework and database
- Micro-certificates in Neptun<sup>53</sup> and FIR<sup>54</sup>
- Integration of micro-certificates into the credit recognition system.

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<sup>53</sup> Neptun is an integrated university administration system used by many higher education institutions in Hungary. It provides a platform for students to manage their academic affairs, including enrolling in courses, checking grades, and handling administrative tasks. Students can also use Neptun to pay tuition fees, register for exams, and communicate with professors and other students. Each student is given a unique Neptun code, which they use to log in and access their personal academic information.

<sup>54</sup> FIR stands for "Felvételi Információs Rendszer," which translates to "Admission Information System" in English. It is a system used for the university and college admission process in Hungary. Prospective students can use FIR to apply to higher education institutions, check admission requirements, and view their application status. The system is designed to streamline the admission process and provide a centralised platform for both students and institutions.

### 3.3.3. Situation analysis of microcredentials (MCs) in Poland

Microcredentials in Poland are gaining momentum. They are currently an important topic on the political agenda and a part of the reality of non-formal training. In 2021 an informal ministerial workgroup was created in the Ministry of Education and Science, with representatives from different sectors of education and training. In 2022 the group was formalised and supported the Minister in formulating recommendations and shaping regulations on microcredentials.

The term is increasing in popularity, but denotes various initiatives in different education and training sectors, labour market or social and cultural activity. While the impact of the EU Recommendation on Microcredentials is being discussed in formal contexts, especially educational but also labour market, many existing solutions are closely aligned with the idea of microcredentials. The list of learning opportunities and qualifications that can be considered microcredentials includes: short courses and MOOC's offered by Universities, digital certificates provided by private entities (e.g. coding schools, technological companies, NGO's), microlearning on social media platforms and some market qualifications in the Integrated Qualifications Register.

#### **Odznaka+**

The Odznaka+ system is an internet application that enables the issuance, phased collection, storage and sharing of digital badges in the Open Badges standard and digitally secured pdf certificates. The system is functional and currently undergoes the third phase of pilot implementations and development. It is a public initiative realised by Educational Research Institute and financed from ESF funds.

Using the application, the user has the option of digitally certifying qualifications, individual learning outcomes and their sets, participation in an event and other achievements that will be documented and defined by specific award criteria. The Odznaka+ system is available to all users via the website, and later also in the form of a mobile application for individual users.

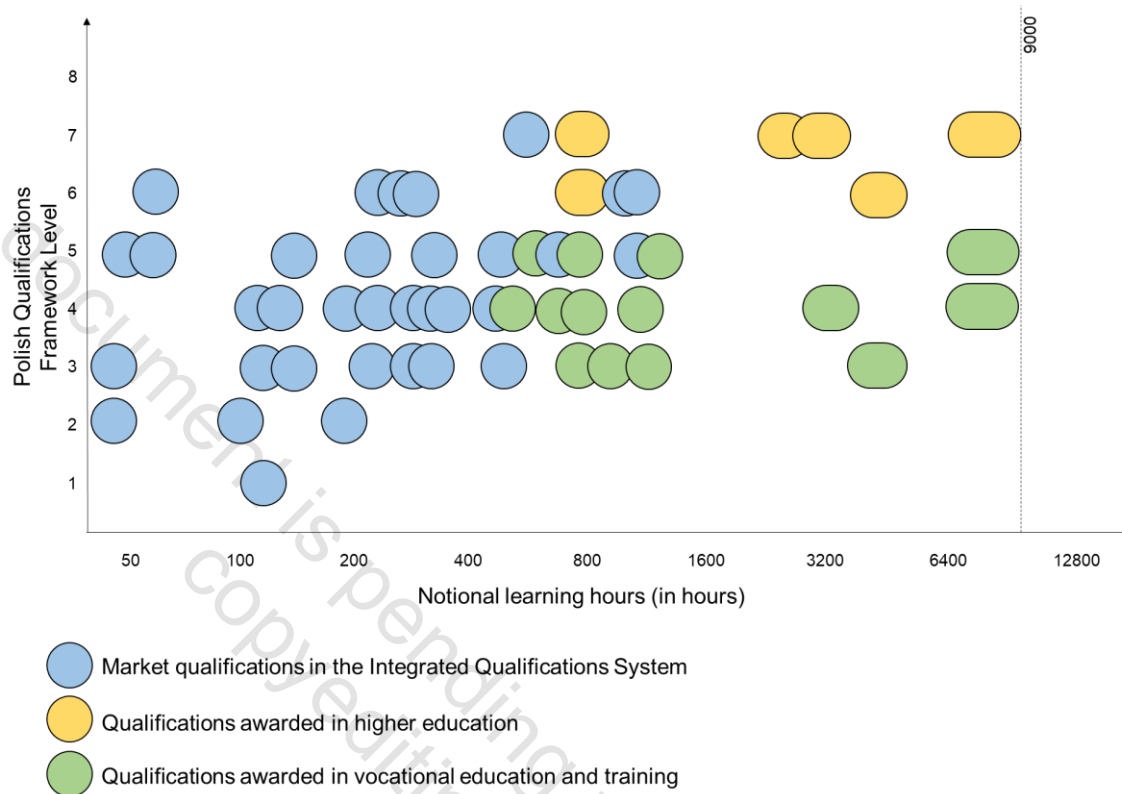
<https://odznakaplus.ibe.edu.pl/>

#### **Market qualifications in the Integrated Qualifications System**

The Integrated Qualifications System is a set of rules, procedures and tools that support functioning of the qualifications system in Poland – they increase access to qualifications, and ensure conditions for creating new qualifications and improving the existing ones (e.g. via quality assurance arrangements).

Qualifications in the IQS differ significantly considering the level of requirements in terms of knowledge, skills and social competences (a generic description of these requirements in eight levels is the Polish Qualifications Framework), as well as the amount of time needed on average to master the learning outcomes required for a given qualification (which can be measured with ECTS points or notional learning hours). Because of the small size a significant part of the qualifications included in the IQS can be considered “microcredentials” – see the graph below.

1. Figure: Types of qualifications in IQS by PQF level and notional learning hours



Source: Nowakowski M., Stęchły W. (2021), Szanse i zagrożenia związane z nowymi rodzajami poświadczania umiejętności. Micro-credentials, open badges, ECVET oraz osiągnięcia w ZSK. Warszawa, Fundacja Rozwoju Systemu Edukacji (<https://depot.ceon.pl/handle/123456789/19698>)

### Situation in VET

In the last decade in Polish VET a new structure of professional qualifications and the possibility of obtaining them have been introduced more diplomas and professional certificates in a given profession (i.e "smaller" qualifications, confirmation of additional skills), and the students taking participation in the so-called learning mobility receive several different documents attesting to their achievements. These changes together with a system of external examinations allows adults to use the public VET system and attain qualifications – they can do so by taking extramural examinations or by taking an examination after a vocational course.

The VET laws allow for attaining an additional vocational skill, which can be seen as an additional unit of learning outcomes, which helps to make the students in VET schools more adjusted to local employers needs or include latest technologies. This solution has not been widely implemented so far and is being criticised by the lack of clear and sound assessment framework.

Currently the Ministry of Education and Science proposes the introduction of a new type of qualification – sectoral qualification, which could be awarded to people learning in Sectoral Centres of Skills (a Polish initiative corresponding to Centres for Vocational Excellence).

### Solutions in HE

Many HEI's provide platforms for distance learning, open learning materials and offer MOOC's. In recent years, especially the HEI's active in European University Alliances have been active in developing



and offering microcredentials. At least 7 higher education institutions (number may be higher) are testing the Odznaka+ system, either for developing a digital format for their qualifications or as a platform for issuing microcredentials.

The traditional offer of Universities such as: Summer / winter schools, language courses, open universities, training certificates also conform to most (if not all) elements of microcredentials definitions.

**Limitations in recognition of microcredentials in Higher Education.** In Poland, the introduction of micro-credentials in higher education is very much limited by legal barriers related to the recognition of learning outcomes (RPL - Recognition of prior learning). Art. 71 of the Law on Higher Education and Science states that: [Art. 71. 5.] As a result of confirming the learning outcomes, no more than 50% of the ECTS points assigned to the classes covered by the study program may be credited [Art. 71. 7.]. The number of students who have been admitted to studies on the basis of confirmation of learning outcomes may not exceed 20% of the total number of students in a given field of study, level and profile.

The above provisions make it impossible to confirm learning outcomes by universities during studies. Thus, the university cannot recognize the certificate/attestation obtained externally by the student, and thus transfer part of the implementation of the study program to an external entity. This leads to the fact that universities do not use mechanisms for recognition of learning outcomes, which are already widely used in other countries.

#### **Micro-credentials in the private sector**

Digital badges are used by numerous vendors, most of them internationally operating. In case of national companies, for example, coding schools usually offer both physical and digital forms of certificates.

There is a pool of training opportunities in public database „Baza Usług Rozwojowych” (Development Services Database) and “Rejestr Firm Szkoleniowych” (Training Companies Register) that can be funded through “Krajowy Fundusz Szkoleniowy” (National Training Fund). However, in the first case, only a part of the trainings is small and has a digital format, and in the second case the database shows what the providers offer, but there is limited information on training content (and it is unclear if the offer is up-to-date).

#### **3.3.4. Situation analysis of microcredentials (MCs) in Slovakia**

In Slovakia, micro-credentials can play an important role in supporting the acquisition of skills that are in the public interest, e.g. use of digital communication with the state or in order to overcome the digital skills gap in part of the population.

The definition of micro-credential first appeared in the Lifelong Learning and Guidance Strategy 2021-2030 ("LLG Strategy") in the section 1.6 Increasing flexibility of the qualification system with smaller qualifications and micro-qualifications (micro-certificates)<sup>55</sup>. The Strategy comments that they are "an expression of the need to take into account even small changes in work ability, including the acquisition or development of only one specific skill, if this is a market-relevant need" and that foreign experience

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<sup>55</sup> <https://www.minedu.sk/data/att/22182.pdf>

"shows that the evidence of qualifications as outcomes of even very short courses (e.g. lasting only 10 hours) is useful for both employees and employers".

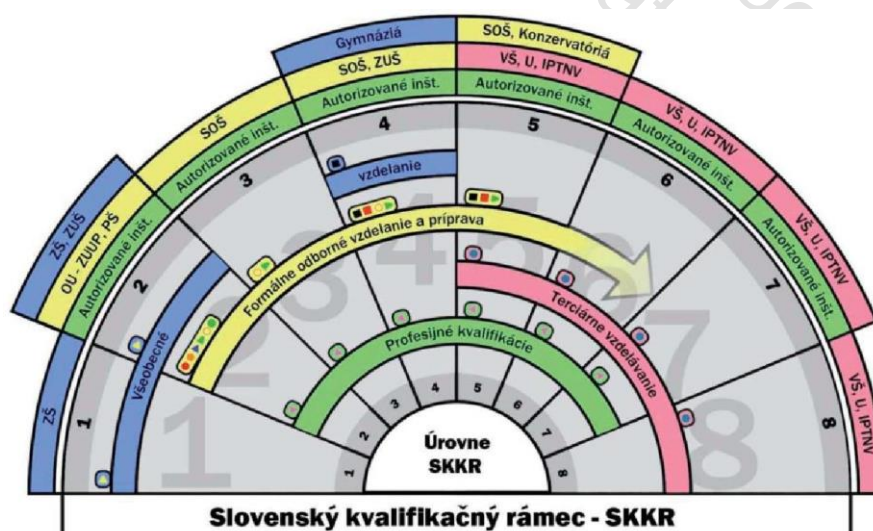
The Strategy proposes to introduce two different terms: 'micro-qualification' and 'micro-certificate'. Thus, it proposes to translate the English term 'micro-credential' as 'micro-certificate' and to use the term 'micro-qualification' in the case where it is an evidence of the acquisition of a qualification included in the National Qualifications Framework (SKKR) (by assigning a SKKR level). Thus, a micro-certificate evidencing the achievement of learning outcomes recognised as qualifications with an aligned level of SKKR is a micro-qualification. However, the recent proposal of the LLL Act follows a different approach and defines a micro-certificate as "a record of learning outcomes acquired within short learning programmes assessed against transparent and clearly defined standards and aligned to the level of the SKKR." This proposes to translate the term "micro-credential" as "micro-certificate" which is narrower than the European definition. In fact, the European definition of MCs refers to learning outcomes related to a small amount of learning (in the original 'learning outcomes' and 'small volume of learning'<sup>56</sup>), which opens up the possibility of obtaining MCs not only on the basis of formal education and completion of a training programme. The Recommendation explicitly states that "micro-credentials could be created and issued by different providers in different learning environments (formal, non-formal and informal)."<sup>57</sup>

The approach proposed by the LLL&G Strategy, based on the duality of the two terms (micro-certificate vs. micro-qualification), provides a simple pragmatic solution. It requires:

- The use of the definition of MC proposed by the recommendation on micro-credentials;
- Meeting the 'European' requirements for the data contained in the document to support interoperability and understanding of the data contained in the MC documents based on the Annex VI of the Council Recommendation on the European Qualifications Framework.

The SKKR introduced a classification of qualifications into eight levels of difficulty analogous to the European Qualifications Framework (EQF), and four sub-frameworks.

2. Figure: Slovak Qualifications Framework (SKKR)



<sup>56</sup> [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022H0627\(02\)&from=EN](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022H0627(02)&from=EN)

<sup>57</sup> [https://eur-lex.europa.eu/legal-content/SK/TXT/PDF/?uri=CELEX:32022H0627\(02\)&from=EN](https://eur-lex.europa.eu/legal-content/SK/TXT/PDF/?uri=CELEX:32022H0627(02)&from=EN)

While the three sub-frameworks reflect the formal education system, the fourth sub-framework contains the so-called occupational qualifications generated by labour market needs. These qualifications do not require a large amount of formal education and the learning outcomes related to these qualifications are closely linked to the competences immediately required for work

A special case of qualifications of the fourth sub-framework are also 'micro-certificates'. Due to the fact that comparatively little training or self-learning is required to acquire them, they correspond with the proposal of using the term 'micro-qualifications'.

Further impetus for the expansion of micro-credentials may come with gradual development of graduate tracking. Information from school graduates may identify needs for strengthening the development of certain skills required for employment in the labour market that the existing curriculum did not develop or did not develop sufficiently, and thus induce the emergence of modules to compensate for the identified shortfall.

Last but not least, impulses coming from employers and employer surveys, which should be provided directly or indirectly by the sectoral councils, could become a source for the expansion of micro-credentials.<sup>58</sup>

### 3.4. Focus on soft skills - analytical framework

In this chapter, we present the conceptual framework for understanding soft skills and review the process of analysis.

#### 3.4.1. Conceptual framework

Although the topic of soft skills has been intensively discussed in the international literature, a common definition has not yet been established: soft skills have different meanings in different professional organisations and countries.

As a starting point, it is worth clarifying the concept of skills. "A skill is nothing more than an automated element of action (and activity) that functions without direct control of the mind. Skill is part of performable knowledge, the result of learning, where a sequence of actions is performed automatically as a result of a sufficient number of practices."<sup>59</sup>

Under Decision 2018/646 of the European Parliament and of the Council: „For the purposes of this Decision, skills are understood in a broad sense covering what a person knows, understands and can do. Skills refer to different types of learning outcomes, including knowledge and competences as well as ability to apply knowledge and to use know-how in order to complete tasks and solve problems.”<sup>60</sup>

“Soft skills are personal attributes that enhance an individual's interactions and his/her job performance. Unlike hard skills, which are about a person's skills set and ability to perform a certain

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<sup>58</sup> <https://europass.sk/wp-content/uploads/2023/06/Analzya-2-EN-FINAL.pdf>

<sup>59</sup> Source: [https://dtk.tankonyvtar.hu/bitstream/handle/123456789/12663/modszertani\\_fuzet\\_1.pdf?sequence=-1&isAllowed=y](https://dtk.tankonyvtar.hu/bitstream/handle/123456789/12663/modszertani_fuzet_1.pdf?sequence=-1&isAllowed=y) [32. p.]

<sup>60</sup> Forrás: <https://eur-lex.europa.eu/legal-content/HU/TXT/PDF/?uri=CELEX:32018D0646&qid=1672911356202&from=HU> [3. p.]

type of task or activity, soft skills are interpersonal and broadly applicable. There has been so much research in soft skills, such as the one conducted by Spencer and Spencer (1993).<sup>61</sup>

Good job performance is the right combination of soft skills and hard skills. Soft skills are non-technical, closely related to personal qualities and attitudes, social and management skills. Some of the soft skills are rather difficult to measure (mostly through our feelings and senses) and harder to develop. In contrast, hard skills refer to professional and technical knowledge that can be demonstrated by tangible qualifications (vocational qualifications, diplomas, etc.); so our measurable, verifiable skills are called hard skills.<sup>62</sup> "Even though "hard" and "soft" are treated as a dichotomy in everyday speech, it is not a true dichotomy, but two opposites on a continuum. In reality, the two approaches should thus be understood as a mix of aspects (Crawford and Pollack, 2004)."<sup>63</sup>

For success-oriented businesses and companies, the behaviour and attitudes of job applicants are almost more important than their theoretical knowledge. Of the trio of knowledge, competences and soft skills, soft skills are considered the most important (36.9%) by recruiters. These are followed by competences (33.8%) and then theoretical knowledge (29.2%) in terms of success within the company. Work experience and practical skills are the most important for promotion. In this respect, the second most important aspect is the interoperability between theoretical and practical knowledge.<sup>64</sup>

In some of the available literature, transferable skills (so-called transversal skills) are considered synonymous with soft skills, as if hard skills were not transferable at all. In fact, all skills (soft and hard) are transferable: from company to company, from sector to sector, from country to country. The difference lies in the level of transferability, the level of transversality: hard skills have a lower level of transferability than soft skills.<sup>65</sup>

In the glossary published by the UNESCO International Bureau of Education, soft skills are defined as follows:

*„Term used to indicate a set of intangible personal qualities, traits, attributes, habits and attitudes that can be used in many different types of jobs. As they are broadly applicable they are also seen as transferable skills, even if the idea of transferability is often questioned because individuals learn to perform tasks in particular contexts and may not be able to apply them to others. Examples of soft skills include: empathy, leadership, sense of responsibility, integrity, self-esteem, self-management, motivation, flexibility, sociability, time management and making decisions. The term is also used in contrast to 'hard' skills that are considered as more technical, highly specific in nature and particular to an occupation, and that can be (generally) taught more easily than soft skills.”<sup>66</sup>*

In other words, soft skills are a set of "intangible" personal qualities, traits, characteristics, habits and attitudes that can be used in a wide range of jobs.

<sup>61</sup> <https://www.sciencedirect.com/science/article/pii/S1877042812038943>

<sup>62</sup> Source: <https://blog.cvonline.hu/2018/karriertanacsok/soft-skills-vagyis-a-puha-keszsegek-mit-kell-tudni-rola/17400>

<sup>63</sup> <https://www.sciencedirect.com/science/article/abs/pii/S0263786313001488>

<sup>64</sup> Source: <https://www.hrportal.hu/jelentes/soft-skills---puha-faktorok.html>

<sup>65</sup> Source: [https://ec.europa.eu/programmes/erasmus-plus/project-result-content/dce32717-6cfc-4b23-b7af-e4effad68f21/Framework\\_soft\\_skill\\_Report.pdf](https://ec.europa.eu/programmes/erasmus-plus/project-result-content/dce32717-6cfc-4b23-b7af-e4effad68f21/Framework_soft_skill_Report.pdf) [10-11. p.]

<sup>66</sup> Source: [http://www.ibe.unesco.org/fileadmin/user\\_upload/Publications/IBE\\_GlossaryCurriculumTerminology2013\\_eng.pdf](http://www.ibe.unesco.org/fileadmin/user_upload/Publications/IBE_GlossaryCurriculumTerminology2013_eng.pdf) [53-54. p.]

In the publication *Transferability of Skills across Economic Sectors: Role and Importance for Employment at European Level* (published by the European Commission, Directorate-General for Employment, Social Affairs and Inclusion) soft skills are defined as: „*non-job specific skills that are related to individual ability to operate effectively in the workplace, are usually described as perfectly transferable.*”<sup>67</sup>

In 2016, the Irish National Training and Employment Authority (FÁS) published a report on soft skills development to assess the state of play on the labour market's expectations of soft skills and to identify areas for recommendations for improvement in meeting these. According to the report, soft skills are „*the inter-personal and intra-personal skills required to be effective in the workplace.*”<sup>68</sup>

Skills Panorama is supported by the European Commission's Directorate-General for Employment, Social Affairs and Inclusion and Cedefop, the European Centre for the Development of Vocational Training. According to their 2015 glossary, soft skills „*skills that are cross-cutting across jobs (see Job-specific skills) and sectors (see Sector-specific jobs) and relate to personal competences (confidence, discipline, self-management) and social competences (teamwork, communication, emotional intelligence).*”<sup>69</sup>

Even though the term ‘soft skills’ has important limitations, e.g. it has the characteristics of a buzzword and can have various interpretations, we decided to use it because of its wide-spread acceptance and understanding. In other words, if we asked our interviewees “how do you develop transversal skills in the adult education system?”, we would encounter difficulties with reception of this non-mainstream concept. This has been the case in other research projects (Dębowski et al. 2021, p.103).<sup>70</sup>

### 3.4.2. Procedure of the analysis

The scope of research is multi-level:

- First, we explore the international terminology on soft skills and define soft skills in the context of this project.
- Then, we will map the systemic approaches to soft skills in the EU, including European frameworks and classifications that provide a transparent picture of the qualifications or occupations acquired in each country, but also of the aptitudes, skills or competencies required to exercise them. The analysis of the data contained in the frameworks and classifications can be key to the data model and can influence the AI-based algorithm to recommend the level of training for each individual.
- An indispensable part of our analysis is the frameworks beyond the above, which include competences that can be acquired through formal, informal or non-formal learning, that help employees (and entrepreneurs) to thrive in the 21st century labour market, and that are

<sup>67</sup> Source: <https://op.europa.eu/en/publication-detail/-/publication/21d614b0-5da2-41e9-b71d-1cb470fa9789> [10. p.]

<sup>68</sup> Source: <https://unevoc.unesco.org/home/TVETipedia+Glossary/filt=all/id=602>

<sup>69</sup> Source: <https://unevoc.unesco.org/home/TVETipedia+Glossary/filt=all/id=602>

<sup>70</sup> Dębowski, H., Stęchły, W., Tomengova, A., Reegård, K.,

Valovic, J. (2021), *Development and assessment of transversal key competences in the VET sector – model solutions and practices in six European countries*, Warsaw: SGH Warsaw School of Economics.

Check out section 5.1.1 Perception of transversal key competence concepts and terms on page 103. [https://track-vet.eu/system/files/TRACK-VET\\_Synthesis\\_Report.pdf](https://track-vet.eu/system/files/TRACK-VET_Synthesis_Report.pdf)

essential for their active participation in society. The overview of the frameworks briefly describes the main objective, structure and usability of the framework.

- The chapter also describes the national level solutions to soft skills in the V4 countries participating in the project and highlights good practices on soft skills based on the available literature.
- Finally, conclusions are drawn on the design of the soft skills data model. Beyond the delineation of soft skills, the aim is to describe the soft skills expected in different segments of the labour market, which may require different development for different levels of workers in different jobs.

### 3.5. Systemic solutions regarding soft skills

This chapter presents the systemic EU solutions that we believe can be linked to soft skills.

#### 3.5.1. European Qualifications Framework (EQF)

The EQF is an 8-level, learning outcomes-based framework for all types of qualifications that serves as a translation tool between different national qualifications frameworks. This framework helps improve transparency, comparability and portability of people's qualifications and makes it possible to compare qualifications from different countries and institutions.

The EQF covers all types and all levels of qualifications, and the use of learning outcomes makes it clear what a person knows, understands and is able to do. The level increases according to the level of proficiency, level 1 is the lowest and 8 the highest level. Most importantly the EQF is closely linked to national qualifications frameworks, this way it can provide a comprehensive map of all types and levels of qualifications in Europe, which are increasingly accessible through qualification databases.

The EQF was set up in 2008 and later revised in 2017. Its revision has kept the core objectives of creating transparency and mutual trust in the landscape of qualifications in Europe. Member States committed themselves to further develop the EQF and make it more effective in facilitating the understanding of national, international, and third-country qualifications by employers, employees and learners.<sup>71</sup>

The EQF cannot really be considered a soft skill focused system, it is included in the chapter for the big picture.

#### 3.5.2. Key competences for lifelong learning

In 2018, the European Union renewed its 2006 position and issued a Recommendation on key competences for lifelong learning, which includes a number of substantial innovations in the light of new developments in education and training. The proposal aims to support the development of key competences throughout people's lives, regardless of their age, with a particular emphasis on promoting entrepreneurship and innovation-oriented thinking to develop personal potential, creativity and initiative.<sup>72</sup>

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<sup>71</sup> Forrás: <https://europa.eu/europass/en/europass-tools/european-qualifications-framework> (2022.12.09.)

<sup>72</sup> Source: <https://hirlevel.egov.hu/2018/01/22/az-europai-bizottsag-uj-oktatasi-kezdemenyezesei-kozeppontban-a-kulcskompetenciak-es-digitalis-keszsegek-valamint-az-oktatas-europai-dimenzioja/>



*„For the purposes of this Recommendation, competences are defined as a combination of knowledge, skills and attitudes,” and „key competences are those which all individuals need for personal fulfilment and development, employability, social inclusion, sustainable lifestyle, successful life in peaceful societies, health-conscious life management and active citizenship.”*

*„The Reference Framework sets out eight key competences:*

- *Literacy competence,*
- *Multilingual competence,*
- *Mathematical competence and competence in science, technology and engineering,*
- *Digital competence,*
- *Personal, social and learning to learn competence,*
- *Citizenship competence,*
- *Entrepreneurship competence,*
- *Cultural awareness and expression competence.”<sup>73</sup>*

It is important to stress that the key competences are all equally important and can be used in many different contexts and in many different combinations. *„They overlap and interlock; aspects essential to one domain will support competence in another. Skills such as critical thinking, problem solving, team work, communication and negotiation skills, analytical skills, creativity, and intercultural skills are embedded throughout the key competences.”<sup>74</sup>*

In the current and future labour market, the existence and level of development of these key competences is more important than ever.

### 3.5.3. ESCO - Analysis of available databases and data sources in the field of soft skills

#### **What is ESCO? Why is it relevant?**

ESCO is a Classification of European Skills, Competences, Qualifications and Occupations. It is a multilingual open resource developed within the European Union as part of the Europe 2020 strategy. The ESCO classification identifies and categorises skills, competences, qualifications and occupations relevant for the EU labour market and education and training. It systematically shows the relationships between the different concepts.

Development and updating of the ESCO classification is an ongoing effort, which is conducted with the support of external stakeholders and the European Centre for the Development of Vocational Training (Cedefop). The DG responsible for ESCO is Employment, Social Affairs and Inclusion. As the ESCO database is evolving, there are several versions of it, the last full version was released in 2021 (ESCO v.1.1).

ESCO is available for download in different formats and language versions – see here: <https://esco.ec.europa.eu/en/use-esco/download>.

The relevance of ESCO for the D-ILA V4 project goals lies in:

1. The knowledge embedded in the links between different concepts in ESCO. Especially between soft skills and other entities (e.g. occupations).

*Comment: This feature creates the possibility to build recommendations for soft skills development with reference to the professional background that one has, which is at the heart of the ILA enabling framework that may be built with the help of D-ILA project results.*

<sup>73</sup> Source: [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018H0604\(01\)&rid=7](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018H0604(01)&rid=7) [7-8. p.]

<sup>74</sup> Source: [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018H0604\(01\)&rid=7](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018H0604(01)&rid=7) [7. p.]



2. Availability and relatively widespread use of ESCO for initiatives on skills matching based on automation / machine learning.

*Comment: This feature is important since using a widespread/popular reference framework for concepts will increase the usability of the project outputs.*

### **Structure of ESCO**

ESCO is structured in three pillars. The concepts grouped in these three pillars are structured hierarchically and interrelated with each other. The pillars are:

- occupations;
- knowledge, skills and competences (in brief often referred to as the “skills pillar”);
- qualifications.

#### **Occupations**

The occupations pillar contains ca. 3000 occupation concepts. Since each occupation is mapped to the ISCO-08 it is used as a hierarchical structure of the occupations pillar. Additionally, the ISCO-08 standard is commonly used in national classifications of occupations, which allows easy mapping on the level of groups of occupations.

#### **Skills pillar**

The skills pillar contains knowledge, skills and competences as well as some group concepts. It currently contains about 13,500 concepts and is organised in a hierarchy. ESCO distinguishes between two types of concepts in this pillar:

- skill/competence concepts
- knowledge concepts.

There is however no distinction between skills and competences recorded in the ESCO skills pillar. The skills pillar hierarchy contains four distinct sub-classifications (groups of concepts):

- Knowledge
- Skills
- Transversal skills and competences (sometimes also referred to as “attitudes & values”)
- Language skills and knowledge

The two latter categories are of special interest to DILA-V4 project.

#### **Qualifications pillar**

The qualifications pillar allowed Member States and awarding bodies to provide data on qualifications, which is now displayed in Europass. The qualifications are structured using the European Qualifications Framework (EQF) and refer to the Annex VI of the EQF Recommendation. The structure of data used to transfer between member states and ESCO and Europass (the Qualification Register Database) is defined as the QMS (Qualifications Metadata Scheme/Schemata)<sup>75</sup> which is a computer-readable format, enabling i.a. automatic updating of data between national qualifications registers and the QDR.

<sup>75</sup> More information about QMS available here: [https://europa.eu/europass/system/files/2020-07/Documentation\\_publishing%20of%20Q%20and%20LO%20Data\\_v2.0.pdf](https://europa.eu/europass/system/files/2020-07/Documentation_publishing%20of%20Q%20and%20LO%20Data_v2.0.pdf)

The works on linking the qualifications pillar with skills and occupations pillars are currently on-going. A pilot exercise with selected member states has now (early 2023) finished the third phase. In this pilot a tool for matching skills concepts from ESCO and learning outcomes specified in qualifications has been developed. The tool enables browsing the ESCO concepts as well as provides automatic recommendations. One of the recommendations in this work has been to make the tool available to the public.

It is worth mentioning that the qualifications are not available for download and the scope of data uploaded by member states remains limited.

### Relationships between the three pillars

The three pillars of ESCO are interlinked to make visible:

- Which knowledge, skills and competences terms are useful to describe jobs in a specific occupation,
- Which knowledge, skills and competences terms are useful to describe learning outcomes of a qualification,
- Which qualifications Member States consider relevant in the context of a specific occupation.

The relationship between knowledge, skills and competences and occupations is defined as "essential" or "optional". "Essential" are those knowledge, skills and competences that are usually required when working in an occupation, independent of the work context or the employer. "Optional" refers to knowledge, skills and competences that may be required or occur when working in an occupation depending on the employer, on the working context or on the country.

In addition to the full learning outcome description, Member States or awarding bodies that provide data on qualifications can indicate which ESCO knowledge, skills and competence concepts are relevant in this context. This semantic annotation creates relationships between the qualifications and the skills pillar.

The relationship between qualifications and occupations describes how Member States considered particular qualifications or certificates relevant for occupations. It merely reproduces information that is managed and kept on a national level, in case the Member State transmits this information together with data on qualifications. In the course of the ESCO project such relationships are not being created actively.

### How can ESCO be used?

The ESCO portal provides numerous examples of ESCO use (<https://esco.ec.europa.eu/en/about-esco/escopedia/escopedia>). Examples from the portal include the following (with links):

- ESCO in job search and job matching: **[EURES, job search, competence-based job matching](#)**
- ESCO for career management: **[CV creation, searching learning opportunities](#)**, identify training needs
- ESCO for labour market analyses: **[statistics, big data](#)**
- Implementing ESCO into systems: **[ESCO data formats, Linked Open Data, ESCO API, Mapping to ESCO, Extending ESCO, Linking learning outcomes of qualifications with ESCO skills](#)**

- Use of ESCO in the public sector: [Europass](#), [Cedefop](#), [EURES](#), [Public Employment Service of Finland](#), [EU Skills Profile Tool](#), [House of Skills](#)
- Use of ESCO in the private sector: [Actonomy](#), [Adecco Group](#), [Ariston](#), [Boost.rs](#), [House of Skills](#), [JANZZ technology](#), [Milch & Zucker](#), [Open Badge Factory](#), [Peers Solutions](#), [Randstad](#), [SkillLab](#), [WCC Group](#), [Xtramile](#)

### Transversal skills and competences in ESCO

The structure and content of the skills pillar (as well as occupations pillar) can be explored on the ESCO portal ([https://esco.ec.europa.eu/en/classification/skill\\_main#overlayspin](https://esco.ec.europa.eu/en/classification/skill_main#overlayspin)). Because of the project focus, the subgroup of transversal skills and competences is of special interest.

In 2021 the ESCO Member States Working Group on terminology for transversal skills and competences (TSCs) published a report entitled “Towards a structured and consistent terminology on transversal skills and competences”, which provides definition and explanation of the hierarchy and group concepts used in ESCO. The full report is available here: <https://esco.ec.europa.eu/system/files/2022-05/MSWG%2014-04%20Report%20of%20the%20expert%20group%20on%20transversal%20skills%20and%20competences.pdf>.

### DigComp in ESCO

The Commission has integrated the 21 competences of DigComp 2.2 accompanied by its five competence areas in the skills pillar of ESCO. Users can browse the competences through the skills group digital competences. In addition, users can download DigComp via the download page of the ESCO portal or access it through the ESCO API.

As a result, DigComp is aligned with the ESCO data model. Its competences are listed in a hierarchical structure, i.e. 21 competences are classified across five competence areas and they contain various metadata, such as preferred terms in 27 languages and descriptions. Thanks to this alignment, the 21 competences of DigComp together with its five competence areas were integrated in the ESCO skills pillar with minimal changes.

The translations of DigComp in ESCO (all languages) are available here: [https://esco.ec.europa.eu/system/files/2022-03/Translations%20of%20Digcomp%202.0%20ESCO\\_final.pdf](https://esco.ec.europa.eu/system/files/2022-03/Translations%20of%20Digcomp%202.0%20ESCO_final.pdf).

### Green Skills and Knowledge Concepts in ESCO

In January 2022 a result of labelling Green Skills in ESCO Skills pillar has been presented in the report: “Green Skills and Knowledge Concepts: Labelling the ESCO classification” ([https://esco.ec.europa.eu/system/files/2023-01/Green%20Skills%20and%20Knowledge%20-%20Labelling%20ESCO\\_0%20.pdf](https://esco.ec.europa.eu/system/files/2023-01/Green%20Skills%20and%20Knowledge%20-%20Labelling%20ESCO_0%20.pdf)).

As a result, a total of 571 ESCO skills and knowledge concepts are labelled as green. This includes: 381 skills, 185 knowledge concepts, and 5 transversal skills. The full list of green concepts is available in the ESCO portal.

ESCO green skills and knowledge concepts can be accessed via different channels. As of January 2022, a document (.xlsx format) listing all the green concepts can be downloaded in the Download Section.

### Using ESCO for machine learning-assisted mapping of data

One of the most fundamental uses of ESCO is mapping objects (e.g. qualifications, occupations, certificates or training programmes) onto it. This means that concepts in ESCO (usually skills) are assigned to the object. As a result, there is a representation of the object in ESCO terms, since ESCO is a stable vocabulary, this operation opens up possibilities of further comparing or matching different objects, where ESCO serves as an intermediary.

The quality of the mapping depends on the contents of ESCO (if the relevant concepts are there) and the ability to map (to identify and match adequate concepts). There are numerous question marks on both points; nevertheless, the results visible in consequent examples prove to be useful.

Needless to say, manual mapping is out of the question in the framework of the D-ILA V4 project because of time constraints and workload, yet automated methods have improved significantly in recent years. For a more technical description of how this can be done, see especially the report “Machine Learning Assisted Mapping of Multilingual Occupational Data to ESCO ( [https://esco.ec.europa.eu/system/files/2022-10/machineLearningAssistedMappingOfMultilingualOccupationalDataToESCO\\_v3.pdf](https://esco.ec.europa.eu/system/files/2022-10/machineLearningAssistedMappingOfMultilingualOccupationalDataToESCO_v3.pdf)).

The use of ESCO may be relevant for the D-ILA project, consider for example:

- First group of objects: a ‘training offer’ or ‘training programme’ or ‘credential’ that contain description of content and skills
- Second group of objects: “a training need” that contains description of tasks and/or skills.

After mapping the objects from the first and second group onto ESCO, it is possible to perform a matching exercise by finding objects that meet specific criteria (e.g. have a critical number of links, have the most similar mapping). Each of these tasks (mapping group of objects, matching) requires substantial work on fine-tuning the automation process (e.g. selection of language models, text representation, choosing and testing similarity measures, gathering data).

#### 3.5.4. European Skills Agenda

The European Commission is putting skills development at the heart of the EU's policy agenda for sustainable recovery from the coronavirus pandemic: *„businesses need workers with the skills required to master the green and digital transitions, and people need to be able to get the right education and training to thrive in life.”*<sup>76</sup>

To this end, in 2020, the European Commission presented the European Agenda for Sustainable Competitiveness, Social Justice and Resilience, which:

- „Calls for collective action, mobilising business, social partners and stakeholders, to commit to working together, in particular within the EU’s industrial eco-systems
- Identifies the financial means to foster investment in skills
- Defines a clear strategy to ensure that skills lead to jobs
- Helps people build their skills throughout life in an environment where lifelong learning is the norm
- Sets ambitious objectives for up- and reskilling to be achieved within the next 5 years.”<sup>77</sup>

<sup>76</sup> Forrás: [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_20\\_1196](https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1196)

<sup>77</sup> Forrás: <https://ec.europa.eu/social/BlobServlet?docId=22827&langId=en>

The Commission also notes that following the crisis, some employees will need to learn or develop new skills in order to adapt to a changing labour market.

### 3.5.5. PIAAC

PIAAC (Programme for the International Assessment of Adult Competencies) survey assesses the proficiency of adults from age 16 onwards in literacy, numeracy and problem solving in technology-rich environments which is directly tested. These skills are “key information-processing competencies” that are relevant to adults in many social contexts and work situations, and necessary for fully integrating and participating in the labour market, education and training, and social and civic life.

In addition, the survey collects a range of information on the reading- and numeracy-related activities of respondents, the use of information and communication technologies at work and in everyday life, and on a range of generic skills, such as collaborating with others, influencing others, organising one’s time, etc., required of individuals in their work. These skills are self-reported.

Respondents are also asked whether their skills and qualifications match their work requirements and whether they have autonomy over key aspects of their work.

The research is organised by the OECD and coordinated by a consortium of international research organisations.

#### Definition

The skills assessed in the PIAAC Survey (literacy, numeracy, problem solving) are each defined by a framework that guides the development of the assessment and provides a reference point for interpreting results. Each framework defines the skills assessed in terms of:

- content – the texts, artefacts, tools, knowledge, representations and cognitive challenges that constitute the corpus to which adults must respond or use when they read, act in a numerate way or solve problems in technology-rich environments;
- cognitive strategies – the processes that adults must bring into play to respond to or use given content in an appropriate manner; and
- context – the different situations in which adults have to read, display numerate behaviour, and solve problems.

**Literacy** is defined as the ability to understand, evaluate, use and engage with written texts to participate in society, to achieve one’s goals, and to develop one’s knowledge and potential. Literacy encompasses a range of skills from the decoding of written words and sentences to the comprehension, interpretation, and evaluation of complex texts.

**Numeracy** is defined as the ability to access, use, interpret and communicate mathematical information and ideas in order to engage in and manage the mathematical demands of a range of situations in adult life. To this end, numeracy involves managing a situation or solving a problem in a real context, by responding to mathematical content/ information/ideas represented in multiple ways.

**Problem solving in technology rich environments** is defined as the ability to use digital technology, communication tools and networks to acquire and evaluate information, communicate with others and perform practical tasks. The assessment focuses on the abilities to solve problems for personal, work and civic purposes by setting up appropriate goals and plans, and accessing and making use of information through computers and internet.

### 3.5.6. PISA: Programme for International Student Assessment

PISA is the OECD's Programme for International Student Assessment. PISA measures 15-year-olds' ability to use their reading, mathematics and science knowledge and skills to meet real-life challenges.

#### Competences assessed by PISA

**Reading literacy:** An individual's capacity to understand, use, evaluate, reflect on and engage with texts in order to achieve one's goals, develop one's knowledge and potential, and participate in society.

**Mathematical literacy:** An individual's capacity to formulate, employ and interpret mathematics in a variety of contexts. It includes reasoning mathematically and using mathematical concepts, procedures, facts and tools to describe, explain and predict phenomena.

**Scientific literacy:** The ability to engage with science-related issues, and with the ideas of science, as a reflective citizen. A scientifically literate person is willing to engage in reasoned discourse about science and technology, which requires the competencies to explain phenomena scientifically, evaluate and design scientific enquiry, and interpret data and evidence scientifically.

**Global competences:** Global competence is a multidimensional, life-long learning goal. Globally competent individuals can examine local, global and intercultural issues, understand and appreciate different perspectives and worldviews, interact successfully and respectfully with others, and take responsible action toward sustainability and collective well-being.

Since global competences might be of more interest for the D-ILA project we decided to devote more space to these competences in the section below.

**Financial literacy:** is the knowledge and understanding of financial concepts and risks, and the skills, motivation and confidence to apply such knowledge and understanding in order to make effective decisions across a range of financial contexts, to improve the financial well-being of individuals and society, and to enable participation in economic life.

### 3.5.7. DESI - Analysis of available quantitative databases in the field of soft skills

The Digital Economy and Society Index (DESI) is a composite index which provides an overview of performance in terms of the Digital Transformation. The European Commission has published Digital Economy and Society Index (DESI) reports for member states since 2014. The reports include country profiles which allow for the identification of areas for priority action and contain thematic chapters on key digital policy areas.

The DESI has a three-level structure as depicted in the table below. Of these, the human capital dimension relevant to the ILA is presented.

2. Table: DESI structure

Dimension	Sub-dimension	Indicator
1 Human capital	1a Internet user skills	1a1 At least basic digital skills
		1a2 Above basic digital skills
		1a3 At least basic digital content creation skills
	1b1 ICT specialists	

1b Advanced skills and development	1b2 Female ICT specialists
	1b3 Enterprises providing ICT training
	1b4 ICT graduates

Source: Digital Economy and Society Index (DESI) 2022, Methodological Note.

### 3.5.8. Cedefop databases

The following databases that deal with the topic of soft skills or contain related data were explored: Cedefop Skills Intelligence, European Skills Index (ESI), Key Indicators on VET, European Skills and Jobs Survey (ESJS), Cedefop's Skills Forecast and Skills-OVATE.

#### **Cedefop Skills Intelligence**<sup>78</sup>

Cedefop Skills Intelligence is an online tool that brings together various results of Cedefop's own as well as other research and analytical work. It presents a set of over 50 indicators that are sourced and/or calculated from various datasets. Thus, we do not analyse Skills Intelligence data as such, but in the framework of the original datasets, if relevant with regard to soft skills (i.e. especially ESJS and European database of tasks indices).

#### **European Skills Index (ESI)**<sup>79</sup>

It is based on 15 original indicators from which only the following two directly describe skills (at the nation-wide level):

- The composite results of reading, mathematics and science knowledge and skills of 15 years old children as measured by the **OECD PISA survey**
- Digital skills as measured by the **Eurostat Community survey on ICT usage in households and by individuals**

#### **Key indicators on VET**<sup>80</sup>

This database contains 41 indicators on VET for all member states for years 2015-2021. Similarly as for ESI, the indicators are sourced from various other datasets and databases. The only indicator that captures soft skills is the percentage of adults (16-74 year-olds) with at least basic digital skills. This data relates to the new Digital Skills Indicator 2.0 (DSI) which is based on **Eurostat's EU Community survey on ICT usage in households and by individuals**

#### **European Skills and Jobs Survey (ESJS)**

The ESJS covers representative samples of adult workers and enquires on a set of core variables, including: sociodemographic characteristics, job characteristics, job-skill requirements; skill mismatches (vertical; horizontal; mismatches in specific skills; skill gaps and deficits; skill mismatch transitions), initial and continuing vocational education and training participation and labour market outcomes (wages, job insecurity, job satisfaction).

<sup>78</sup> <https://www.cedefop.europa.eu/en/tools/skills-intelligence>

<sup>79</sup> <https://www.cedefop.europa.eu/en/tools/european-skills-index>

<sup>80</sup> <https://www.cedefop.europa.eu/en/tools/key-indicators-on-vet>



The skills are explored especially from the viewpoint of skills requirements related to jobs and respective skill gaps. The ESJS2 newly obtained robust, harmonised measures of different job-skill requirements. The survey examines tasks required by the jobs. As there always needs to be corresponding skill to perform the tasks, the tasks can be regarded as skills for the purpose of categorisation and analysis.

The ESJS2 contained questions about how often the respondent is required to perform a given task (i.e. apply relevant skill). The tasks/skills were grouped into several categories.

Interpersonal skills *(for each of the items a frequency scale is given: rarely or never/sometimes/often/always or very often)*

- Providing advice or counselling
- Giving oral presentations
- Dealing with outsiders (people not working in the same organisation – typically customers or clients)
- Teaching or training
- Caring for others (providing emotional support or personal care)
- Selling (trying to convince people to do or buy something)
- Teamwork

Learning demands<sup>81</sup>

- Working on varying tasks
- Learning new things

Literacy skills

- Reading tasks
- Writing tasks

Manual skills *(all are yes/no variables)*

- Lifting heavy loads
- Hazardous work
- Use of digital machines at work

Numeracy skills

- Mathematical tasks
- Problem-solving skills (for each of the items a frequency scale is given: rarely or never/sometimes/often/always or very often)
- Developing or creating new products or services
- Developing new work methods
- Trying out new ideas to solve problems

### Digital skills

ESJS2 lists a set of digital activities that may be performed at work. The exact question is whether the respondent used a computing device to do the activity as part of their main job in the last month (yes/no question).

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<sup>81</sup> Although not technically labelled „skills“, the corresponding abilities can be described as learning skills – competences for continuous learning.

### Cedefop's Skills forecast<sup>82</sup>

Cedefop skills forecast consists of quantitative projections of the future trends in employment by sector and occupation.<sup>83</sup> The last forecast was published in 2020 and covers the period up to 2030.

The forecast itself does not collect information about skills. But it combines the outcomes for occupations with inputs from the European database of tasks indices (Eurofound). 17 broad tasks are defined based on the database. To each occupation the "importance" of each of the tasks is assigned. The importance is represented by a number between 0 and 1.

The following tasks are defined:

#### Intellectual

- Creativity and resolution
- Gather and evaluate information
- Literacy
- Numeracy

#### Physical

- Dexterity
- Navigation
- Strength

#### Social

- Caring
- Manage and coordinate
- Service and attend
- Sell and influence
- Teach, train and coach

#### Use of methods

- Autonomy
- Routine
- Teamwork

#### Use of technology

- Use of ICT
- Use of machine

### Skills-OVATE<sup>84</sup>

Skills-OVATE offers information about the jobs and skills that are demanded by employers based on online job advertisements in 28 European countries. It 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**

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<sup>82</sup> <https://www.cedefop.europa.eu/en/tools/skills-forecast>

<sup>83</sup> <https://www.cedefop.europa.eu/en/tools/skills-forecast>

<sup>84</sup> <https://www.cedefop.europa.eu/en/tools/skills-online-vacancies>

### 3.5.9. Eurofound: European database of tasks indices

The newest version of the European database of task indices (2022) is based on jobs in the EU15 (minus UK) economy. It was created using data from European Working Conditions Survey (EWCS 2015), a European (Italian) version of the O\*NET database of occupational contents (ICP 2012) and the OECD's PIAAC Survey. 2022 version of the database contains the following closer definitions and structure of job-related tasks:

A. In terms of the content:

1. Physical tasks: aimed at the physical manipulation and transformation of material things:
2. Intellectual tasks: aimed at the manipulation and transformation of information and the active resolution of problems:
3. Social tasks: whose primary aim is the interaction with other people:

B. In terms of the methods and tools of work:

1. Methods: forms of work organisation used in performing the tasks:
2. Tools: type of technology used at work:
3. Others

### 3.5.10. O\*NET - Occupational Information Network

O\*NET (Occupational Information Network) is the US primary source of occupational information. Central to the project is the O\*NET database, containing information on hundreds of standardised and occupation-specific descriptors. The database is continually updated by surveying a broad range of workers from each occupation<sup>85</sup>. The database covers 923 professions which occur in the US economy. Every profession contains a mix of skills, abilities and pieces of knowledge. There are 120 of them in total (35 skills, 52 abilities, 33 knowledge). The database is freely downloadable<sup>86</sup>. O\*NET database does not contain any personal information about workers, it is based on a statistically random sample of businesses and of workers.

Every profession included in the database has a list of skills, abilities and pieces of knowledge, which are required with a different importance on a scale of 0-100. All of them are described by short definitions.

- **Knowledge** is organised sets of principles and facts applied in general domains.
- **Abilities** are enduring attributes of the individual that influence performance.
- **Skills** are developed capacities that facilitate learning or the more rapid acquisition of knowledge.

O\*NET is based on SOC 2019 classification (Standard Occupational Classification)<sup>87</sup>. There is a crosswalk from SOC 2019 to ESCO/ISCO classification available<sup>88</sup>.

Most importantly, O\*NET names several **soft skills**. They are grouped into two categories: **social skills** (6) and **thinking skills** (8)<sup>89</sup>.

**Social skills with short definition:**

<sup>85</sup> <https://www.onetonline.org/help/onet/>

<sup>86</sup> <https://www.onetcenter.org/overview.html>

<sup>87</sup> <https://www.onetcenter.org/taxonomy/2019/list.html>

<sup>88</sup> [https://www.onetcenter.org/crosswalks/esco/ESCO\\_to\\_ONET-SOC.xlsx](https://www.onetcenter.org/crosswalks/esco/ESCO_to_ONET-SOC.xlsx)

<sup>89</sup> <https://www.onetonline.org/skills/soft/>

- **Coordination** - Adjusting actions in relation to others' actions.
- **Instructing** - Teaching others how to do something.
- **Negotiation** - Bringing others together and trying to reconcile differences.
- **Persuasion** - Persuading others to change their minds or behaviour.
- **Service Orientation** - Actively looking for ways to help people.
- **Social Perceptiveness** - Being aware of others' reactions and understanding why they react as they do.

#### Thinking skills with short definition:

- **Active Learning** - Understanding the implications of new information for both current and future problem-solving and decision-making.
- **Active Listening** - Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- **Complex Problem Solving** - Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- **Critical Thinking** - Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems.
- **Judgment and Decision Making** - Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- **Learning Strategies** - Selecting and using training/instructional methods and procedures appropriate for the situation when learning or teaching new things.
- **Monitoring** - Monitoring/Assessing performance of yourself, other individuals, or organisations to make improvements or take corrective action.
- **Time Management** - Managing one's own time and the time of others.

#### Available O\*NET databases:

<https://www.onetcenter.org/database.html#individual-files>

Databases can be downloaded in xlsx, csv, MySQL, SQL Server and Oracle formats.

#### 3.5.11. OECD survey on social-emotional skills

There is a large body of empirical evidence about the importance of social and emotional skills for successfully navigating one's life.

Over the last years, social and emotional skills have been rising on the education policy agenda and in the public debate. But for the majority of students, their development remains a matter of luck, depending on whether this is a priority for their teacher and their school. A major barrier is the absence of reliable metrics in this field that allow educators and policy-makers to make progress visible, and to address shortcomings.

This is why the OECD developed a comprehensive international assessment of the social and emotional skills of students.<sup>90</sup>

Social and emotional skills included in the Survey:

"BIG FIVE" DOMAINS	SKILLS	Description
TASK PERFORMANCE (Conscientiousness)	ACHIEVEMENT ORIENTATION	Setting high standards for oneself and working hard to meet them.
	RESPONSIBILITY	Able to honour commitments and be punctual and reliable.
	SELF-CONTROL	Able to avoid distractions and focus attention on the current task in order to achieve personal goals.
	PERSISTENCE	Persevering in tasks and activities until they get done.
MOTION REGULATION (Emotional stability)	STRESS RESISTANCE	Effectiveness in modulating anxiety and able to calmly solve problems (is relaxed, handles stress well).
	OPTIMISM	Positive and optimistic expectations for self and life in general.
	EMOTIONAL CONTROL	Effective strategies for regulating temper, anger and irritation in the face of frustrations.
COLLABORATION (Agreeableness)	EMPATHY	Kindness and caring for others and their well-being that leads to valuing and investing in close relationships.
	TRUST	Assuming that others generally have good intentions and forgiving those who have done wrong.
	COOPERATION	Living in harmony with others and valuing interconnectedness among all people.
OPEN-MINDEDNESS (Openness to Experience)	CURIOSITY	Interest in ideas and love of learning, understanding and intellectual exploration; an inquisitive mindset.
	TOLERANCE	Is open to different points of view, values diversity, is appreciative of foreign people and cultures.
	CREATIVITY	Generating novel ways to do or think about things through exploring, learning from failure, insight and vision.
	SOCIABILITY	Able to approach others, both friends and strangers, initiating and maintaining social connections.

<sup>90</sup> Forrás: [https://www.oecd.org/education/school/UPDATED%20Social%20and%20Emotional%20Skills%20-%20Well-being,%20connectedness%20and%20success.pdf%20\(website\).pdf](https://www.oecd.org/education/school/UPDATED%20Social%20and%20Emotional%20Skills%20-%20Well-being,%20connectedness%20and%20success.pdf%20(website).pdf) [3-10. p.]

ENGAGEMENT WITH OTHERS (Extraversion)	ASSERTIVENESS	Able to confidently voice opinions, needs, and feelings, and exert social influence.
	ENERGY	Approaching daily life with energy, excitement and spontaneity.
COMPOUND SKILLS	SELF-EFFICACY	The strength of individuals' beliefs in their ability to execute tasks and achieve goals.
	CRITICAL THINKING/ INDEPENDENCE	The ability to evaluate information and interpret it through independent and unconstrained analysis.
	SELF-REFLECTION/ META-COGNITION	Awareness of inner processes and subjective experiences, such as thoughts and feelings, and the ability to reflect on and articulate such experiences.

Source: <https://www.oecd.org/education/cei/social-emotional-skills-study/about/>

The Survey's assessment instruments were reports of typical behaviours, thoughts and feelings. Questions/items were in the form of simple statements such as "I like learning new things" (item assessing students' curiosity) and "I stay calm even in tense situations" (item assessing stress resistance). Researchers used a 5-point Likert type agree/disagree response scale, with answers ranging from 1 – completely disagree to 5 – completely agree. All of the 17 assessment scales used positively and negatively worded items, in view to adjusting for potential response bias.

These methods were used the most frequently in social and emotional skills assessments. They provided a simple and efficient way to collect information from a large number of respondents, were cost-efficient and simple to administer, tended to produce consistent results, and in many cases provided a remarkably high approximation of objective measures.

The Survey collected information on students' background characteristics, as well as on family, school, and community learning contexts through three contextual questionnaires developed for: students, teachers and school principals. A fourth contextual questionnaire for parents was optional.

### 3.6. Labour market trends in soft skills

This chapter briefly discusses labour market trends related to soft skills.

#### 3.6.1. Workplace Learning Trends Report - Udemy Business

The Workplace Learning Trends Report<sup>91</sup> compiled by Udemy on the basis of data from the learning behaviour of thousands of global companies using the Udemy Business platform in two perspectives:

- consumption of courses from 2019–2021,
- year-over-year growth rates of course consumptions in 2017-2021.

<sup>91</sup> [https://info.udemy.com/rs/273-CKQ-053/images/2022\\_Workplace\\_LearningTrends\\_Report.pdf](https://info.udemy.com/rs/273-CKQ-053/images/2022_Workplace_LearningTrends_Report.pdf)

The platform highlights trending skills identified on the basis of topics, while each course contains up to five topics. For courses with multiple topics, consumption minutes are divided equally across all topics associated with those courses. The report has been divided in 3 chapters of skills sets:

- power skills (new categorization of soft skills),
- tactical skills (business intelligence, data literacy, marketing, finance),
- technical skills (skills ensuring productivity and competitiveness).

According to the report „nearly nine in ten executives and managers say their organisations either face skill gaps already or expect them to develop within the next five years “.

### 1. Power skills

The report stresses the importance of leadership, teamwork, communication, productivity, and wellness skills, previously referred to as soft skills, for work performance, and renames them power skills. Power skills should ensure that every employee is able to operate in a digital environment and flexibly adapt to new ways of working and new technologies.

**Communication & teamwork** skills lay fundamentals for the operations of working teams in the changing workplace environment.

In 2021, the top skills developed represented:

Assertiveness	250%
Facilitation	148%
Team building	129%
Business writing	104%
Critical thinking	96%

This skill category saw the highest growth over the 2017-2021 period and shows a workforce adapting to global changes

Microsoft Teams	760%
Assertiveness	602%
Listening skills	530%
Business writing	415%
Critical thinking	340%

The category **leadership & management skills** confirms the strategy of companies to build diverse and inclusive companies in course of 2021

Diversity and inclusion	205%
Objectives and key results	184%
Strategic thinking	119%



Problem solving	108%
Management coaching	108%

In 2017-2021, the major increase in the consumption of courses represented strategic thinking - 331% and diversity and inclusion - 324%.

The growing trend of working from home was reflected in 2021 in the skill set of the category **productivity & collaboration**, which enables employees to work efficiently and effectively, collaboratively in the online space and use proper presentation tools.

Computer skills	169%
Time management	86%
Windows 10	77%
SharePoint	76%
PowerPoint	70%

Consumption growth in these skills in 2017-2021 is also significant:

Computer skills	404%
Microsoft Word	272%
Time management	254%
PowerPoint	222%
Confluence	201%

In 2021, the category **personal development & wellness skills** showed increased interest in the English language courses - 115%.

## 2. Tactical skills

Tactical skills comprise financial decisions, marketing strategy, product design, and customer experience. Report says that only 21% of employees are confident in their data skills.

In the skills set **Business intelligence**, Excel use saw the highest growth in 2021 (195%) and also the highest percentage consumption growth between 2017 and 2021.

**Design and user experience skills** reflect the companies' effort to reinforce user research, marketing, accessibility, and information architecture to support customers retention.

Among top 5 surging design and user experience skills in 2021 dominated graphic design (227%), product design - 195%, as well as web design and mobile app design (about 100%).

In 2017-2021, web accessibility (+439%) reached the biggest surge in consumption of trainings over the last four years.

In 2021, the category **Finance & accounting skills** recorded the largest consumption of courses on personal finance topics like cryptocurrency, Solidity (a programming language for blockchain

platforms), and day trading. Traditional finance topics like bookkeeping (+552%) and financial markets (+263%) saw steady growth over the last four years.

**HR and talent development data** highlight that HR teams focus on creating training content tailored to their company's needs - the growth of online course creation (86%) and instructional design course (49%) consumption. Consumption of hours spent on manager training programs grew by 56% in the last year and 104% since 2017.

**Marketing skills** have been increasingly used in various parts of work teams, not exclusively marketing teams. The topic of marketing analytics and marketing strategy saw an increase in hours consumed in 2021. Google Analytics Individual Qualification (IQ) consumption surged to 256 in the last four years.

The **project management skills** gained higher attention with increasing complexity of work projects and remote work challenges. According to the Project Management Institute<sup>92</sup> 25 million new project managers will be needed by 2030 globally. In 2021, various certifications in project management recorded an increase in popularity.

### 3. Technical skills

Technical skills are related to technical aspects of the companies' operations, such as using cloud computing technologies, cybersecurity, data science or software development. For the purposes of this analysis we will not look closer on these skills categories.

#### 3.6.2. Europass

Europass portal was launched in 2020 as a complex solution for recording and presentation of knowledge, skills and competences of individuals. Europass allows building a portfolio, in which various skills can be detailed, mainly:

- language skills.
- organisational skills,
- communication and interpersonal skills,
- language skills,
- job-related skills.

Identification of language skills is based on self-assessment supported by the descriptions of the level of listening, reading, spoken interaction, spoken production and writing skills in any language based on the Common European Framework for Languages (CEFR).

Digital skills can be listed in the portfolio based on self-assessment, and/or help and recommendations of the system. A self-assessment test<sup>93</sup> is also available which is based on DigComp and focuses on:

- information and data literacy
- communication and collaboration
- digital content creation

<sup>92</sup> <https://www.pmi.org/about/learn-about-pmi/what-is-project-management>

<sup>93</sup>

<https://europa.eu/europass/digitalskills/screen/home&sa=D&source=docs&ust=1691573793052087&usg=AOvVaw0L73nP MkiBWYwXfZk5YqP>

- safety<sup>94</sup>
- problem solving

The testing tool generates a certificate which highlights strong skills as well as skills gaps and suggests need for upskilling or reskilling.

Europass uses the European Learning Model (ELM) – the data model which was developed as a standard to support exchange of data about qualifications, learning opportunities, etc. and for issuing digital credentials. It is based on the Annex VI of the EQF Recommendation.

### 3.6.3. Key skills projected by the World Economic Forum for 2025

The third edition of the World Economic Forum's (WEF) "Future of Jobs" report 2020 has to be mentioned, which analyses future trends in labour markets and provides employers and employees with essential information on the opportunities ahead. By listing the ten most important skills for the near future, the report helps to contribute to an understanding of the challenges that companies and employees will face over the next five years.<sup>95</sup> These skills are (the soft skills in the list are in bold):

1. **Analytical thinking and innovation**
2. **Active learning and learning strategies**
3. **Complex problem solving**
4. **Critical thinking and analysis**
5. **Creativity, originality and initiative**
6. **Leadership and social influence**
7. Using, monitoring and controlling technology
8. Technological design and programming
9. **Resilience, stress tolerance and flexibility**
10. **Resource provision, problem solving and brainstorming.**<sup>96</sup>

### 3.6.4. Short-term labour market forecast in Hungary

Short-term labour market forecast of the Institute of Economic and Business Research of the Hungarian Chamber of Commerce and Industry: The questionnaire also measured the satisfaction of managers of firms planning to employ/already employing skilled new entrants, rating them on a scale of 1 to 5 on the following competencies:

- a. Professional theoretical foundations
- b. Professional practical skills
- c. User level computer skills/practice
- d. Professional computer skills/practice
- e. Up-to-date technical skills
- f. Economic knowledge
- g. Reading skills
- h. Numeracy
- i. Mother tongue speaking skills

<sup>94</sup>

<https://www.google.com/url?q=https://europa.eu/europass/en/node/2128&sa=D&source=docs&ust=1691573793096336&usg=AOvVaw02Zc0R4XclfvRigzFxauz2>

<sup>95</sup> Forrás: <https://www.weforum.org/agenda/2020/10/top-10-work-skills-of-tomorrow-how-long-it-takes-to-learn-them/>

<sup>96</sup> Forrás: <https://www.weforum.org/reports/the-future-of-jobs-report-2020/in-full/infographics-e4e69e4de7>

- j. Mother tongue literacy
- k. Foreign language skills
- l. Work culture
- m. Work discipline
- n. Ability to work independently
- o. Ability to cooperate
- p. Problem-solving skills
- q. Customer handling skills
- r. Management and organisational skills
- s. Office administration skills
- t. Technical, task-specific skills
- u. Other skills or abilities considered important by the respondent, namely...<sup>97</sup>

The results of the latest Spring 2022 survey show that managers are most satisfied with the user-level computer skills of skilled entrants, with 74% of all managers satisfied with this indicator.<sup>98</sup> The satisfaction rates are also above 60% for native language speaking skills (69%), collaboration skills (63%) and reading skills (61%). Respondents were least satisfied in leadership and organisational skills (29%), the ability to work independently (35%) and economic skills (36%). In addition, the majority of the companies surveyed were not satisfied with the following competences of new entrants: professional computer skills/practice, office administration skills, foreign language skills, technical, task-specific skills, work discipline, work culture, professional practice and problem-solving skills.<sup>99</sup>

### 3.7. Soft skills frameworks in the EU

The chapter focuses on an overview of EU soft skill relevant frameworks.

#### 3.7.1. DigComp 2.2

The Digital Competence Framework for Citizens, also known as DigComp, provides a common language to identify and describe the key areas of digital competence. It is an EU-wide tool to improve citizens' digital competence, help policy-makers formulate policies that support digital competence building, and plan education and training initiatives to improve the digital competence of specific target groups. This chapter presents version 2.2 of the Digital Competence Framework for Citizens.<sup>100</sup>

#### Structure of the framework

DigComp 2.2 defines 5 competence areas with 21 competence elements. Each competence element has 1 to 8 proficiency levels from basic to mastery.

Dimension 1 – competence areas	Short description of competence areas	Dimension 2 – competence
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<sup>97</sup> Forrás: [https://gvi.hu/files/researches/684/prognozis\\_2022\\_1\\_tanulmany\\_220715.pdf](https://gvi.hu/files/researches/684/prognozis_2022_1_tanulmany_220715.pdf) [155-156. o.]

<sup>98</sup> Az egyes kompetenciákkal elégedettnek azokat a válaszadókat tekintették, akik egy ötfokozatú skálán a két legmagasabb értéket (teljesen elégedett, inkább elégedett) jelölték meg. Az elemzésben feltüntetett arányok e két kategória összesített részesedését jelölik a vizsgált kompetenciákra vonatkozóan.

<sup>99</sup> Forrás: [https://gvi.hu/files/researches/684/prognozis\\_2022\\_1\\_tanulmany\\_220715.pdf](https://gvi.hu/files/researches/684/prognozis_2022_1_tanulmany_220715.pdf) [76. o.]

<sup>100</sup> <https://publications.jrc.ec.europa.eu/repository/handle/JRC128415>

1 Information and data literacy	To articulate information needs, to locate and retrieve digital data, information and content. To judge the relevance of the source and its content. To store, manage, and organise digital data, information and content.	1.1 Browsing, searching and filtering data, information and digital content 1.2 Evaluating data, information and digital content 1.3 Managing data, information and digital content
2 Communication and collaboration	To interact, communicate and collaborate through digital technologies while being aware of cultural and generational diversity. To participate in society through public and private digital services and participatory citizenship. To manage one's digital identity and reputation.	2.1 Interacting through digital technologies 2.2 Sharing through digital technologies 2.3 Engaging in citizenship through digital technologies 2.4 Collaborating through digital technologies 2.5 Netiquette 2.6 Managing digital identity
3 Digital content creation	To create and edit digital content. To improve and integrate information and content into an existing body of knowledge while understanding how copyright and licences are to be applied. To know how to give understandable instructions for a computer system.	3.1 Developing digital content 3.2 Integrating and re-elaborating digital content 3.3 Copyright and licences 3.4 Programming
4 Safety	To protect devices, content, personal data and privacy in digital environments. To protect physical and psychological health, and to be aware of digital technologies for social well-being and social inclusion. To be aware of the environmental impact of digital technologies and their use.	4.1 Protecting devices 4.2 Protecting personal data and privacy 4.3 Protecting health and well-being 4.4 Protecting the environment
5 Problem solving	To identify needs and problems, and to resolve conceptual problems and problem situations in digital environments. To use digital tools to innovate processes and products. To keep up-to-date with the digital evolution.	5.1 Solving technical problems 5.2 Identifying needs and technological responses 5.3 Creatively using digital technologies 5.4 Identifying digital competence gaps

### Usability

DigComp is used by Europass CV Online, a self-assessment tool based on the Digital Skills and Jobs Platform, a self-checker for DigCompSat and integrated into the Digital Skills Index.

In addition, DigComp is a conceptual, reference-level framework that EU countries can use as a basis for developing their own digital competences frameworks for citizens, taking into account local needs.

Measuring tools: several self-assessments and a learning outcomes-based development system (the French PIX) have been completed. A technical concept for the Hungarian DigKomp Learning Support Platform has been developed, which also implements learning outcomes-based assessment.

Self-assessment tools: DigCompSat, Europass, Digital Skills and Jobs Platform, IKANOS.

### 3.7.2. DigCompConsumers

The Digital Competence Framework for Consumers offers a reference framework to support and improve consumers' digital competence, i.e. the competence consumers need to function actively, safely and assertively in the digital marketplace. DigCompConsumers is considered as derivative work as it uses the DigComp conceptual reference model as the basis for a new digital competence framework in a specific context.

### 3.7.3. DigCompEdu

The European Framework for the Digital Competence of Educators is a framework describing what it means for educators to be digitally competent. It provides a general reference frame to support the development of educator-specific digital competences in Europe. DigCompEdu is directed towards educators at all levels of education, from early childhood to higher and adult education, including general and vocational education and training, special needs education, and non-formal learning contexts.

### 3.7.4. DigCompOrg

There is a need to support educational organisations in their digital capacity building. The European framework for digitally-competent educational organisations is aimed at promoting effective digital-age learning. The framework can facilitate transparency and comparability between related initiatives throughout Europe and play a role in addressing fragmentation and uneven development across the Member States

### 3.7.5. CEFR

The Common European Framework of Reference of Languages (CEFR) was developed by the Council of Europe and formally published in 2001. Its main objective was to create educational and cultural convergence between the Member States in the field of foreign language teaching and to promote transparency and consistency in the learning and teaching of modern languages throughout Europe.

<sup>101</sup> The CEFR was first published in English and French and has since been translated into 33 languages.

#### *Structure of the framework*<sup>102</sup>

The CEFR defines a total of six language proficiency levels, divided into three groups. At each level, action-oriented descriptions are used to define what language learners at each level know and are able to do. These levels range from the basic knowledge of the minimum language learner to the advanced language learner.

#### *3. Table: Global scale*

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<sup>101</sup> Forrás: [https://www.europarl.europa.eu/RegData/etudes/etudes//2013/495871/IPOL-CULT\\_ET\(2013\)495871\(SUM01\)\\_HU.pdf](https://www.europarl.europa.eu/RegData/etudes/etudes//2013/495871/IPOL-CULT_ET(2013)495871(SUM01)_HU.pdf) [4. o.]

<sup>102</sup> <https://rm.coe.int/168045b15e>

<i>User category</i>	<i>Level</i>
Proficient User	C2
	C1
Independent User	B2
	B1
Basic User	A2
	A1

In addition to the six levels of criteria shown in the table, the CER also distinguishes three additional levels: A2+ (between A2 and B1), B1+ (between B1 and B2), and B2+ (between B2 and C1).

#### 4. Table: Self-assessment grid

<i>Competence area</i>	<i>Competences</i>
Reception	Listening
	Reading
Interaction	Spoken Interaction
	Written Interaction
Production	Spoken Production
	Written Production

All 6 competences can be assigned a level from A1 to C2.

The CEFR alone cannot be used to measure language proficiency; it is a framework in itself and is not suitable for measurement, but a range of measurement tools compatible with the framework has been developed and no major language examination centre today will issue a language examination without indicating the level of the framework. A Level Matching Manual has also been developed to help different exam developers to align the levels of their language tests with the levels of the CEFR. As a result, most language exam centres that issue language exams, language training centres advertising their courses and even language books indicate the relevant CEFR levels. As a result, most language learners are aware of the levels' meaning.

The CEFR is not language-specific, and therefore does not contain specific vocabulary lists or grammatical structure lists broken down into levels for any living foreign language.<sup>103</sup>

<sup>103</sup> <http://www.keronline.hu/> There is no official list, but various publishers have already published a large number of lists giving suggested vocabulary sets for different levels. This is more positive than if something had been published centrally by the creators of the CEFR, because it demonstrates the acceptance (and use) of the framework. They are also the basis for the EUROPASS CV and are used elsewhere to identify you or to assess you when you are recruited for a traineeship. For employers this is an important factor, it should not be left out of the data model and in my opinion. See here, too: <https://nyelviskola.hu/kozos-europai-referenciakeret-szintek>



As far as the implications regarding the development of the data model is concerned, the areas should definitely be included, both because of the training as well as the needs of employers, because some areas are communication, some are literacy, some are both.

### 3.7.6. LifeComp<sup>104</sup>

LifeComp: The European framework for the personal, social and learning to learn key competence is a framework to establish a shared understanding on the “personal, social and learning to learn” key competence. LifeComp is a non-prescriptive conceptual framework that can be used as a basis for the development of curricula and learning activities. The aim is to build a meaningful life, cope with complexity, be thriving individuals, responsible social agents, and reflective lifelong learners. LifeComp describes nine competences that can be learned by everyone in formal, informal and non-formal education.

The framework describes nine competences (P1-3, S1-3, L1-3), which are structured around 3 interlinked areas of competence:

5. Table: The structure of LifeComp

<i>Competence area</i>	<i>Competences</i>
Personal	P1 self-regulation
	P2 flexibility
	P3 wellbeing
Social	S1 empathy
	S2 communication
	S3 collaboration
Learning to learn	L1 growth mindset
	L2 critical thinking
	L3 managing learning

Instruments to measure personal, social and learning competences can be used to determine whether a person has them. More sophisticated use would require levels and level descriptions, which are not currently available from the information available. To our knowledge, no self-assessment or measurement tool has yet been developed for the framework. The next step in the development of LifeComp is to field test the framework, implement it in a real environment and evaluate the results.<sup>105</sup>

<sup>104</sup> [https://joint-research-centre.ec.europa.eu/lifecomp\\_en](https://joint-research-centre.ec.europa.eu/lifecomp_en)

<sup>105</sup> Forrás: Sala, A., Punie, Y., Garkov, V. and Cabrera Giraldez, M., LifeComp: The European Framework for Personal, Social and Learning to Learn Key Competence, EUR 30246 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-19418-7, doi:10.2760/302967, JRC120911. 16. p.

### 3.7.7. GreenComp<sup>106</sup>

GreenComp defines sustainability competences that can be integrated into educational programmes to help learners develop knowledge, skills and attitudes that promote thinking, planning and action with empathy, responsibility and care for our planet and public health.

#### *Structure of the framework*

„GreenComp comprises four interrelated competence areas: ‘embodying sustainability values’, ‘embracing complexity in sustainability’, ‘envisioning sustainable futures’ and ‘acting for sustainability’. Each area comprises three competences that are interlinked and equally important.”<sup>107</sup> GreenComp consists of 12 competences organised, into the four areas below:

6. Table: The structure of GreenComp

<i>Competence area</i>	<i>Competences</i>
Embodying sustainability values	valuing sustainability
	supporting fairness
	promoting nature
Embracing complexity in sustainability	systems thinking
	critical thinking
	problem framing
Envisioning sustainable futures	futures literacy
	adaptability
	exploratory thinking
Acting for sustainability	political agency
	collective action
	individual initiative

Custom-developed measurement tools specific to the competences of the European Framework of Competence for Sustainable Development can be used to assess whether or not a person has the competences for which no level definitions are available. No measurement tool has been developed for the framework. No self-assessment tool has been developed for the framework.

„Although widely endorsed by subject-matter experts and representative of different stakeholder groups, the framework has not yet been tested in a real setting. Putting GreenComp into practice, by rolling it out and evaluating it in a specific context, could and should lead to amending and refining it

<sup>106</sup> [https://joint-research-centre.ec.europa.eu/greencomp-european-sustainability-competence-framework\\_en](https://joint-research-centre.ec.europa.eu/greencomp-european-sustainability-competence-framework_en)

<sup>107</sup> Forrás: <https://publications.jrc.ec.europa.eu/repository/handle/JRC128040>

based on feedback from practitioners and end users. The framework should thus be treated as a living document.”<sup>108</sup>

### 3.7.8. EntreComp<sup>109</sup>

Developing the entrepreneurial capacity of European citizens is one of the eight key competences for lifelong learning. Entrepreneurial value creation and entrepreneurial learning can take place in any walk of life; turning ideas into shared value is important for career development. EntreComp describes entrepreneurship as a lifelong competence and identifies the elements that make someone an entrepreneur.

#### *Structure of the framework*

The EntreComp consists of 3 interrelated and interconnected competence areas: ‘Ideas and opportunities’, ‘Resources’ and ‘Into action’. Each of the areas is made up of 5 competences, which, together, constitute the building blocks of entrepreneurship as a competence. The framework develops the 15 competences along an 8-level progression model and proposes a comprehensive list of 442 learning outcomes.”<sup>110</sup>

7. Table: The structure of GreenComp

<i>Competence area</i>	<i>Competences</i>
Ideas and opportunities	spotting opportunities
	creativity
	vision
	valuing ideas
	ethical and sustainable thinking
Resources	self-awareness and self-efficacy
	motivation and perseverance
	mobilising resources
	financial and economic literacy
	mobilising others
Into action	taking the initiative
	planning and management
	coping with ambiguity, uncertainty and risk

<sup>108</sup> Forrás: Bianchi, G., Pisiotis, U., Cabrera Giraldez, M. GreenComp – The European sustainability competence framework. Bacigalupo, M., Punie, Y. (editors), EUR 30955 EN, Publications Office of the European Union, Luxembourg, 2022; ISBN 978-92-76-46485-3, doi:10.2760/13286, JRC128040. 9. p.

<sup>109</sup> <https://entrecompeurope.eu/wp-content/uploads/EntreComp-A-Practical-Guide-English.pdf>

<sup>110</sup> Forrás: Bacigalupo, M., Kampylis, P., Punie, Y., Van den Brande, G. (2016). EntreComp: The Entrepreneurship Competence Framework. Luxembourg: Publication Office of the European Union; EUR 27939 EN; doi:10.2791/593884. 0. p. Abstract

	working with others
	learning through experience

EntreComp contains definitions of competences and associated level definitions. For each competence, the same levels are defined. They are numbered 1 to 8 and define proficiency levels: basic (1 and 2), intermediate (3 and 4), advanced (5 and 6) and expert (7 and 8). The definitions can support the development of measurement tools. The competences of the Entrepreneurship Competence Framework can be measured using custom-developed measurement tools. No self-assessment tool has been developed for the framework. A subsequent step will be to try the EntreComp Framework out in practice, by implementing and evaluating it in a specific context and, eventually, if necessary, to amend and refine it according to feedback from practitioners and end-users.<sup>111</sup>

### 3.7.9. FinComp<sup>112</sup>

The meaning of fincomp abbreviation: Financial competence framework for adults in the European Union. „The objective of the EU/OECD-INFE financial competence framework for adults is to promote a shared understanding of financial competences for adults amongst Member States and national authorities, educational institutions, industry and individuals. In addition, it provides a basis for a more coordinated approach among EU and national policymakers. By supporting efforts to improve financial literacy, the framework aims at contributing to the overall goal of improving individual financial well-being.”<sup>113</sup>

#### *Structure of the framework*

The Fincomp divides the competences into four content areas: money and transactions, planning and managing finances, risks and reward, and financial landscape<sup>114</sup>. These content areas have then been further divided into topics and subtopics.

#### *8. Table: The structure of FinComp*

<i>Content area</i>	<i>Topic</i>
1. Money and Transactions	1.1 Money and Currencies
	1.2 Income
	1.3 Prices, Purchases and Payments
	1.4 Financial Records and Contracts
2. Planning and managing finances	2.1 Budgeting
	2.2 Managing Income and Expenditure

<sup>111</sup> Forrás; Bacigalupo, M., Kampylis, P., Punie, Y., Van den Brande, G. (2016). EntreComp: The Entrepreneurship Competence Framework. Luxembourg: Publication Office of the European Union; EUR 27939 EN; doi:10.2791/593884. 9. p

<sup>112</sup> <https://www.oecd.org/finance/financial-competence-framework-for-adults-in-the-european-union.htm>

<sup>113</sup> Forrás: European Union/OECD (2022), Financial competence framework for adults in the European Union. 2. p.

<sup>114</sup> This structure is in line with the previous OECD/INFE Competence Framework for Adults.

	2.3 Saving
	2.4 Investing
	2.5 Longer-Term Planning and Asset Building
	2.6 Retirement
	2.7 Credit
	2.8 Debt and Debt Management
3. Risk and reward	3.1 Identifying Risks
	3.2 Financial safety nets and insurance
	3.3 Balancing Risk and Reward
4. Financial Landscape	4.1 Regulation and Consumer Protection
	4.2 Rights and Responsibilities
	4.3 Financial <i>Education</i> , Information and Advice
	4.4 Financial Products and Services
	4.5 Scams and Fraud
	4.6 Tax and Public Spending
	4.7 External Influences

Unlike the frameworks presented earlier, FinComp has hundreds of competences, which makes its use in ILA questionable. At the same time, each indicator is assigned tags, of which there are only 4.

9. Table: Tags in the FinComp framework

Digital financial competence
Sustainable finance competence
Competence relevant for financial resilience
Competence relevant for daily life competence and/or for current or future financial well-being
Competence relevant to a large majority of the adult population

Several labels can be assigned to a FinComp competence. Each label can have a value of 0 or 1. For the most general competence, the value of 5 labels can be up to 5 values of 1.

This framework is a tool to support policy makers and practitioners in the creation of their own policies and programmes, rather than a curriculum, but it can easily be adapted to address the needs of specific life situations or target groups. For instance, future users of the framework will be able to select and extract the most relevant competences for some specific “life stages”. Another possible use of the framework can be to select and extract the most relevant competences for some specific target groups,

such as women, seniors, young people, low-income groups or other groups who may be financially vulnerable.<sup>115</sup>

No measuring tool was made for the framework. No self-assessment tool has been developed for the framework.

### 3.7.10. Competences for Democratic Culture

A Reference Framework of Competences for Democratic Culture developed by the Council of Europe<sup>116</sup> focuses on competences needed to participate effectively in a culture of democracy, and to live peacefully together with others in culturally diverse democratic societies. It describes a wide range of intercultural, civic, social and transversal competences that can be used to support teaching about the Key Competence of Cultural awareness and expression.

The framework entails a series of statements setting out learning targets and outcomes for each competence to help educators design learning situations that enable them to observe learners' behaviour in relation to a given competence.

## 3.8. National solutions for soft skills management

This chapter describes how soft skills development is being addressed in the 4 Partnership countries.

### 3.8.1. National solutions for soft skill - Czechia

There is no unified system solution targeted specifically on soft skills in Czechia. There are two nationwide official frameworks covering qualifications and occupations that also contain descriptions of related skills and competences: National Register of Occupations (NSP) and National Register of Qualifications (NSK). Under the National Registry of Occupations the Central Database of Competences (CDK) is being developed that aims to provide a common reference framework in the area of competences for these tools.

#### **National Register of Occupations (NSP)**

National Register of Occupations (Národní soustava povolání - NSP) is a continuously developed publicly accessible catalogue of occupation descriptions. It is a tool to support the labour force mobility based on the labour market needs which are identified by employers and labour market experts. NSP is established by the Employment Act and managed by the Ministry of Labour and Social Affairs.

NSP contains the following:

1. title and code of the occupation
2. concise description of the occupation
3. working activities in the occupation
4. prerequisites for the occupation performance, especially in terms of qualification, vocational and health prerequisites
5. other related information.

#### **Central Database of Competences**

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<sup>115</sup> Forrás: European Union/OECD (2022), Financial competence framework for adults in the European Union 6-7. p.

<sup>116</sup> <https://www.coe.int/en/web/reference-framework-of-competences-for-democratic-culture>

In NSP each occupation is defined by the work units. Work units are described with the help of competences. For this purpose, a **competence model** was developed, which enables to assign competences to the work units and provides a structured system with logical classification keys. This system is published under the NSP as a Central Database of Competences (Centrální databáze kompetencí – CDK: <https://cdk.nsp.cz>). CDK is an autonomous system for administration of competences. It is being built as a common reference framework for NSP and NSK (see below). It also provides opportunities for interlinking with other systems using competences.

In NSP the competences represent prerequisites for a certain set of activities to be performed by a worker in the given occupation. Within the model, competences are understood as a summary of knowledge, skills, abilities and attitudes that enable individuals to work and develop personally.

#### **Characteristics of competences within the model:**

- they can be monitored
- they are measurable / evaluable
- they have to be trainable / open to change and development

The competences are organised hierarchically and classified according to the content and type. There are **four main categories of competences**:

- Professional/vocational skills and knowledge
- General skills (generic hard competence)
- Soft skills (soft competences)
- Digital competences

Based on the definition of soft skills adopted by the D-ILA project, the three latter groups are of project's interest.

Within the model, competences are characterised by their **level**. It is a number that indicates in what range and depth the competence is required for performance of the given unit of work. This number is complemented by descriptors that describe individual levels. At the lowest levels there are low requirements to perform the competence, or none at all, at the highest levels there are high expectations to perform the competence.

#### **Competences in the database:**

1. **Professional/vocational skills and knowledge.** They are linked to qualification levels and general descriptors based on EQF have been developed for them. They have 1-8 levels. There are over 27 thousand professional/vocational skills and knowledge in the database.
2. **General skills (generic hard competence)** are a set of general requirements necessary for work performance which are not exceptionally linked to a certain profession. They are cross-cutting, transferable and applicable across disciplines.

General skills have 0-3 levels. For each skill the levels are defined individually. There are 8 general skills in the database:

- ICT competence
- Driving competence
- Numerical competence
- Economic awareness
- Legal awareness

- Language competence in Czech
- Language competence in English
- Language competence in another foreign language

3. **Soft skills (soft competences)** are a set of requirements necessary for the quality performance of a unit of work, independent of specific expertise, but dependent on the complex abilities of a person. They are cross-cutting, transferable and applicable across disciplines.

Soft skills have 0-5 levels. Each soft skill is described by the set of descriptors that were specifically developed for the skill. They represent models of behaviour of the work unit performer. There are 4 wide soft competence categories under which there are 19 soft competences:

*Personality competence*

- Competence for lifelong learning
- Competence for flexibility
- Competence for creativity
- Competence to manage stress and strain

*Interpersonal competence*

- Competence to communicate effectively
- Competence to cooperate
- Competence to be oriented on the customer and meeting customer needs
- Competence to influence and develop others
- Competence for self-knowledge and understanding others
- Competence to lead people

*Cognitive competence*

- Competence for analytical thinking
- Competence for conceptual thinking
- Competence to discover and navigate information

*Performance related competence*

- Competence to be active
- Competence for planning and organising of work
- Competence for entrepreneurship
- Competence for problem solving
- Competence for independence
- Competence for high performance

4. **Digital competences** have 0-4 levels. Each competence is described by a set of descriptors specifically developed for the skill. They represent models of behaviour of the work unit performer. There are 5 wide digital competence categories under which there are 18 digital competences:

*Information and data literacy* (the ability to articulate one's own information needs, search and retrieve digital data, information and content, critically evaluate the relevance of a source and its content, store, manage and organise data, information and content in a digital environment, find and use a variety of personal searching strategies)

- Browsing, searching and filtering data, information and digital content
- Evaluating data, information and digital content
- Managing data, information and digital content



*Communication and collaboration* (the ability to communicate, collaborate and share data and information through digital technologies, taking into account cultural and generational diversity, to engage in society through public and private digital services and in the framework of participatory citizenship, to manage one's digital identity and reputation)

- Interaction through digital technologies
- Sharing through digital technologies
- Collaboration through digital technologies
- Internet etiquette

*Digital content creation* (ability to create digital content in a variety of formats as original author's statement, integrate information into existing digital content, rework and improve previous information and content, generate new knowledge, respect copyright and licences, build programs to solve problems)

- Digital content creation
- Digital content integration and reworking
- Copyrighting and licensing

*Security* (the ability to protect devices, personal data content and privacy in the digital environment, to protect and avoid health risks and threats to physical and mental well-being when using digital technologies, to use modern technologies for the benefit of seamless social inclusion, to be aware of the impact of the use of digital technologies on social well-being, social inclusion and the environment)

- Equipment protection
- Personal data protection and privacy
- Protection of health and mental well-being
- Environmental protection

*Problem solving* (the ability to identify problems, evaluate the need and technological options for solving them, solve conceptual problems and problem situations in a digital environment, use digital tools to acquire knowledge, innovate processes and products and solve various life situations, and ensure the development of one's own digital competences)

- Solving technical problems
- Identification of needs and selection of appropriate technologies
- Creative use of digital technologies
- Identifying gaps in digital competences

### **“Semaphore”**

For each occupation in the NSP, the requirements for competences are depicted as a „semaphore“ (road lights) table. Required levels of individual competences are listed. Green bullets represent necessary competences while blue bullets represent advantageous competences (see e.g.: Occupation – Marketing director <https://www.nsp.cz/jednotka-prace/marketingovy-reditel>). The semaphore is not yet developed for all occupations as well as all types of competences are not yet assigned to all occupations.

### **National Register of Qualifications (NSK)**

The National Register of Qualifications (Národní soustava kvalifikací – NSK) contains descriptions of qualifications in the form of standards for the so-called (a) vocational and (b) complete vocational

qualifications. A complete vocational qualification is defined by a set of relevant vocational qualifications and by the EQF level. Complete vocational qualifications are equivalent to those acquired within the formal school system.

NSK has been established by Act on Verification and Recognition of Further Education Results and it is managed by the Ministry of Education, Youth and Sports. NSK is based on the NSP and thus should reflect labour market requirements. Both systems are being developed gradually.

Vocational qualifications are developed by sector councils in cooperation with employers' and employees' representatives. Standards are approved by the Ministry of Education and are published in the NSK information system ([www.narodnikvalifikace.cz](http://www.narodnikvalifikace.cz)) in the Czech and English languages. As of January 2023 the system contains 217 complete vocational qualifications and 1455 vocational qualifications.

NSK vocational qualifications consist of two standards: a qualification standard, which includes a specific set of competences, and an assessment standard describing methods and procedures used in the assessment and certification of prior learning<sup>117</sup>. Contents of qualifications are developed individually, skills assigned to each qualification are derived from the professional/vocational requirements and are thus majority of them are professional/vocational. Nevertheless, in some cases **soft skills** relevant for the qualification are also included, or, more often, soft skills are concretized for the application in the given profession.

### 3.8.2. National solutions for soft skill - Hungary

The Hungarian Qualifications Framework (HuQF) is Hungary's national qualifications framework, covering qualifications from general education, vocational education and training, adult education and higher education, and following the structure of the European Qualifications Framework (EQF), also includes eight levels.

The EQF summarises the content of the different qualifications and clearly defines their place in the Hungarian qualifications system, thus facilitating labour market orientation and helping education and training providers to design their training programmes and to identify and credit the learning outcomes of candidates.

**Conclusion:** although the HuQF levels do not reflect the level of competences, it is recommended to include them in the data model, as they provide some orientation and information on the level of competences of people with the occupations, and the qualifications obtained can be used to screen the persons who can be included in the training.

### 3.8.3. National solutions for soft skills - Poland

„Soft skills” is not a term frequently used in the discourse or agenda in public policy. In formal documents, key competences are mentioned more often, however, soft skills are often used as an umbrella term to denote various sets of transversal skills, basic/fundamental competences and/or simply non-specific, universal skills.

Depending on the context, soft skills are either specified (as: entrepreneurship, problem-solving or personal competences etc.) or treated as a general category (e.g.: soft skills, key competences or social competences in a broad sense). In some cases, specific typologies or lists of soft skills are being used,

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<sup>117</sup> These standards may be also used in developing non-formal training programmes.

but in the most granular descriptions (e.g. in job advertisements, qualifications or occupations descriptions) the terms used are not subject to any controlled vocabulary. In other words, the existing typologies are being used for guidance or attempts of aggregation.

In recent years, the interest in key competences has been fuelled by both the educational as well as labour market partners. On one hand, this can be linked to more active and explicit educational policy (e.g. GE and VET core curricula explicitly require developing these competencies since at least 2008 and 2012 respectively), on the other hand, the Polish economy is evolving – with the constant growth of the services sector, increasing automation etc. The changing model of competition on the national markets and international competitive position of Poland as an exporter of goods, provider of services and service outsourcing destination created pressure for promoting soft skills. The interest has been paired with media attention generated by the results of big research projects related to competences. To mention PISA (Programme for International Student Assessment) focusing i.e. on problem-solving and Bilans Kapitału Ludzkiego (Study of Human Capital - panel research project<sup>118</sup>) focusing primarily on competences in all aspects. These have contributed to an increase in awareness of the issue.

The results of the TRACK-VET project show that in formal settings, the development of soft skills is generally perceived as the responsibility of teachers and trainers. The approach towards Transversal Key Competences (TKC) development is expressed in the core curricula for general and vocational education. It should be noted that both documents are relevant for learners in VET schools, but for adults, too, who are also using the formal education system. In terms of entrepreneurship or business-related skills, attempts are being made to launch a new subject in secondary schools „Business and Management”.

The soft skills training offered on the market is not being monitored. Most vendors use their categories or labels, ones that are currently in demand, and are relevant for a given sector. Many of the training companies refer to specific skills typologies from scientific literature (e.g. related to project management, leadership or communication skills).

In the following part, we present the systemic solutions for soft skills management: the Polish Qualifications Framework, the descriptions of occupations prepared for the ministry of labour (prepared i.a. for public employment services) and skills categories introduced in the Integrated Skills Strategy.

### **Polish Qualifications Framework**

The Polish Qualifications Framework (PQF), consists of eight levels. Each level is described by general statements characterising the requirements in terms of knowledge, skills and social competence relevant to a qualification at a given level. Level descriptors reflect the progression of requirements between qualifications of subsequent levels. From the PQF perspective, it is not relevant when and how the knowledge, social skills and competences required for a qualification at a given level were attained. PQF level descriptors are consistent with the European Qualifications Framework level descriptors.

A unique solution applied in Poland is the development of two stages of PQF level descriptors:

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<sup>118</sup> Bilans Kapitału Ludzkiego is one of the biggest European research projects on competences, employment and labour market. The goal of the project is diagnosis and monitoring of human capital in Poland and identification of factors of its growth. The panel research had already 5 editions (since 2009 to 2015) and is currently continuing and deepening in selected sectors.

- first stage, or universal descriptors, which refer to all types of qualifications,
- second stage descriptors typical for qualifications attained in:
  - o general education,
  - o higher education,
  - o vocational education and training.

The differences between the levels described by the universal descriptors relate to:

- knowledge – scope and depth of understanding facts, objects, phenomena, concepts and theories, consisting of both general knowledge and expertise relating to the field of learning or occupational activity;
- skills – problem solving skills and applying knowledge in practice, including performing tasks of varying complexity, learning and communication;
- social competence – readiness to take on the obligations resulting from membership in different communities, cooperating, evaluating the consequences of one’s own actions and taking responsibility for them.

PQF uses categories and aspects to structure the level descriptors. An example of this is shown below.

10. Table: Descriptive categories and basic aspects of PQF universal descriptors.

	Descriptive categories	Basic aspects
Knowledge	Scope	Completeness of the cognitive perspective
	Depth of understanding	Dependencies
Skills	Problem solving and applying knowledge in practice	Complexity of the problem
		Level of autonomy
		Innovation in the approach
		Conditions under which one acts
	Learning	Autonomy
		Methods
	Communication	Scope of expression
Complexity of expression		
Social competence	Identity	Participation
		Sense of responsibility
		Conduct
	Cooperation	Team work

		Conditions under which one acts
		Leadership
Responsibility		Consequences of one's own actions
		Consequences of the team's actions
		Evaluation

### Infodoradca+ [„infoadvisor+”]

INFODORADCA+: Information about 1000 professions are materials containing primarily: a description of the profession, description of professional competences, reference to the situation of the profession on the labour market and opportunities for professional development, as well as employment opportunities for people with disabilities in the profession. Full data is available at: <https://psz.praca.gov.pl/rynek-pracy/bazy-danych/infodoradca>.

Descriptions of occupations were created as part of the project "Developing, supplementing and updating information on occupations and its dissemination using modern communication tools - INFODORADCA+"<sup>119</sup>. The project was co-financed by the European Union under the European Social Fund.

The description includes a description of work tasks, and work environment but also psychophysical and health requirements, which are divided into four categories of physical requirements, sensorimotor skills, **skills and abilities** and **personality traits**. The two latter categories contain exemplary soft skills, however, no controlled dictionary was used. An example of the description in this regard is shown in the table below.

*11. Table: Excerpt from occupation description (psychophysical and health requirements) of database administrator.*

Requirements in the category of skills and abilities
<ul style="list-style-type: none"> <li>- concentration of attention,</li> <li>- divided attention,</li> <li>- good memory,</li> <li>- technical skills,</li> <li>- organisational skills,</li> <li>- logical reasoning,</li> <li>- the ability to make quick and accurate decisions,</li> <li>- ability to motivate yourself</li> <li>- Ability to analyse and systematise complex problems</li> </ul>

<sup>119</sup> Rozwijanie, uzupełnienie i aktualizacja informacji o zawodach oraz jej upowszechnienie za pomocą nowoczesnych narzędzi komunikacji – INFODORADCA+

<ul style="list-style-type: none"> <li>- the ability to analyse the situation and take risks,</li> <li>- ability to comply with rules, regulations and standards,</li> <li>- cooperation and cooperation in a team (group).</li> </ul>
<b>Requirements in the category of personality traits</b>
<ul style="list-style-type: none"> <li>- ready to work at a fast pace,</li> <li>- readiness to cooperate,</li> <li>- readiness for individual work,</li> <li>- communicativeness,</li> <li>- operability and effectiveness,</li> <li>- responsibility for professional activities,</li> <li>- independence,</li> <li>- self-control</li> <li>- high self-discipline,</li> <li>- regularity,</li> <li>- emotional resilience,</li> <li>- resistance to work under time pressure,</li> <li>- coping with stress,</li> <li>- reliability,</li> <li>- accuracy,</li> <li>- attention to the quality of work,</li> <li>- readiness for continuous learning,</li> <li>- technical interests,</li> <li>- IT interests,</li> <li>- flexibility and openness to change.</li> </ul>

### **The Integrated Skills Strategy 2030**

The Integrated Skills Strategy 2030. Strategy has the status of a public policy in Poland and defines the basic conditions, goals and directions of the country's development in the social, economic and spatial dimensions of a given field or a given area, which results directly from the medium-term national development strategy, i.e. the Strategy for Responsible Development (with an outlook until 2030). The strategy consists of two parts:

- Integrated Skills Strategy 2030 (general part) - adopted by the Council of Ministers on 25 January 2019.
- Integrated Skills Strategy 2030 (detailed part). Policy for the development of skills in line with the concept of lifelong learning - adopted by the Council of Ministers on 28 December 2020.

In the Integrated Skills Strategy, the word "skill" refers to the ability to correctly and efficiently perform a particular type of activity, task, or function. "Proper performance" means the use of relevant theoretical and practical knowledge in action and conforming to social norms, in particular those relating to the type of an activity.

The strategy defines a list of basic and transversal skills, referencing key competences as defined in EU Recommendation of 2017 (see below).

12. Table: Basic and transversal skills in Integrated Skills Strategy 2030.

<b>Basic Skills</b>
understanding and creating information
multilingualism
mathematical
in the field of natural sciences, technology and engineering
<b>Transversal skills</b>
digital
personal, social and in the field of learning
civic
in the field of entrepreneurship
in terms of cultural awareness and expression
in terms of critical thinking and comprehensive problem solving
in the field of teamwork
the ability to adapt to new conditions
leadership
related to multiculturalism
related to creativity and innovation

Source: own translation of Zintegrowana Strategia Umiejętności 2030 (część ogólna). (2018). Warszawa: Ministerstwo Edukacji Narodowej (<https://www.gov.pl/attachment/d878ece0-503d-4b91-a9a1-68e8b3c9a375>)

### 3.8.4. National solutions for soft skills - Slovakia

#### Slovak Qualifications Framework

The Slovak national qualifications framework (SKKR), which was referenced to EQF in 2017, fully corresponds with 8 EQF levels. Unlike EQF, categories of SKKR (knowledge, skills and competences) were further detailed into subcategories<sup>120</sup>. The division of skills and competences is as follows:

### Skills

- a) cognitive skills (e.g. logical, creative and intuitive thinking, reflection);
- b) practical skills (e.g. material selection, clinical examination, quality assessment, manufacture of products, organisational skills and time management, communication skills and self-presentation, management skills, etc.).

### Competences

- a) responsibility (e. g. taking responsibility for the performance of tasks, for decisions; responsibility for oneself, co-workers, for own and joint work, product quality, responsibility for social and common values, responsibility for carrying out duties; protection of life, health, safety and hygiene at work; responsibility for environmental protection, etc.).
- b) autonomy (e. g. independence of judgement, critical thinking, autonomy of decisions in problem solving, autonomy in respect of employment, the implementation of projects, product manufacturing, etc.)
- c) social competences (e. g. the ability to work in a team, cooperative attitude, ability to face conflict situations, communication skills, building one's own independence / autonomy as a member of the group, etc.).

The SKKR descriptors reflect an increase of requirements from the lowest (1) to the highest level (8) – in the dimension of skills they increase from simple imitation of activities at the lowest level, mechanical performance and adaptation to concrete conditions. The highest levels of SKKR represent individualised, creative activities. The dimension of competences includes receiving impulses, passive reaction to impulses up to creation of an own attitude system and involvement in the development of a value system of others.<sup>121</sup>

### OECD Skills Strategy - Slovak Republic

The OECD Skills Strategy - Slovak Republic<sup>122</sup> contains an overview of specific findings and recommendations for Slovakia on skills in an international perspective. It is based on the fact that the Slovak Republic is particularly exposed to the effects of digitalization, globalisation and demographic change. It points to a significant skills disparity; a shortage of skilled labour, especially in knowledge and technology-intensive sectors; a lack of uptake of skills in workplaces as well as a poorly developed learning culture and low participation in adult education with the lowest participation of those who would need it most. It is clear that all citizens will need a stronger and more specific set of skills, including **cognitive, social and emotional skills**, as well as **the skills needed for individual jobs**. The Strategy also stressed the need to focus on digital skills development especially among less educated adults.

### Strategy of Lifelong Learning and Guidance for 2021-2030

<sup>120</sup> [http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008H0506\(01\)&from=EN](http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008H0506(01)&from=EN)

<sup>121</sup> <https://www.minedu.sk/data/att/15015.pdf>

<sup>122</sup> OECD (2020), *OECD Skills Strategy Slovak Republic: Assessment and Recommendations*, OECD Skills Studies, OECD Publishing, Paris, <https://doi.org/10.1787/bb688e68-en>



The aim of the Strategy of Lifelong Learning and Guidance for 2021-2030<sup>123</sup> is to define forward-looking measures in the field of education policies. It identifies three main areas of intervention: promoting adult participation in learning by removing existing barriers; supporting selected target groups and taking into account their specificities (e.g. low-skilled people) and supporting selected skill areas, namely **basic, transferable, civic and digital skills**.

The new **Act on Lifelong Learning** that is currently under preparation will create legislative support for the citizens' demand for development of **basic skills and civic education** and for the supply of non-formal educational opportunities. The methodological support and training for civic education providers and regional/local authorities will be established. The whole process should culminate in 2024 by the establishment of the National Network for Basic Skills.

According to the LLL strategy the **digital skills** that are included in the Top 10 skills of 2025<sup>124</sup> should be developed through the supra ministerial cooperation and supported within 3 lines:

- a. digital skills for the Slovak citizens in electronic communication with the state,
- b. digital skills necessary for adaptation and sustainability in the labour market - upskilling, reskilling,
- c. digital skills as a part of the basic or transversal skills.

### **National Strategy on Digital Skills of the Slovak Republic and the Action plan for 2023 – 2026**

The National Strategy on Digital Skills of SR and the Action plan for 2023 – 2026<sup>125</sup> notes that there is no publicly funded digital skills development system in Slovakia. Therefore, only 2% of citizens have acquired digital skills through public education programmes in this field. Education and digital skills development is built on employment or employer-paid education. In addition to the efficient use of digital technologies, there is also a need to focus on building awareness of **basic literacy in the areas of cybersecurity, media literacy and the ability to increasingly need digital hygiene**. The educational infrastructure for the development of digital skills is poorly developed - mainly because of the lack of a digital learning platform, unprepared training staff and missing testing and certification sites. The unavailability of publicly funded educational programmes is a barrier to the development of digital skills especially for seniors of post-working age.

**Digital literacy** should be closely intertwined with the **soft skills** that will be most important in the process of transition to the information society: **emotional intelligence, creative thinking, collaboration and the ability to think critically**. The main priorities, objectives and a subsequent action plan are oriented towards development of digital skills consistent with DigiComp 2.2.: **Information and data literacy; Communication and cooperation; Development of digital content; Cybersecurity and Problem solving**.

### **Basic skills of adults**

In 2011, the Slovak Republic participated in PIAAC<sup>126</sup>, the international research of skills of adults aged 16 - 65 years focused on reading skills, numeracy skills and digital skills (referred to as basic skills) of adults in Slovakia. The results showed that up to 11.8% of adults showed only the lowest level of reading skills and 13.8% only the lowest level of numeracy. Slovakia is also one of the countries with

<sup>123</sup> <https://www.minedu.sk/data/att/22182.pdf>

<sup>124</sup> World Economic Forum - The Future of Jobs Report 2020

<sup>125</sup> [https://www.planobnovy.sk/site/assets/files/1055/komponent\\_17\\_digitalne\\_slovensko\\_1.pdf](https://www.planobnovy.sk/site/assets/files/1055/komponent_17_digitalne_slovensko_1.pdf)

<sup>126</sup> <https://www.minedu.sk/program-medzinarodneho-hodnotenia-kompetencii-dospelych-piaac/>

the highest proportion of people without digital skills - up to 21.7% which is more than double the OECD average (10%) (OECD, 2016)<sup>127</sup>.

Basic skills have not been defined in the national legislation, and there are no standards that would determine the levels of basic skills that a learner has to achieve. The lack of basic skills is mainly related to the groups of the population without or with the lowest levels of education/qualifications (SKKR 0-2)<sup>128</sup>.

The project BLUESS – Basic skills development in Slovakia (2019-2021) implemented by ŠIOV created a methodology for developing this group of skills for adults and a tool for their assessment<sup>129</sup> used by labour offices. The project also proposed adding these skills to the lower levels of SKKR.

The need to develop digital skills is also confirmed by the Digitalisation Index (DESI index), in which the Slovak Republic is slightly below average in the indicator for the level of basic skills in the population aged 16-74<sup>130</sup>.

The Strategy for Lifelong Learning and Guidance 2021-2030 pays attention to supporting basic skills and digital skills in particular, which is reflected on in its goals – to strengthen the inclusiveness of adult learning and improve learning pathways for all, including adults with low levels of basic skills and concrete measures relating to basic skills development, including embedding basic skills in the national legislation and piloting tools for mapping, assessment and testing basic skills in low-skilled adults.

### Act on Employment Services

Act No. 5/2004 on Employment Services provides for the tasks of public employment services. It deals inter alia with active measures in the labour market to promote employment as well as training in order to increase chances to find a job. Part 7, Paragraph 35b establishes the Alliance of Sectoral Councils and its role in setting the areas for the development of **key competences**. Paragraph 44 regulates the forms of training and preparation for the labour market, one of them being participation in training programmes focusing on the development of **communication, computer, managerial, social and entrepreneurial competences as well as language competences**. Paragraph 54 includes those projects and programmes among active labour market policies (ALMP) measures that aim at improving the labour market position of both job seekers as well as persons interested in employment (i.e. the currently employed).

### KOMPAS+

Examples of such measures are two currently ESF-funded national projects “Training of Job Seekers”, and „Don’t Lose Your Job – Get a Training”. In the framework of the former one a scheme called KOMPAS+ has been implemented. It supports the development of selected **key competences** of jobseekers in the form of competence courses, in particular **communication skills, personal development (including managerial and entrepreneurial competences), computer and language skills**. The latter one seeks to promote the development of skills in persons interested in employment, primarily in most-in-demand occupations, **digitalisation, automation and green economy**. As in KOMPAS+, the training can focus on professional as well as **transferable competences**.

<sup>127</sup> OECD Skills Strategy Slovak Republic, <https://www.oecd.org/skills/centre-for-skills/OECDSkillsStrategySlovakRepublicReportSummaryEnglish.pdf>

<sup>128</sup> The state of basic skills in the Slovak Republic. <https://zakladnezrucnosti.sk/vystupy-projektu/>

<sup>129</sup> This tool is a manual for live assessment, not an IT tool ready for use in e-environment .

<sup>130</sup> Strategy for Lifelong Learning and Guidance for 2021-2030 <https://www.minedu.sk/data/att/22182.pdf>

### Bilan de compétences

The Bilan de compétences system of provision and quality management of career guidance is applied in labour offices across Slovakia. It is a tool for individual career development as well as for human resource management, labour market policies and lifelong learning. It was deployed through an ESF-funded national project „Support For Personalised Counselling For Long-Term Unemployed Job Seekers“ in 2015<sup>131</sup>. The implementation of the project has contributed to a better employment of the long-term unemployed by developing their **skills needed to enter the labour market**, including **career management skills**, and also by strengthening their motivation to find employment through long-term and systematic counselling. The Strategy of Lifelong Learning and Guidance for 2021-2030 refers to the bilan de compétences as a tool for profiling of learners.

### Strategy for human resources development in the education, training and sport sector up to 2030

The Sectoral Council for Education and Sport as a member of the Alliance of Sectoral Councils established under the Act on Employment Services elaborated a Strategy for human resources development in the education, training and sport sector up to 2030<sup>132</sup>. The main priorities in the field of adult education are as follows:

- ✓ the establishment of a system of counselling and education for low-skilled adults, the preparation of human resources with knowledge of tools and methodology to identify the **literacy needs** of low-skilled persons,
- ✓ creating conditions for inclusion through the education of foreigners – establishment of a system of their preparation for the labour market and full integration into society (**language training, knowledge of culture and lifestyle, acquisition of skills necessary for life in a new environment**),
- ✓ development of competencies of lecturers and trainers specialised in the education of seniors,
- ✓ inclusion of age management in the curriculum of study programmes focused on adult education.

### IT Fitness Test

The IT Fitness Test<sup>133</sup> is a large comprehensive free-of-charge online test of **digital skills**, which has been developed by the IT Association of Slovakia within the framework of the Digital National Coalition. It provides a way to assess the level of one's digital skills and knowledge and compare the results to other users. The test represents a self-assessment tool primarily targeting high-school and university students and primary-school pupils and teachers. However, the more advanced level is open to any citizen willing to assess their digital skills level for personal as well as job-related purposes. In the framework of the Slovak active labour market policies, the final certificate is a recommended annex to a citizen's application for the training subsidy. Companies can also use the tool for testing their employees.

The IT Fitness Test has recently been scaled up from the national level to **all four V4 countries**. In 2014 the IT Fitness Test was recognised by the European Commission for its complex and innovative approach to increasing digital literacy of young people in Europe.

<sup>131</sup> [https://www.upsvr.gov.sk/sluzby-zamestnanosti/odborne-poradenske-sluzby/narodny-projekt-podpora-individualizovaneho-poradenstva-pre-dlhodobu-nezamestnanost-uoz.html?page\\_id=762754](https://www.upsvr.gov.sk/sluzby-zamestnanosti/odborne-poradenske-sluzby/narodny-projekt-podpora-individualizovaneho-poradenstva-pre-dlhodobu-nezamestnanost-uoz.html?page_id=762754)

<sup>132</sup> Strategy for human resources development in the education, training and sport sector up to 2030

<sup>133</sup> <https://itfitness.eu/en/>

### 3.9. Conclusions on the design of the D-ILA-V4 data model

Finally, this chapter summarises our conclusions for Chapter 3 as a whole. Each sub-chapter is linked to a topic.

#### 3.9.1. Conclusions on adult learning systems and their funding solutions

The conclusions that can be drawn from the analysis of funding systems for adult education, including the situation of individual learning accounts, are as follows:

- Based on the analysis of adult education systems, it can be concluded that each country builds its own systems according to very different philosophies. It follows from the different philosophies that the practical implementations also differ.
- The discrepancy is also manifested in the availability of data. From an ILA data model perspective, currently it is complicated to develop a common dataset that can be used in various countries.
- The ILA data model may reflect a future state that countries can strive to achieve.
- In our view, the EU concept of ILA is general enough to be integrated into adult education systems in all countries analysed.
- Adaptation to local characteristics implies that interoperability of ILA between countries can only be achieved with great difficulty, considering the conclusions drawn in the feasibility study.
- The question for us is whether the EU concept of ILA (as well as micro-credentials) and the EU resources allocated to its implementation are capable of influencing the further development of each country's own adult education system.
- A systemic difficulty in implementing ILA is that EU projects are usually one-off initiatives that do not have the necessary continuity.
- Companies use their own training solutions. On the one hand, this is advantageous due to the applicability of the ILA data model, because data requirements are significantly easier to implement than in large public systems. On the other hand, it is disadvantageous from an ILA point of view: companies buy training on their own initiative, they have no interest in transferring money to employees' training accounts. The fact whether employers participate in the ILA system depends on the country that is implementing the ILA; there are countries where not only the state, but also the employer can contribute to the individual's learning account.
- There is a need to increase the number of participants in adult education in the four countries examined. One obstacle to this is the lack of financial resources, especially for disadvantaged people.
- However, we believe that the reorganisation of financial resources is not in itself a solution to increasing the number of participants in adult education.
- In addition, looking at the current specificities of adult education systems, we are not convinced that individuals will be able to effectively manage the budget allocated to them from different sources. We believe it is very important that widely available support services are created in parallel with the implementation of the ILA. In the countries examined, we consider that the support services required for the ILA are not currently operational.

- Our analysis shows that the inclusion of micro-credentials in the ILA data model is important as adult education systems in the countries examined have shifted towards shorter trainings. Digital micro-credentials are primarily suitable for certifying the learning outcomes of micro trainings.
- The situation is made more difficult by the fact that, reflecting on the emerging needs, international corporations as market players also issue micro-certificates to promote their technology and develop potential workforce.

### 3.9.2. Conclusions to be drawn from the presentation of soft skills solutions

Our conclusions from the examination of systemic soft skills solutions, including the different EU frameworks, are as follows:

- There are various definitions for soft skill as a concept. From the point of view of the ILA data model, there is really no need to choose between theoretical approaches and apply the chosen set of concepts exclusively. The project approximates the concept of soft skills from a practical point of view: data fields considered and selected by our experts to be socially or labour market relevant are identified as soft skills. This approach allows both foreign language competences and digital competences to be understood as soft skills and included in the ILA data model – in full harmony with other competences.
- In our view, the European Qualifications Framework (EQF) focuses primarily on the categorisation and levelling of traditional training; therefore, its use in the ILA data model is proposed.
- The Recommendation on key competences for lifelong learning identifies 8 competences that we consider to be of paramount importance. As basic skills are not within the scope of the project, some of the 8 key skills were omitted, e.g. mathematical competence,, while in other cases we propose to explain the given competence in detail in the ILA data model (e.g. digital competence).
- The philosophy and structure of ESCO are close to the ideas formulated in the project, insofar as it strives for data-level integration of previously independent areas. In addition, ESCO is constantly evolving, for example, DigComp has recently been incorporated and even green competencies are included in ESCO. One of the reasons why ESCO code bodies are used in the D-ILA data model is that they can serve as connecting fields in case of data scope expansion.
- ISCO categories have been incorporated into ESCO, which is also recommended for use in the ILA data model.
- ESCO uses advanced data management solutions primarily for machine data processing. We cannot exploit this feature in the framework of this project, but it is advisable to rely on it in the future development of the project.
- The objectives and recommendations of the Skills Agenda for Europe will be taken into account by Partnership experts in the development of the ILA data model.
- The Workplace Learning Trends Report by Udey Business provides data on the growing importance of soft skill development. However, the categorization proposed in the report does not seem to be useful in the ILA data model. The competences classified in each category are essentially consistent with other sources of information. However, data showing changes in training offerings are particularly valuable and unique information from the perspective of the ILA data model.

- Europass is a system of complex services built around Europass profile creation, which allows one to incorporate different skills into one's CV. The skills one can provide are: digital skills; management and leadership skills; communication and interpersonal skills; organisational skills. When designing data fields for the ILA data model, it is also useful to review the Europass categories.
- The target group of the international PISA measurement is limited to the age group of 15 years and is therefore outside the scope of adult education. The competences concerned are extremely important, but adult education focuses less on them.
- Skills are also included in CEDEFOP's various solutions, and their applicability in the ILA data model should be examined in detail. Of particular interest is CEDEFOP's Skills Intelligence and forecast of occupations, which can also be used indirectly to predict skills. The inclusion of skills that will play a greater role in the future is justified in the ILA data model.
- The Eurofound database is of limited use in the ILA data model.
- O\*NET's analysis shows that soft skills play a decisive role outside Europe as well. The structure of the system is mostly comparable to ESCO, the examined competencies are also essentially reflected in EU solutions.
- The OECD's Big Five model includes social and emotional skills. These skills have a fundamental place in the ILA data model, but it is useful to select between areas that can be developed through training and areas that can be less developed by training. For example, many trainings undertake to increase stress resistance, but the development of curiosity, which is also part of the "Big Five" model, is less conceivable with training.
- The PIAAC survey also covers labour market-relevant and soft skill areas. The ILA data model should take into account the competences also used in PIAAC.
- The World Economic Forum highlights the importance of 10 skills that are projected to become key by 2025. According to our analysis, 8 of these can be considered soft skills, the integration of which into the ILA data model is justified.
- In the survey of the Hungarian Chamber of Commerce and Industry, company managers comment on the level of competence of new employees. The survey is not relevant for ILA purposes.
- One of the characteristics of the ILA data model is that it avoids multiplication of competences. For example, creativity appears in several aspects in the different solutions presented, moreover, the definition of the concept also differs in each solution. Nevertheless, in the ILA data model, creativity is given a single data field. The example illustrates the synthesising nature of the ILA data model, as it can mask conceptual differences between different solutions at the data level.
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### 3.9.3. Conclusions to be drawn from the presentation of the frameworks

The feasibility study presents 10 different EU frameworks. Our conclusions are as follows.

- The presented frameworks can be divided into 3 categories according to their level of development and acceptance:



- The most advanced category is CEFR, which has been translated into 33 languages. CEFR is a widely used framework for indicating individual levels of foreign language competence (e.g. in Europass) and plays an important role in describing training offers. A multitude of self-assessment and measurement tools are built on CEFR.
  - DigComp is similar in level of elaboration to CEFR, but its visibility is significantly lower and it is still in the process of integration into other systems, e.g. training courses are often not yet DigComp compatible. Significant resources are available in the EU budget to enhance the role of DigComp.<sup>[134]</sup>
  - In general, the other frameworks (LifeComp, FinComp, EntreComp, GreenComp) examined have yet to be tested in practice, self-assessment and measurement tools, if any, are not yet mature, and their awareness and applicability are limited.
- From the perspective of the ILA data model, CEFR seems to be an ideal solution, as it creates compatibility between people's existing competences, the level of competence for entering trainings and the goal to be achieved (training output). For example, a person is expected to be at level B2 in English. Based on the self-assessment questionnaire, the person evaluates his/her own knowledge at A2 level. The course placement assessment classifies him as A1 level and recommends a course accordingly. The course description states that it can bring A1 level individuals up to B2 level. The assessment after completing the training confirms the achievement of the B2 level, thus meeting the expectations of the workplace.
  - One of the key questions in developing the ILA data model is the extent to which frameworks already present in official EU communication but are not yet widely used in practice should be relied upon. The example of CEFR shows how the general application of frameworks can benefit the ILA data model.
  - Considering the above, we recommend a mixed solution. During the development of the ILA data model, it is advisable to consider the soft skills appearing in the frameworks as a first priority, and then soft skills missing from these frameworks can be added to the data field structure of the ILA data model.

#### 3.9.4. Conclusions based on the presentation of national soft skill solutions

- In general, the management of soft skill training has not yet been established in the countries examined, but the first steps have already been taken.
- Soft skills are managed with the help of existing and older systems, with function expansion. First of all, the existing characteristics of the occupations are expanded with soft skills.
- The soft skills management solutions primarily reflect labour market needs, which place increasing demands on the adult education system.
- A general aim is to level competences and ensure their measurability.
- At national level, the most accepted soft skill approach emphasises transferability between jobs and occupations, a transversal approach.

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<sup>134</sup> National level operative programs included DigComp-related developments.



- In general, the development of basic competences is primarily the responsibility of the school system, while the development of transversal competences falls within the competence of adult education.
- An important starting point in the countries studied is the concept of lifelong learning, which is also accompanied by the development of soft skills.

## 4. Analysis of databases

The Partnership's experts collected and processed information on the data system of trainings and persons participating in adult training for their own country, as well as for the EU and international level. In this chapter, we present the conclusions that can be drawn based on the information in a consensus form, and on the basis of which the activities foreseen in WP3 will be founded.

Our conclusions no longer contain country-specific elements (e.g. country-specific contact details), their validity extends to the entire ILA data model designed I. It is important to note that in the phase of creating the data structure and the edited data series (WP3) it is possible to override what is described here, so the chapter contains recommendations.

Our conclusions no longer contain country-specific elements, their validity extends to the entirety of ILA data models and can be adapted by all member states. The chapter contains recommendations formulated at the stage of feasibility study, hence it is important to note that in the phase of creating the data structure and the edited data series (WP3) it will be possible to override what has been described here.

This chapter is informed by a background study prepared by the experts involved in the consortium, including country-specific elements.

### 4.1. General findings

Our general findings on the ILA data model are summarised in this chapter based on the background study prepared by the Partnership within the framework of the project:

- The adult education system and related statistical system of each country determine to a very large extent the availability and structure of data relevant to the ILA data model. These vary greatly from country to country. Therefore, when developing the data field structure of our ILA data model, the EU recommendation on ILAs and various frameworks were taken into account with high priority.
- The differences between national adult education systems have consequences in the availability and structure of data relevant for building an ILA data model. As a consequence, the proposed data model will be aligned to EU recommendations and international frameworks. This means that the proposed model may include a controlled vocabulary of skills based on EU competency frameworks such as DigComp or EntreComp, however we expect that future implementations of ILA in member states will use national classifications of skills, occupations, qualifications and national competence frameworks whenever these are in place. The assumption behind this decision is that member states will implement or relate to these reference frameworks (is in the NQFs-EQF case).

- The background studies carried out within the framework of the project revealed that state and corporate spending on soft skill development is directed at significantly different target groups. Corporate resources serve the upskilling and/or retraining of employees, while state resources are often aimed at promoting social inclusion. Although the ILA as a delivery mode foreseen in the Recommendation is independent of the funding source and provides full control to the individual, the finding reveals that various biases can be found in the datasets. Moreover, the member states may decide to develop a variant of the Individual Learning Account, in which the individuals decisions on spending will not be completely independent of funding or individuals will be provided with recommendations based on specific perspective. The key question to be decided during the development of the ILA data model is whether to construct the participants' data series of the AI training data table and the data series of the test data table exclusively from a corporate, exclusively state, or mixed point of view. We did not find such a sharp difference in the case of trainings, due to the transversal nature of soft skill trainings, given training may be relevant from both corporate and state perspectives.
- At the level of companies, especially SMEs, there is a better chance of creating data abundance – if the return on investment (ROI) and corporate interests can be demonstrated. (Employees can easily give their consent to the management of their data.)
- It follows from the EU concept of ILA that it is not statistical, i.e. it is not based on sampling and representativeness. Accordingly, our ILA data model does not take a statistical approach either, each member of the target group involved in training funding has identifiable and unique characteristics.
- Previously, professional competencies related to specific professions were considered significantly more important by enterprises than soft skill training. Based on the available data, changes can be observed, in line with EU efforts and related research, enterprises are placing increasing emphasis on soft skill development. Moreover, in many cases, recruitment has become soft skill-based and does not focus on existing professional knowledge. Our ILA data model deals exclusively with the development of soft skills.
- The above mentioned development is not related so much to the EU efforts, but to the changes in the labour market. For the companies it is difficult to find a person with the right hard skills, either because of (a) the general lack of qualified workforce available (due to the low unemployment) or (b) the nature of the technology developments where the requirements for technical skills are so specific (often even company specific) that it is not possible to find the right person ready at the labour market. At the same time, many jobs require more soft skills due to the same technology developments (everything is more connected, collaboration and willingness to constantly learn is needed etc....). Due to all this, companies put more emphasis on soft skills than they did before.
- When developing the ILA data model, a general guideline applies: the provider of the funding for training can influence the selection of the courses available throughout the scheme based on its priorities. For example, in the case of public funding, the same person would receive a different training offer than if the training is financed by that person's employer. A rare exception is when a company finances adult education in such a way that its employees are free to choose.

- To train AI, it is necessary to generate a data table in which people are assigned trainings. A very serious dilemma when designing an ILA data model is whether to model the real state or the desired one. For example, real statistics show that people with higher qualifications are more likely to participate in adult education. So should we also edit the data table needed to train AI in this way? Or, conversely, should we assume that those with lower qualifications are more likely to need training?
- These above two bullet points show that, shortly, the key decision point is the GOAL of the training. What training is recommended is (should be) determined by what we want to achieve. (Employability/social inclusion/ company profit/ good economy?)
- We could say that every person should receive the adult education they need. An important principle in the development of our ILA data model is that we consider limited financial resources. The crux of the project is the lack of a financial framework to ensure that every person receives the training that best suits them – compromises are needed. Our project tries to identify the effects of these trade-offs at the data level.
- Throughout the development of the ILA data model, efforts should be made to ensure that the data fields describing the characteristics of the trainees and the properties of the trainings and the value sets of the data fields (values that the data field can take) are one-to-one correspondence. The best way to do this is to use EU frameworks for certain competences, such as for foreign language competences, CEFR (Common European Framework of Reference of Languages). Using CEFR in the ILA data model, a person's foreign language competence, the input expectation of a given training and the level of competence that can be achieved upon completion of the training, as well as the level of foreign language competence required for a job can be defined in the ILA data model.
- The measurement of soft skills, especially their level, is a general challenge, the solution of which is the task of the near future (see the Chapter on Good Practices). During the development of the ILA data model, we dispense with measurement difficulties and deliberately analyse the future state when the measurability of soft skills is solved. At the same time, the sample example is given: Based on the CEFR already mentioned, there are very accurate and usable measuring tools. We expect a similar framework for other soft skills, just as we can already see DigComp's efforts.
- GDPR requirements must also be considered when implementing the ILA. At the same time, we structure our ILA data model as if the individuals concerned consent to the purpose-bound processing of their data in the ILA data model. It is important to note that this is partly the case now, since, for example, personal, GDPR-sensitive data are also collected during training grants provided by the EU.
- An important limitation in our ILA data model is that the trainings edited by the experts included in it are not specific trainings that provide application opportunities, but types of training. The IT solutions capable of recommending real trainings go far beyond the framework of our project; this could be the subject of a following project. When defining a training course in the ILA data model, it means that real-world training with partially or fully identical parameters must be searched for in the adult learning market by manual methods.

- When experts associate people with training, each data field is judged individually. For example, if online training is required for a person, experts should not assign attendance training to that person. The situation is fundamentally different when it comes to the training one wants to take. A person's training needs may differ from the company's training needs, and even the proposed training may not be what the person's training needs are. When designing an ILA data model, this dilemma must be answered for almost all data fields.
- The ILA data model seems to be well applicable in the field of career guidance, when the user receives not a specific training recommendation, but a type of training. This makes it much easier to find targeted specific training.
- In the table used to define the ILA data model, we also indicate data fields that were considered relevant during our analysis but were not included in the data model. This is so that during practical implementation, users have the opportunity to activate the data fields listed here according to their needs.
- According to the EU recommendation, in the case of the ILA the budget for persons changes dynamically over time, as revenues come into individual learning accounts and as they are spent on training. In our ILA data model, we record a specific moment when we record the available budget at the individual level, and from there we consider training expenses 1 year after the fixed moment in time. This makes it possible to assign several trainings to one person.

## 4.2. ILA data model design recommendations

Suggestions for data fields and edited data series to use in the ILA Data Model are collected in this chapter. As mentioned above, these proposals are based on a background study carried out within the framework of the project.

### 4.2.1. The training data field structure

Suggestions for building the training data field structure:

- A specific characteristic of soft skills is that several soft skills can be developed within one training. For example, during the development of foreign language competence, very often topics that also develop e.g. green competences or logical reasoning are discussed. During the development of the ILA data model, it should be possible for a given training to be classified as related to several soft skill developments.
- Based on the specifics of soft skill, the distinction between upskilling / reskilling is not justified at the data field level, there is no need for an independent data field. Any soft skill training can be interpreted equally in both cases.
- According to the EU concept of the ILA, individuals receive adult education support, whereas in the past in many cases training courses or training organisers received support to provide training even free of charge to those interested. The ILA data model should be designed so that training pricing includes the total cost and public and/or corporate training grants are reflected at the individual level. In this approach, the cost of training is determined by purely market processes. At the data field level, 1 cost column is recommended. At the same time, determining the market price is very difficult, because it is determined by the supply and

demand at any given time, often there is individualised pricing or pricing depending on order volume.

- In the ILA data model, defining the target group is an important aspect, several of which can be marked simultaneously for a given soft skill training. Target groups proposed on the basis of the background study carried out within the framework of the project:
  - 3 or more target groups may be designated
  - Unemployed
  - NEET (unemployed, job seekers, persons outside of labour force - students, retired, housewives...)
  - Disabled
  - Low-educated
  - Women
  - Women teleworking
  - Socially disadvantaged
  - AI-compromised workplace workers
  - Non-EU immigrants
  - Intra-EU displacements
  - Non-native speakers
  - Educators
  - Civil servants

This is only an initial list; in the phase of the data field development, the list of target groups may be changed.

- Previously, the language of the trainings clearly defined the circle of participants, and in each course prepared in a national language, people speaking the given language participated. At the same time, the EU concept of ILA places great emphasis on the possibility of transferring the personal financial adult education framework even between countries. It follows from this and from market logic that adult training courses produced exclusively in the national language are expected to be replaced by courses that will be available in several languages. During the development of the ILA data model, it is a serious dilemma how much focus should be placed on the language of training, and does the language of the trainings determine the circle of participants when training AI?
- Location also severely limits the application logic of the ILA data model, as it contains a strong determination between person and training, whereas according to ILA EU recommendation, this is precisely what is to be loosened. In addition, the training proposal based on the ILA data model can now be converted into specific training for anyone, considering their geographical location – if necessary. In summary, we do not recommend data fields in the adult education data table that refer to settlement-level availability.
- Portals providing access to adult training usually include a community evaluation service, meaning that participants in specific trainings can provide feedback based on their experiences. Our proposed ILA data model does not include data on training organisation, so the data field for rating is not meaningful.
- In the ILA data model, it is advisable to ensure that the individual trainings build on each other and create training paths at the data field level. To do this, one needs two data fields: one

contains the code of the previous training, while the other contains the code of the training based on it.

- A detailed description of the content of the training is often available on the adult learning portals examined within the framework of the project. We do not recommend including training content in the ILA data model due to its diversity and difficulty in converting it into data. Another solution is to use a subject word field, which requires you to create a list of subject words. The subject line list can be edited by the Partnership or borrowed from other systems.
- Based on the studies carried out within the framework of the project, it can be concluded that few adult education programmes deal with the development of green competences. At the same time, EU strategic documents place special emphasis on the development of green competences; therefore, such trainings are expected to appear among adult trainings in the near future – either independently or integrated into other soft skill developments. In the ILA data model, it is strongly recommended to include data fields allowing to specify green competencies. It is again related to the goals. If the goals are to comply with EU/public interest to pursue green goals, then yes, it is important. However, companies do not consider the stand alone concept of green skills as so viable. They of course have to comply with the green regulations, but they embed the green skills development to their green transformation processes and do not consider it a separate activity.
- Based on our analysis, some adult learning portals share detailed information for a fee (e.g. subscription). It is not recommended to use such a data field in the ILA data model, we recommend providing free access to all training information.
- Following the logic of ESCO presented in the previous chapter, adult training aimed at soft skill development can also be linked to ESCO occupations, and the inclusion of the necessary data fields in the ILA data model is justified. Of course, the indication of professions should not be mandatory, since a significant part of the trainings can certainly not be linked to a profession or to several professions at the same time.
- Based on the background study carried out within the framework of the project, some of the trainings are available free of charge. Due to the truly free trainings, it is recommended to display the free training at the data field level. However, training courses where training is not actually free cannot be marked as free in the ILA data model because, for example, the state bears the training costs. According to the EU concept of the ILA in this case, the state pays the training fee into the individual learning account, which the individual pays to the training provider – i.e. the training cannot be marked as free of charge in the dedicated data field.
- Common data fields for characteristics of training are also included in the ILA data model. Such data fields are the ratio of theoretical / practical training, the ratio of online / offline learning needs, the duration of the training / exam validity, the average student workload (in hours) required to complete the training, etc.
- The distinction between accredited – and thus quality-assured – trainings is made by means of an independent data field. When determining the value set (possible values of the data field), it is important to distinguish the status of the accrediting body, because there may be a difference between, for example, a state accreditation or a market-based accreditation.

Possibly a controlled vocabulary of accreditations should be developed in order to control this crucial variable.

- Identified forms of training, which can also occur in combined, blended form, possibly even the number of hours of training, broken down according to these:
  - o distance learning in offline format when attendance is not required
  - o distance learning with an online presence, when communication takes place in real time
  - o Presence
  - o Mentoring
- In the ILA data model, the micro-credentials that training can obtain are represented by individual data fields. A difficulty is that in the case of the adult trainings examined, the learning outcomes of the output page are displayed in a text list. In the case of micro-certificates, the question to be decided is whether several micro-certificates can be issued from a – typically longer – training, or whether the micro-credential should be of yes/no type, or whether its level should also be interpreted in our model.
- In the case of soft skill trainings, competency levels may have different value sets, which must also be tracked at the ILA data model level. For example, in the case of foreign language competences, the value set can have 6 elements (from A1 to C2), while in the case of DigComp there can be 8 levels of each competency element. For other competences, 3 levels may be sufficient.

#### 4.2.2. Proposals for edited training data sets

While information about the data field structure of trainings can be defined more simply and discretely, constructing data series describing soft skill trainings and uploading the data field structure is a significantly more difficult task. The information available is much more diverse and often contradictory. At the same time, the members of the Partnership have to make decisions during the implementation of the 3rd work package, to which the chapter intends to contribute. The editorial aspects of the data series describing the trainings are as follows:

- No key indicator for the number of training courses was identified during project design. Based on the background study prepared within the framework of the project, we propose that the Partnership define at least 100 different soft skill trainings, i.e. the trainings data table should contain at least 100 data series. In practice, this means that both the 300-person AI trainer and the 600-person test data table can be assigned 100 different types of training.
- A particular training can, of course, be assigned to several individuals. As a general principle, the wider the target group of a given training, the more persons it will be assigned to. For example, a basic green competence development training can be assigned to every person – considering that we prioritise the development of green competences along EU guidelines.
- Despite the fact that due to Covid the proportion of trainings available exclusively online has increased, in the case of soft skill trainings, mainly theoretical and practical lessons can be held online. In the case of soft skill trainings, attendance lessons are more relevant. If 100 soft skill trainings are defined within the framework of the project, a significant part of it, up to 70%, should be defined in blended or face-to-face form. In particular, higher number of hours and



higher level courses can be in blended form, while lessons with a lower number of hours and theoretical focus can be exclusively online.

- Based on the background study carried out within the framework of the project, mentoring services are already present on the adult learning market; therefore, we recommend their preference in the ILA data model as well.
- The proportion of accredited training, i.e. training that passes quality assurance, varied widely in the countries examined. We recommend defining the proportion of these soft skill trainings in the ILA data model in a range of 50% to 80%.
- A total of 16 target groups assigned to each soft skill training were defined in the previous chapter. The assignment of 100 soft skill trainings to target groups is greatly influenced by whether we develop the ILA data model according to state, corporate or mixed aspects. The consortium is currently leaning towards a state-focused data model.
- Based on the experience of the background study, the duration of soft skill trainings included in the ILA data model is mostly in the range of 30 hours or less, and at least 90% of the trainings should be structured accordingly. Of course, 30 hours also includes time spent on individual preparation. If 30 hours is not enough to develop a given soft skill, training based on it can be defined in the ILA data model, thereby indirectly increasing the number of hours. Based on the background study carried out within the framework of the project, trainings longer than 200 hours will not be typical from the ILA data model.
- In the case of soft skill trainings, we do not recommend defining educational attainment as an entry requirement, as the competences concerned are in many cases independent of the level of education. Specifying the input level of foreign language competence development courses can be a good example. In line with this, it is recommended to provide 1/3 of the courses with beginner, intermediate and advanced input competence level. Proportions may vary. If, for example, state-sponsored trainings predominate, training with basic input levels should be given a higher proportion. The introduction of input levels in the ILA data model makes it possible to assign several trainings sequentially to the development of a given soft skill for a given person.
- On the output side of the trainings, we recommend issuing micro-credential-type certificates in the majority of the trainings – in line with EU aspirations. It is important to note that the available data do not justify this high rate, as currently the number of courses ending with the issuance of micro-credentials is significantly lower in the countries examined.
- Determining the training costs for the 100 edited trainings is one of the most difficult tasks. The EU concept of ILA means giving a real cost of training, as it is not the training that receives funding – as mentioned earlier. In the ILA data model, we believe that the right thing to do is if the trainings fall into a wide range of cost categories, so that we can assign training to both 300 and 600 people along different concepts. Such a concept could be, for example, that persons receiving state aid typically use lower-priced training. Training costs in the ILA data model should be set uniformly in euro. According to the background study carried out within the framework of the project, the cost of accredited courses typically falls between 500 – 1000 euros, while non-accredited courses fall into the range of 100 – 500 euros.

- A distinction should be made between the total cost of training and the price of training. The total cost is a concept involving a larger cost: from the participant's point of view, it is the total cost, which may include travel expenses, invested time and lost salary, the cost of the training, etc. The training price is the actual participation fee to be paid to the training organiser. The data model will include the price of training.
- Data fields related to the date of creation and validity of training should be provided for all 100 trainings in such a way that there are no obsolete trainings in the training offer. We do not recommend providing training older than 2 years when editing data.

#### 4.2.3. Data field structure - trainees

The suggestions for building the data field structure of the participants are as follows:

- The ILA data model does not require data fields that can be used to identify individuals. A single identification data field is sufficient to distinguish between individuals. However, information that can be linked to a person is included in the ILA data model, such as age.
- Based on the background study carried out within the framework of the project, the gender data field is also needed in the ILA data model. Defining the value set for the gender data field results in a decision situation. In the traditional approach, as we have seen in several countries, the gender data field can take 3 values: male; female; not indicated (N/A). According to another approach, there are several types of gender. In the latter case, the set of values shall be determined in accordance with Union recommendations or Union statistical requirements. It is strongly discouraged to create the project's own option set for this data field. Although the empirical research showed that gender is irrelevant for training recommendation, in order to specify the target group, we propose to include this data.
- The project focuses on soft skill training, so it is justified to include data fields for describing soft skills for individuals. There are several ways to define the value set of data fields and data fields, but it is important to note that the soft skill description data fields used for people and training must match their value sets. This is because the soft skill characteristics of the persons and the input level of the trainings must fit together. Based on what has been described, it is recommended to apply different EU frameworks, as we have seen in the trainings.
- In the case of attendance or in-place training, by default, it would be necessary to consider the place of residence of persons. Because the ILA data model does not work with real-world training, detailed data fields about the geographic location of people and training can be omitted from the model. However, a data field for indicating a country or region within a country for information purposes is relevant. Instead of a city-level data field, consider adding a data field to the ILA Data Model that can have the following value types:
  - o local
  - o regional (NUTS level 3 classification)
  - o countrywide
  - o EU-wide
- For individuals, it's a good idea to include a data field that shows willingness to train. For example, if a particular person is assigned only attendance training, then the form of training should also follow it. In this case, we expect a stricter match than in the case of competency

levels, where the level of competence of the person and the level of input competence of the assigned training do not have to correspond one-to-one. We recommend that we use the following fields in the ILA Data Model:

- maximum time available for training, lessons / week
  - willingness to learn independently
  - willingness to mobility
  - training motivation
- As a result of the ILA concept, the financial resources available for training are allocated to persons, i.e. the necessary data fields appear in the data table containing persons. Based on the background study carried out within the framework of the project, the available financial resources can be described with 4 data fields:
- Self-financing amount
  - Amount from employer's support
  - Amount of State support
  - Whether the financial resources include credit (possible values: yes/no)
- In some of the countries examined, State aid is differentiated according to whether it comes from the national budget or from EU funds. In this case, 5 data fields are used to describe the information about the financial framework.
- In case the ISCED data field of highest educational attainment is required, we also recommend the inclusion of data fields related to acquired micro-credentials. On the one hand, micro-credentials will become widespread, as also supported by the EU recommendation, and on the other hand, they can help to define the input requirements of training more precisely than with the help of a qualification obtained years earlier. We recommend at least 3 different data fields for granting micro-credentials. Additional data fields are required if additional information about micro-credentials (e.g., credit points or levels) is included in the ILA data model.
- The sensitive data of a given person is belonging to the target group, which is also included in the ILA data model. The value set of the target group data field must match the target group values specified during the trainings.
- The current occupation influences the proposed trainings, which is why such a data field is also required in the ILA data model. The value set can be determined on the basis of ESCO. Based on ESCO, the occupation can be determined very precisely. If we focus on the main areas of the sessions, the ISCO-08's value set of 53 elements may be appropriate.
- In connection with occupations, it is absolutely necessary to divide occupations into two categories: the so-called white collar and blue-collar occupations/job titles. However, we recommend not to have a data field covering this information, as it may be considered as discriminative.
- In our view, industry classification, either at the level of individuals or at the level of training, is not necessary in the ILA data model. The reason for this is that soft skill trainings are considered transversal, i.e. they can be developed regardless of sector.
- To enter the completed soft skill trainings, you need at least 6 data fields (3 for soft skill name and 3 for level), which can be used, for example, to specify the most recently completed soft

skill trainings. It is important that, as described earlier, not specific trainings can be specified, but competence areas and competence levels. From a value set perspective, this data field can take the same values that are used to categorise training. For example, if a training develops a basic green competence, then the soft skill training completed recently in the case of the person can also be a basic green competency development training.

- Similarly to the soft skill trainings performed, the trainings that individuals want to complete and the trainings recommended by companies can appear in the ILA data model following a similar logic.

#### 4.2.4. Proposals for edited data sets for training participants

The suggestions for edited data sets for training participants are as follows:

- We recommend avoiding gender discrimination, i.e. the recommended ratio is 47-47% in both the 300-person and 600-person lists. The proposal for a proportion of persons in the category of persons whose gender is not known is 6%. In our view, by establishing the proportions, any anomalies arising from the topic can be resolved. When developing the data model, the consortium will discuss whether this proportion is acceptable or not.
- To determine the age, we recommend entering the year of birth. The age distribution in both the 300 and 600 samples is based on the background study: a minimum age of 18 years and a maximum of 64 years are recommended, within which the proportion of the 40-49 age group is the highest, between 10% and 20%.
- The matching of person and training is optimal if the existing competences of a given person match the input competence requirement of the selected training. From the perspective of the ILA data model, the extent to which we insist on matching people's existing input levels with those of training is a decisive point. The practice shows a mixed picture: in the case of foreign language training, the levels defined by the EU Framework (CEFR) are followed by practice, i.e. based on input measurements, training companies can accurately determine what level of competence a person has and classify them to the appropriate input level training. In the case of other soft skills, due to the underdevelopment of the measurement system, such a level of matching between people and trainings cannot be expected.
- When filling in the data field for geographical location, we run into the problem already mentioned several times, namely differences due to the target group. While in the case of an SME both the 300-person training and 600-person test data plates may have all the persons within a geographical region, in the case of a national or EU-wide training programme, different geographical units must certainly be assigned to each person. For example, the geo-unit assignment rate may follow the proportion of population.
- When filling in the data field characterising the willingness to train, it is recommended that at least 80% of persons in the 300-person AI training data table set their willingness to participate in online trainings. If the proportion of disadvantaged people in the 300-line-table is high, then 80% may be lower – assuming that disadvantage goes hand in hand with lower willingness to train online.

- One of the indicators of disadvantage may be, for example, that there will be no completed soft skill training and no need for soft skill training will appear. It is precisely in such cases that the emergence of public funds for training will be significant.
- Employment is also linked to training completed. According to the background study, a significantly higher proportion of employees participate in adult education. The concept of designing an ILA data model also appears here. If we focus on the corporate direction, then in both the 300-person and 600-person data tables the number of people will be overwhelmingly employed, while in the case of state funds the proportion of non-employed people will also be significant. The consortium is inclined to develop the data model in a public direction, leaving the possibility of corporate contributions.
- The training courses completed have an impact on the training recommendations in the ILA data model: the output level of the proposed training should not be lower than that already indicated for the individual as the training completed.
- A person can be linked to multiple trainings in the ILA data model. According to the background study carried out within the framework of the project, the average time spent on training in a given year is between 30 and 40 hours, which should be considered when filling in the data fields. For example, one person attends one 30-hour training, another person attends four 10-hour trainings in a given year. For both the 300-person (AI-)trainer and the 600-person test data table, we recommend that no more than 10% of the people complete more than 50 hours in a given year.

## 5. Good and unsuccessful examples

The aim of this chapter is to collect some good and unsuccessful approaches regarding individual learning accounts, micro-credential-systems, soft skill frameworks or other related issues our project might learn from. The collection could not be exhaustive, as there are many good and less successful examples available worldwide, but those projects are shown, which for one reason or another have provided D-ILA in V4 with important lessons: the example of the English Individual Learning Accounts highlights the importance of monitoring and quality assurance, the SPOCC project shows it might be possible to assess soft skills, the TRANSVAL project shows how the validation process of soft skills should work etc.

### 5.1. Good and unsuccessful examples regarding Individual Learning Accounts

#### 5.1.1. SCOTLAND – ILAs and ITAs

The Scottish funding scheme in the form of Individual Learning Accounts is often given as an example of a well-functioning and user-friendly scheme with good governance and supporting services.

The implementation of the ILA Scotland scheme evolved over time and underwent several changes which, according to the assessment report of 2007, “corresponds with ILA Scotland’s objective of addressing financial barriers to learning and increasing participation of a more diverse or non-traditional group of learners”. The first ILA scheme in Scotland was introduced in 2000, but despite its initial success, it was suspended and redesigned due to malpractices of some providers. In general, the scheme was open to any person over 18 years of age residing in Scotland and offered funding of up to GBP 100 and 200 annually leading to a recognized qualification or certification.

The revised ILAs were in place between 2004-2017 in several variations based on the current needs which were reflected in the selection of courses permitted (e.g. ICT), setting income limits in certain periods and requiring formal qualification/certification based on the Scottish Credit and Qualifications Framework (SCQF) up to June 2007.

In 2017, ILAs were replaced with an individual training account scheme (ITA) in order “to better meet the demands of the jobs market”, which transferred its focus on people in employment and set up the income threshold of GBP 22 000.

The scheme covered up to GBP 200 for training courses meeting labour market skills demand. All courses under the ITA scheme had to correspond with one of the curriculum areas aligned to the Scottish Government’s Labour Market Strategy - agriculture, business, construction, early years and childcare, health and safety, STEM, social care and transport. Between 2017-2022 there were a total of 164,280 ITA applications, which resulted in 78,734 ITA courses booked and 59,778 claims made. **Benefits of ILA/ITAs schemes identified by several assessment and research reports:**

- contribute to shaping the demand and supply of the skills provision,
- fast way to use the public investment in skills development with long-term impact on individuals and economy,
- variations in the scheme set-up, e.g. possibility to share training costs among various stakeholders, engaging employers, targeting various groups and training areas, etc.
- support self-directed learning,
- develop a culture of lifelong learning,
- develop quality-assured, learner-directed provision by setting accreditation criteria for the providers involved,
- flexibility,
- removing barriers for learning (most participants reported that they would not have undertaken training without ITA funding),
- helping people to find new and better jobs.

### 5.1.2. Voucher-based adult education scheme in Croatia

For years, the labour market has indicated a lack of qualified employees, but also the fact that skills that workers possess are not in line with the current needs of the economy. Also, due to the lack of required competencies, unemployed people cannot meet the expectations of today’s job market. Taking into account all these indicators and in order to encourage additional training and adoption of new skills among adults, the Croatian Ministry of Labour, Pension System, Family and Social Policy in cooperation with the Ministry of Science and Education has launched a system of vouchers for adult education in April 2022. Croatian Employment Service Department is conducting the voucher-based adult education scheme together with the Ministry.

The aim is to increase the rate of participation in adult education in Croatia (in 2019 it was 3,5%, approx. EU level 10,8%) and to develop workforce’s **digital** and **green** skills that will foster better coping with technological, social and economic changes and would provide the basis for the long-term competitiveness of the Croatian economy.

The voucher-based adult education scheme has been planned to include in total 30,000 people over the age of 15 by 2026, who will become voucher-users in 70:30 ratio, 21,000 for green and 9,000 for digital programmes. The Adult Education Act (2021) provided a legal base for setting the criteria for selecting competencies required for work and for selecting the service providers, for awarding vouchers to participants in formal and non-formal adult education and for designing the conditions and ways of using the funds.

#### **Main criteria:**

The target group:

- employed or unemployed people over 15
- with the exception of:
  - a person currently in a regular education system
  - a student in higher education and science system
  - a beneficiary of a pension under the general legislation governing pension insurance.

The skills needed for career development, employment and job retention are listed in the Skills catalogue based on the mapping analysis document “Methodology of mapping the skills needed for digital and green transformation/transition of the economy“. The educational institutions interested in developing training programmes and qualification standards can find there a list of all green and digital skills that are part of occupational standards registered in the Croatian Qualifications Framework Register.

The eligible training programmes, that have been developed in line with “the Methodology for developing adult education programmes for acquisition of micro-qualifications, partial qualifications and full qualifications financed through vouchers and other sources of funding“ together with the certified educational institutions are available through an online voucher system.

#### **The complex system is made up of:**

- *Skills Catalogue*
- *Catalogue of eligible educational programmes and certified educational institutions*
- *Voucher platform* for submitting voucher applications. It supports the following types of users:
  - *Beneficiaries* who can register in, create a profile and a user inbox, where they can submit a request and answer questions, which guide them through the application process
  - *CES Advisor* responsible for processing and review of applications and coordinating the voucher granting process
  - *Education providers* who do not use the platform directly but generate an offer for beneficiaries and upon completion of the training course, they fill in a questionnaire for the evaluation of the beneficiaries and their engagement in the training course, which application sends them automatically
  - *Employers* who do not use the platform directly but 6 months after the end of the training activity they fill in a questionnaire for the evaluation of the beneficiary in order to assess the effectiveness of the training in improving the skills and work of the employee received by email automatically. (This is particularly a notable good example. From empirical research (see Chapter 6) and other sources it is evident that assessment of training quality and measurement of training’s effectiveness is seen as a key issue, but at the same time stakeholders often have difficulties with it (they have no tools /it is not performed etc.) Systematic feedback from the practice after the training is quite rare.)

**The adult learners - voucher users** independently choose the programme they want to attend as well as the educational provider. The educational programme can last:

- up to 6 months for an unemployed person
- up to 10 months for an employed person.

The cost of the training programme in the amount of the approved voucher is paid directly to the selected educational provider by the Croatian Employment Service (CES). Granted voucher can be activated within 6 months from the date of approval of the application. When the price for the selected programme is higher than the granted voucher, the difference can be financed by the beneficiary himself/herself or by his/her employer.

#### **Summary:**



- Adult education as a top priority for close cooperation of the national authorities – the Ministry of Labour, Pension System, Family and Social Policy, the Ministry of Science and Education in Adult Education and the Employment Service Department.
- Eligibility of a wide range of adult learners, 30,000 users of vouchers, of whom 40% are from the vulnerable groups (12,000 users).
- The efficient use of funding (HRK 300 million = EUR 39.9 million) from the National Recovery and Resilience Plan and the generous cap of 1 voucher for 1 adult (HRK 10 000 / EUR 1 329 €), which can make the noticeable impact of the scheme on adult education in Croatia.
- Focus on the highly relevant green and digital skills.
- Complex, online supported and easy to use system, which additionally allows for the collection of feedback from the training provider upon completing the training activity and from the employer at a 6-month interval.

Links:

1. Skills Catalogue: <https://vjestine.hzz.hr>
2. Catalogue of eligible educational programmes and certified educational institutions: <https://vauceri.hzz.hr/katalog-vjestina/popis-vjestina-i-programa/>
3. Voucher platform: <https://vauceri.hzz.hr/>

### 5.1.3. Individual Learning Accounts (2000-2001) in the UK - an unsuccessful example

The main differences between countries that have adopted ILAs are mainly in the definition of eligibility for participation in the scheme, the amount of the financial contribution (or source of funding) and the definition of the content of the training activities. Eligibility of providers is closely related to the content definition. Determining the eligibility of providers is appropriate not only for reasons of regulating the relevance of the content of the programmes, but also for verifying the quality of provision. The experience with the United Kingdom's individual learning accounts points to the risk of possible fraudulent behaviour, which led to a rapid closure of the scheme in 2001.

Individual learning accounts were a flagship policy of the 1997 Labour Government in the UK. ILAs provided a new universal right for all adults to receive State financial support to pursue lifelong learning and market-led arrangements were used for delivery of that learning. Private learning providers were allowed to offer learning alongside public sector providers as their pursuit of profit was deemed likely to lead them to devise efficient ways to deliver learning to non-traditional learners. Once introduced, demand for ILAs far exceeded expectations. A target of one million account holders by April 2002 was reached in May 2001 and demand continued to grow.

However, following "serious allegations of potential fraud and theft involving ILAs" (Department for Education and Skills, 2005), the scheme was closed in November 2001. A few successful prosecutions ensued. The adoption of light-touch accounting controls was given as a reason for fraud being possible and over-expenditure. Subsequently, when a replacement scheme was introduced, the novel principle of universal financial support was abandoned.

The National Audit Office concluded that the operation of the scheme was not monitored properly – with over a quarter of the learners registered as having started training not doing any. There was no requirement on Capita (Department's private sector partner in the scheme) to make spot checks on the eligibility of learning or to carry out basic validity checks of account holders. And, because there was no exception reporting, the Department was unaware that some 13 providers had registered over 10,000 accounts and 20 claimed payments of more than GBP 1.5 million. The database holding details of the accounts was being improperly trawled for unused accounts by a few unscrupulous registered learning providers abusing their legitimate access to the system to make claims in respect of these accounts without the knowledge of the account holder.

The Department expected that market forces would ensure that new providers would replace inefficient ones. This meant that the responsibility for identifying the most appropriate and good quality learning fell on learners, some of whom are amongst those least able to compare and contrast options and determine what learning would suit them best.

"In some respects, this was a very good and innovative scheme: it was popular and encouraged many people to acquire or update much needed skills. But the speed with which the Department implemented the scheme resulted in corners being cut. Poor planning and risk management by the Department led to weaknesses in the system which made fraudulent activities possible. And the Department did not keep their eye on the quality of the learning and on the indications that a few unscrupulous providers were taking advantage of the inadequate security arrangements." (Sir John Bourn).

Various evaluations of the UK's learning account models show that the intention to keep the programme as least bureaucratic as possible, while beneficial, is also its main weakness. To achieve a marked increase in participation in further education and to reach target groups in education, a simple application was in principle sufficient to open an account. It should be noted that these objectives were in principle achieved - participation was very high and participants (the actual ones) were mostly satisfied with the education provided. As the training providers also benefited from the programme and saw new business opportunities, they were heavily involved in the promotion. This motivation of the training providers was a significant factor in the majority of open accounts. However, the openness of the scheme to arbitrary providers led to considerable doubts about the quality of the courses reimbursed and misuse of contributions. This was accompanied by overall poor programme management (unclear responsibility for the programme, poor planning and organisation, undue pressure on speed of delivery and poor quality management of courses and educators).<sup>135</sup>

## 5.2. Projects to learn from

### 5.2.1. The SPOCC Project

SPOCC (Soft Skills for Personal and Career Development) is a project<sup>136</sup> aimed at developing a comprehensive soft skills framework. Soft skills are non-technical skills that are essential for personal and professional success, such as communication, leadership, teamwork, and problem-solving. The SPOCC project focused on creating a framework that encompasses various dimensions of soft skills, providing individuals with a structured approach to assess, develop, and enhance their soft skills. The framework serves as a guide for understanding the different components of soft skills and their interrelationships.

The SPOCC framework consists of several key elements. Firstly, it identifies and defines a range of essential soft skills that are relevant in different contexts, such as the workplace, education, and personal relationships. These skills include effective communication, emotional intelligence, adaptability, creativity, critical thinking, and more. Secondly, the framework outlines specific behaviours and attributes associated with each soft skill, providing individuals with concrete examples and guidelines for developing and demonstrating these skills. This helps individuals understand how they can apply the soft skills in practical situations. Thirdly, the SPOCC framework offers assessment tools and techniques to evaluate an individual's existing soft skills. This enables individuals to identify their strengths and areas for improvement, which can inform their personal and professional

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<sup>135</sup> Source: Možnosti zavádění osobních vzdělávacích kont: Přehledová studie. NVF for Confederation of Industry and Trade of the Czech Republic, 2018.

<sup>136</sup> [https://softskills4.eu/wp-content/uploads/2019/05/SPOCC\\_Framework\\_Softskills4EU.pdf](https://softskills4.eu/wp-content/uploads/2019/05/SPOCC_Framework_Softskills4EU.pdf)

development plans. Lastly, the framework provides resources, strategies, and activities for individuals to enhance their soft skills. These may include workshops, training programmes, self-reflection exercises, and real-world application opportunities. The goal is to empower individuals to continuously develop and refine their soft skills throughout their lives.

Overall, the SPOCC project aims to create a robust framework that promotes the importance of soft skills and equips individuals with the tools and knowledge to enhance their personal and career development. We saw synergies between our Erasmus+ project and the SPOCC Project; however, the platform<sup>137</sup> SPOCC colleagues' recommendations did not work for us, discussions are still going on.

### 5.2.2. The TRANSVAL Project

The TRANSVAL project is a research initiative focused on the development and implementation of transformative value frameworks. It aims to explore how value creation and evaluation can be redefined in the context of emerging technologies, societal changes, and environmental considerations.

The project recognizes that traditional approaches to assessing value may not adequately capture the full range of impacts and benefits associated with complex systems and innovations. Therefore, TRANSVAL seeks to develop new frameworks that take into account broader perspectives, including social, economic, environmental, and ethical dimensions.

The TRANSVAL project involves multidisciplinary collaboration, bringing together researchers, experts, and stakeholders from various fields such as economics, sociology, philosophy, and technology. The goal is to foster a holistic understanding of value and develop innovative methodologies for value assessment and decision-making.

The project addresses practical challenges related to value assessment by developing tools and models that can be applied to different domains and sectors. These tools may include metrics, indicators, and evaluation methodologies that help stakeholders assess and compare the transformative potential and sustainability of different options.

Additionally, the TRANSVAL project aims to foster dialogue and engagement among stakeholders, including policymakers, industry leaders, and civil society organisations. By involving diverse perspectives, the project seeks to ensure that the developed frameworks and methodologies are inclusive, transparent, and align with societal values.

Ultimately, the TRANSVAL project seeks to contribute to a more comprehensive and balanced approach to value assessment and decision-making. By integrating diverse dimensions of value and considering long-term sustainability, the project aims to support the development and adoption of transformative innovations that align with societal needs and aspirations.

Since we see synergies between the TRANSVAL and Erasmus+ Project, we presented information on our project to colleagues working on the implementation of TRANSVAL and discussions will continue on how to cooperate.

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<sup>137</sup> <https://academy-softskills4.eu/>

### 5.2.3. Data Space for Skills

The Data Space for Skills (DS4Skills) is a 1-year project aiming to prepare the ground for the development of an open and trusted European Data Space for Skills that supports sharing and accessing skills data. It is funded by the European Commission under the Digital Europe Programme and involves 14 ambitious partners from the industry, education and data ecosystem sectors.

Coordinated by DIGITALEUROPE, the DS4Skills consortium brings together 10 full Partners and 4 Associated Partners with solid experience in data ecosystem and community building, a wide network of stakeholders from diverse backgrounds, including researchers, training providers, companies as well as associations representing industry and data ecosystems.

The Data Space for Skills (DS4Skills) Project<sup>138</sup> aims at developing a methodology for categorisation and assessment of existing initiatives in skills and educational data. This lays the first foundation for shaping the future data space for skills and education. Through an online survey, 108 initiatives were collected and analysed so far.

Accordingly, a methodology is specified to categorise and assess the existing data sharing initiatives in the skills and educational domain. It supports the overview of the current fragmented landscape of existing platforms, services, apps, data spaces, and other initiatives. Also, it provides a baseline to identify the most promising initiatives for further interviews and analysis.

The categorisation of initiatives follows the method of qualitative classification of data. A set of relevant parameters is established with clear definitions to classify and assess different kinds of initiatives. For example, how mature the initiative is, what type of stakeholders it represents, what level of interoperability is achieved, what needs it addresses, etc. In total, the methodology consists of 19 parameters.

A subset of these parameters is used to classify initiatives as in or out of scope for DS4Skills, as follows:

- Type of data: DS4Skills looks for initiatives that are skills data or educational data specific – generic data initiatives are considered out of scope.
- Actuality: DS4Skills looks for initiatives that are active – initiatives with no visible activity in the past 2 years are considered out of scope.
- Maturity: DS4Skills looks for initiatives that are well documented – initiatives with no or very limited documentation are considered out of scope.
- Geographical scope: DS4Skills looks for initiatives with a broader geographical scope – very regional initiatives are considered out of scope.

Of specific interest of DS4Skills, and therefore always considered in scope following the methodology, are initiatives that already have developed a data space, a data ecosystem or data standards on skills or educational data.

### 5.3. National good practices in adult learning

Several valuable suggestions of good national LLL practices were obtained from the pool of experts interviewed in the framework of the empirical research (see Chapter 6). As countries with a good adult education system **Finland, Norway, Sweden, Denmark and the Netherlands** were mentioned.

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<sup>138</sup> <https://www.skillsdataspace.eu/library/methodology-for-categorisation-and-assessment-of-existing-initiatives-in-skills-and-educational-data/>

According to a respondent, it is because big money flows to municipalities that organise education. As a result, everyone has an opportunity to choose anything almost for free. In **Ireland** and **UK** there is community-based education through which people get motivation from each other. This is supposed to be more learning than conventional education.

In **Slovenia** there is a LLL (lifelong learning) centre in every city financed by the state. In **Estonia** there are adult grammar schools in every city. Also there are communities in small towns, something that, according to the respondent, plays a great positive role in supporting lifelong learning. Also there are information campaigns in those countries for adult learning so everyone knows about it, as a result there is a big increase in participation.

All the above-mentioned states claim that their approach is data-based. However, according to the respondent, they (probably) mean that they just calculated societal benefits (what is the benefit to educate a person and what would be a loss if a person ends up unemployed).

Another respondent adds a good practice of a nationwide network of VET providers under the umbrella of an association of adult education institutions in **Austria** or **Sweden**. Those provide VET for the state which publishes an annual catalogue of courses offered to adults.

**Sweden**, also, is mentioned as a good example of using Individual Learning Accounts. According to a respondent a person in Sweden has, for example, 700 EUR for work-related training.

In **Slovakia**, there is currently a "Don't lose your job, get educated" project, which allows adults, including employees, to receive a relatively high financial subsidy for the education of their choice. Furthermore, in **Slovakia**, the civic association Aj Ty v IT is active in the field of ICT skills development. It focuses on girls and women and supports them in developing a career in IT.

In **Germany** there are examples of mothers with children coming to the employment office and being taught how to code (programming).

Micro-credentials might be very interesting for **Ukraine**. Even in the context of war, Ukraine was the first non-EU Member state country to adopt or to try to embed the micro-credentials into its system.

### 5.3.1. National projects and initiatives

**Project BibEr (Austria)** - Monitoring of career paths in relation to education (Bildungsbezogenes Erwerbskarrieren monitoring). The Federal Ministry of Labour and Social Affairs, together with the Labour Office and the Statistical Office, evaluate the working careers of all people living in Austria after leaving formal education. Personal characteristics of individuals include education (type of school, field of study), age, sex, residence, employment history, current labour market status (employed, registered unemployed, in education, other) 1, 3, 6, 12, 18 and 24 months after the date of graduation, job characteristics, economic sector, time to first job, income from employment. The data are published on the government portal Open Data Österreich<sup>139</sup>.

**Standing Committee for New Skills (Austria)** - in cooperation with social partners, the public employment service body Arbeitsmarktservice Österreich (AMS) has set up the "**AMS Standing Committee for New Skills**" to support companies, employees and job seekers in adapting to new trends in the world of work. In 2019, the AMS launched the New Digital Skills initiative. The aim was to

<sup>139</sup> [https://www.data.gv.at/katalog/dataset/stat\\_biber-monitoring-2017-bildungsabschlusse-nach-jahr-abgeschlossener-ausbildung-geschlecht-u](https://www.data.gv.at/katalog/dataset/stat_biber-monitoring-2017-bildungsabschlusse-nach-jahr-abgeschlossener-ausbildung-geschlecht-u)

identify the new demands placed on employees and job seekers against the backdrop of the increasing digitalisation of the world of work and thus support the updating of initial and continuing education programmes. Information on the results of the workshops is available online<sup>140</sup>, as well as the resulting report<sup>141</sup> and the revisions in the occupational catalogues in the AMS online information system in terms of the required digital competencies are available online.

**All about quality duals (Austria)** - the IBW (Institut für Bildungsforschung der Wirtschaft) specialised portal is a great example of a one-stop-shop service for all those interested in duals, including foreigners, and can be considered a prime example of duals support.

**The Qualification Vocational Courses Portal (Poland)** – allows one to search the range of qualification vocational courses<sup>142</sup>. The portal provides basic information about the course, answers to frequently asked questions and graduate evaluations.

**ISTP database of job vacancies (Slovakia)** - contains an offer of training courses, where the interested person can find a course free of charge. In addition to offering the candidate a job position, a functional model should then recommend suitable qualification pathways that should lead to that position, which this system does not allow. Also, as another respondent says, during interviews, employers focused on this profile of an applicant and they found it useful. The counsellor helps diagnose and identify the strengths of a client. But the algorithm for matching education and job offers did not work well. You can use it but very cautiously. Maybe now with AI it would be different.

**The Education.sk portal (Slovakia)** offers a wide range of course providers and their educational offerings but lacks quality assurance of these offerings. It is just a functional business model in which the educational courses are displayed to the interested party in a sequence that depends on the amount of the fee paid by the company in question.

**ISĎV database (Slovakia)** - contains only accredited courses and it is not used to search for offers.

So-called **Centres of Vocational Excellence (CoVE, Slovakia)** could play an important role in education. They ensure cooperation with universities, organise i-VET (initial vocational education and training) and c-VET (continuous vocational education and training for adults), and cooperation with employment offices. The training of a particular occupational group (e.g. painters) could be organised centrally. At present, this is only done through guilds, unions, and professional organisations. Individual Learning Accounts could also operate within such centres.

**POVEZ (Czechia)** – the programme of subsidies for companies to train their employees. It is based on projects and calls, EU funded). The advantage of this programme is easy access and relatively long-term duration (companies are already familiar with it and have some good experience).

Nová šichta (Czechia) - a programme<sup>143</sup> where miners from closed mines were taken to the educational path for programmers (courses at the level of HE). Most of them dropped out, but some remained and now they have highly-paid senior ICT jobs.

<sup>140</sup> The results of the individual workshops are available at <https://newdigitalskills.at/>

<sup>141</sup> Bröckl A., Bliem .A. (2020) New Digital Skills. Eine Projektinitiative des AMS. Available at <https://www.ams-forschungsnetzwerk.at/deutsch/publikationen/BibShow.asp?id=13084&sid=804748524&look=14&jahr=2020&woher=1>

<sup>142</sup> <https://kkz.edu.pl/oferta>

<sup>143</sup> Nová šichta: <https://www.novasichta.cz/cs>



So-called **Centres of Vocational Excellence (CoVE)** could play an important role in education.

### 5.3.2. Private solutions

**Scormium (Czechia):** Learning Management System platform which integrates several applications in one. The company is planning to offer software for employee training. Also it should be available for a company to create courses within it.

**LearnerOn (Czechia):** Learning platform.

**Eastern Automotive Alliance (Poland):** A cluster bringing together automotive companies from the Podkarpacie Region consisting of several companies. These companies in cooperation with universities, VET schools and regional authorities, are engaged in educational policies at different levels, including policies to develop the competencies of adults.

**Learning at Orange (Slovakia):** To launch an educational social network to share experiences ambassadors, and internal influencers were invited to start creating content. For this approach to be successful, the company has to take care of it, people have to get used to it and then use it.

**Martinus or Slido (Slovakia):** Companies with a good culture of education. They try to focus on employee development, and managers talk to people about what they want to do. If this is in line with the potential activity of the company, they will support it. For example, they had a person who wanted to learn to take pictures. They paid for the course. After finishing the course, he moved to another team where he used his skills. And successful and satisfied employees spread this internally, thereby promoting corporate culture. Talent management is a top-down approach. This is more about the interests of an employee, what he or she would want and where to move.

### 5.3.3. Notable international examples of micro-credentials

Micro-credentials have been becoming increasingly popular in the last decade. Currently, numerous initiatives aim to use micro-credentials for different goals across countries and sectors. The notable international solutions described here will provide examples of different types of initiatives: public, private as well as professional, higher education or lifelong learning oriented.

Because of the number and diversity of the initiatives the identified solutions will be described in the following paragraphs without an attempt to provide a classification. Instead, the name and keywords will be used to help readers navigate the list.

#### **EU: European Approach to micro-credentials. Public policy.**

On 16 June 2022, the Council of the European Union (EU) adopted a Recommendation on a European approach to micro-credentials for lifelong learning and employability. The Recommendation seeks to support the development, implementation and recognition of micro-credentials across institutions, businesses, sectors and borders. Micro-credentials are a key priority in the new Skills Agenda for Europe.

The relatively recent Recommendation signifies that projects and initiatives related to micro-credentials in national and international initiatives will be supported. The EU policy documents indicate the relevance of relation with funding schemes and supporting mechanisms for adult and life-long learners (especially individual learning accounts).

#### **Ireland: National Institute for Digital Learning and the micro-credential observatory**

The first relevant example in Ireland is the [Research Observatory on Micro-Credentials](#). It is an initiative of the National Institute for Digital Learning (at Dublin City University) realised in partnership with the European Consortium of Innovative Universities. This initiative aims to provide a curated and regularly updated collection of major reports, policy initiatives and research-related publications on the growth of micro-credentials in higher education and lifelong learning more generally.

In 2021 the NIDL launched a facilitated MOOC through the FutureLearn platform ([Higher Education 4.0: Certifying Your Future](#)) to support and explore the growth of micro-credentials.

Micro-credentials in Ireland receive government support, eg. 12 million EUR via the Human Capital Initiative to develop a national micro-credential system for universities (2020).

#### **Australia, The National Microcredentials Framework**

The Australian Department of Education has undertaken consultation with the wider tertiary sector to develop the National Microcredentials Framework. The framework's goal is to provide greater clarity and understanding within the tertiary education sector and amongst learners as to the value and recognition of micro-credentials.

The framework is seen as a tool to encourage transparency, consistency and objectivity in the sector around credit recognition arrangements and the portability of micro-credentials. The National Framework is available online ([here](#)).

#### **New Zealand, Register of Micro-credentials.**

The New Zealand Qualifications Authority (NZQA) has been conducting pilots of micro-credentials and the possibility to align micro-credentials with their Qualification Framework. Micro-credentials are part of New Zealand's regulated education and training system. In this way, an important step for transparency of micro-credentials has been made, since they are registered and available to download and browse online in the [Register of NZQA-approved Micro-credentials](#).

Since 2019 public funding for HEI's micro-credentials initiatives is available.

#### **Canada, official credential wallet for post-secondary learners and graduates.**

In 2020 the Association of the Registrars of the Universities and Colleges of Canada (ARUCC) announced that it will create a national credentials network in partnership with Digitary (an Ireland-based company). The initiative named MyCreds™ is an online platform and national credential wallet for post-secondary learners.

The Canadian platform is putting much stress on assuring interoperability and trust-building. MyCreds™ provides access to data, and allows making requests and sending transcripts, graduation awards, credentials, badges and other academic documents to learners, employers, government offices and others. The platform is recognized as the official platform for document and credential verification.

#### **Private initiatives of transnational corporations. Business, private.**

IBM offers badges through their own micro-credentials IT solutions (SkillsBuild). The company provides development opportunities to their staff through their partnership with Coursera. Some of their courses and badges are available publicly. IBM has established a partnership with North Western University so that IBM badges can be used towards professional master's degree programs at the university. Additionally, the company is active as a partner to public institutions in supporting digitalization and micro-credential development in various countries.



In 2018, Google launched an Online IT support certificate through Coursera and created a consortium of more than 20 employers interested in hiring completers. More recently, Google has launched its Career Certificates designed to develop job-ready skills without people needing to attend a college or university. Currently, many Google credentials are widely recognised in specific sectors using Google tools, most notably in the digital marketing sector.

In 2019 Amazon decided to retrain 100,000 of its employees outside the traditional education system using its credential programs. As of October 2022 the AWS (Amazon Web Services) learning platform has trained more than 13 million people with free cloud skills training (according to the AWS webpage). Specific learning programmes for various learners groups, roles or topics can be browsed on the [AWS webpage](#). The badges are hosted by a third-party platform, Acclaim by Credly.

Other technological companies, such as Siemens, Microsoft, CISCO also use micro-credentials to promote their technology and develop potential workforce as well as for the social good.

### Global MOOC's platforms. Public-private, open education.

Since 2011, when the first MOOC's have been launched at Stanford University, the popularity of Massive Open Online Courses has grown massively and remained popular, becoming a relevant source of credentials worldwide.

A [Class Central report](#) indicates that since then more than 1,200 universities around the world have launched free online courses. In addition to the larger global MOOC platforms (Coursera, edX, FutureLearn), many national governments around the world have launched their own country-specific MOOC platforms.

The courses and credentials offered via MOOC's differ in duration and cost. The table below presents a comparison by types:

1. Table: A comparison of MOOC-based micro-credentials by type

Microcredential Type	Price	Months	Lowest Minimum Effort /Week	Highest Maximum Effort Per Week
Coursera Specialization	\$27- \$636	1-15	1 hour	40 hours
Coursera MasterTrack	\$2,000 – \$3,474	4-6	4 hours	15 hours
Coursera Professional Certificate	\$406 – \$5,980	4-8	8 hours	10 hours
edX XSeries	\$90 – \$594	2-10	1 hour	10 hours
edX MicroMasters	\$536 – \$1,500	3-15	2 hours	20 hours
edX Professional Certificate	\$68 – \$2,340	1-15	1 hour	13 hours
FutureLearn Program	\$147 – \$1,685	2-12	2 hours	6 hours
FutureLearn Graduate Certificate	\$6,406 – \$11,613	6-12	Not given	Not given
FutureLearn Graduate Diploma	\$15,320 – \$19,689	12	Not given	Not given
Kadenze Program	\$300 – \$900	2-7	6 hours	12 hours
Udacity Nanodegree	\$199 – \$2,400	1-8	5 hours	15 hours

Source: Brown, M., Mhichil, M. N. G., Beirne, E., & Mac Lochlainn, C. (2021). The Global Micro-Credential Landscape: Charting a New Credential Ecology for Lifelong Learning. *Journal of Learning for Development*, 8(2), 228-254.

### Europe, European Learning Model. Data interoperability.

The European Learning Model is a semantic standard used to describe metadata about learning. It is openly licensed and intended to be used by any stakeholder, in any education, training and employment context, that needs to describe learning data such as:

- qualifications and learning opportunities;
- qualifications standards such as core vocational profiles;
- credentials awarded to individuals describing their learning activities, achievements, entitlements and/or associated assessments;
- accreditation and licensing of courses, programmes and institutions;
- recognition of qualifications and credentials;
- person identity information and student membership/enrolment in educational institutions.

The recently released third version of the ELM links various standards used for education: ELMO/EMREX (HE data transfer system used for student mobilities), Qualifications Metadata Scheme (QMS), Learning Object Metadata Standard, Schema.org Courses, PLOTEUS learning opportunities data model, Open Badges, ISO / CEN Standards.

The ELM is available in 29 languages of the European Education Area and candidate country languages. The model can be used in various applications, for example, to develop skills assessment tools, provide suggestions for learning pathways, find job recommendations and other kinds of automated guidance systems.

The ELM is made up of relations between concepts which altogether create an ontology. This means that there is a controlled approach to categories used to structure data, which allows for example to identify if “learning outcomes” used in the context of a course are the same concept as “learning outcomes” used in the context of a qualification. This allows the creation of knowledge graphs to explain relationships between data, which can be used for many purposes.

The ELM is available on GitHub ([here](#)) and is in accordance with the [W3C Verifiable Credentials Data Model](#).

### **United States, Credentials engine. Credentials Transparency Description Language. Credential Registry, Credential Finder.**

Credential Engine is a non-profit on a mission to map the credential landscape with consistent information and fuel the creation of resources that empower individuals to find the best pathways. Credential Engine provides web-based services: a centralised Credential Registry, the Credential Transparency Description Language (CTDL) and a platform to support customised applications to search and retrieve information about credentials (Credential Finder).

Credential Engine grew out of the Credential Transparency Initiative (CTI), which began in 2013. CTI’s mission was to research and initiate the development of a centralised registry of credential information, a common credentialing language, and a credential search engine. This effort was led by the George Washington University’s Institute of Public Policy (GWIPP), Workcred – an affiliate of the American National Standards Institute, and Southern Illinois University (SIU) Carbondale’s Center for Workforce Development, with support from the Lumina Foundation. Credential Engine was formally founded in December 2016 to operationalize the work of CTI through the support of Lumina Foundation and JPMorganChase&Co.

The Credential Transparency Description Language (CTDL) – is a group of interconnected standards for making descriptions of credentials and other resources available as data for search and discovery and cross-system interoperability. CTDL can be seen as an ontology of terms related to micro-credentials (high-level ontology linked with controlled vocabularies).

The Credential Registry is a cloud-based data store for linked open data resources published using CTDL JSON-LD. The Credential Registry holds detailed information on all types of credentials and skills. Users can explore competencies, learning and employment outcomes, up-to-date market values, and career pathways and reference data on credential attainment and quality assurance at schools, professional associations, certification organisations, the military, and more. This data is a dependable and powerful source for systems, web and mobile applications, and other tools. The data is available via API.

The power of the CTDL comes from every term having semantic meaning and from using a model based on specifications for the semantic web. This means that the CTDL is designed to include terms for linking data. The CTDL linked data structure enables telling complete stories to answer questions such as how much a credential costs, how long to earn it, requirements to enrol, courses that are required, transfer value, preparation for other credentials, jobs it prepares people for, pathway options, outcomes, and more.

The [Credential Finder](#) employs language models for search purposes. The application available online serves as a demo for providing custom products for third parties that would like to build their credential-finding applications.

## 6. Empirical Research Report

In order to better understand the functioning of adult education (AE) in V4 countries an extensive qualitative interview research was conducted. The objects of research were skill needs and approaches to soft skills, typical target groups in AE systems and motivations of learners, educators, companies and government bodies. Another aim of the interviews was to find out whether AE stakeholders use digital tools to support appropriate choices of adult education and what their attitudes towards such tools are, and whether and how they would be willing to cooperate on a tool that is being developed within the project. We also used this opportunity to establish contact with people and institutions with the potential to contribute to the project, especially in the phase of piloting project outputs.

The great advantage of qualitative interviews is that they can uncover developments/challenges, which may remain under the radar of large quantitative surveys. Qualitative approach means that no generalised conclusions can be made. Instead, we attempted to uncover some aspects of the complex landscape of adult learning (with special reference to soft skills), and learn how it is being promoted, especially in companies and to the public. This report provides an analytic summary of the most important outputs of our research, their context and the possibilities of their practical application for the purposes of our project.

### 6.1. Methodology

In April and May 2023, 42 in-depth interviews were conducted in all 4 participating countries: Hungary, Poland, Czech Republic and Slovak Republic. The target group included AE experts representing companies, providers of adult education, public/governmental institutions (mainly public employment services) and national and international institutions and independent experts in the field of AE. The interviewees included 18 company representatives, 15 representatives of public institutions including

PES, 7 representatives of educators – companies providing education for business and 4 international AE experts. Some respondents have experience or are currently active in more than one role and could thus be classified in more than one category. All of them have been assured that the information they provided would be published anonymously, with no connection made to their identity or institution. The interviews were conducted in person or in the form of an online meeting, depending on the choice and possibilities of the interviewees and interviewer teams.

To conduct the interviews, an interview guide for semi-structured interviews was prepared, based on key interview topics with an opportunity of detailed elaboration of related topics and questions. A modified version was created for international experts due to their specific role not comprising all the areas of the regular interview. (See Annex)

In line with the conceptual approach of D-ILA in V4 project (see chapter 3.4), the respondents were specifically asked not only about soft skills, but also about three more concepts that border with the soft skills and are to be considered very relevant in the context of D-ILA project: ICT skills, language skills and green skills.

To ensure quality interviewing, an online training session was organised to prepare interviewers from all participating teams. It contained information about selecting respondents, using the interview guide, conducting interviews and capturing interview information. Given the qualitative nature of the in-depth interviews, there was no requirement to ask all the questions in detail, instead the interviewers were free to explore the topics where the respondent was able to share most valuable information with respect to the interview goals, and on the other hand skip some less exploitable topics in the particular interview, taking into account also time limits of the respondent.

The memos of the interviews were taken in the form of written notes that recorded relevant responses. The memos were translated into English in order to perform a unified analysis. The information gathered was evaluated according to the key themes. In doing so, we focused on capturing both the most frequent and typical responses, but we did not omit unique but insightful responses and ones that were capturing relevant context.

At the stage of analysis, whenever relevant, the responses were categorised either according to the individual countries, or according to the stakeholders groups (companies, educators, public representatives or PES). This method provided additional insights into their different perspectives of the theme. The evaluation below summarises the result of the analysis of the research, thus it reflects the interviewees opinions and experiences, not necessarily the opinions of the project team.

## 6.2. Summary and recommendations

The participating countries share a deficit of a systemic approach to adult education. There is a rather well established sector of private training institutions everywhere (although there are notable differences between countries), but other than private (for-profit) providers are generally not dominant in the field of soft skills and this type of courses is thus not very accessible to individuals. Often there is also a lack of a system to search the full database of courses, providers and other information on adult education. There is also a lack of a system for quality assurance and labelling of courses and AE providers, as well as a lack of service and counselling points for those interested in learning.

The accessibility and barriers in AE described here reflect individual perceptions. Some of these perceptions may be based on misconceptions, nevertheless, they remain relevant causes / determinants of behaviour. It could be described also as an opinion and a set of concrete experiences

from representatives of important stakeholders in the field of AE and in diverse countries. These experiences are valid, valuable and represent the types of experience and ways of functioning of AE in the V4 countries. A more comprehensive view of the issue of adult education in Central and Eastern European countries was provided by an ETF expert, who pointed out that from their experience with these countries and also on the basis of statistics, there is a typical pattern influencing participation in adult education: usually these groups of persons participate in adult education:

- 1) persons living in cities and developed regions (urban residents),
- 2) persons with mostly traditional work contracts (employees),
- 3) higher educated persons (university graduates).

From this perspective, the non-privileged groups can be identified as people residing in smaller settlements and non-industrial areas, those with disadvantageous employment contracts and irregular working hours, and individuals with educational qualifications below the university level. These groups often face challenges in accessing and participating in AE, which necessitates special attention and support to ensure inclusivity in the educational landscape.

Acknowledging these barriers and the importance of catering to the needs of non-privileged groups is essential in promoting equal opportunities and enhancing the overall shape of the adult education sector in the V4 countries and the broader CEE region.

From the perspective of our project, organisations and individuals who currently lack services and resources can be viewed as an opportunity. Our project's outcome/tool can partially fill this gap and contribute to improving the accessibility of adult education. By addressing the needs of those who face barriers to accessing education, we can contribute to shaping a more inclusive and comprehensive adult education sector.

The situation in adult education seems to vary considerably when looking at different types of training providers:

- 1) **Employers** have the capacity to offer necessary training, but the effectiveness of identifying training needs varies. Generally, larger multinational companies that have access to shared knowledge and possibly software tools for tracking individual workers' training and development needs demonstrate better capabilities in this regard. Our tool, as a "*data-driven approach to adult learning*" would likely be of greater interest to SMEs.
- 2) **Private individuals** have diverse options for understanding their educational needs. Professionals, managers, and individuals with higher levels of education tend to have a better grasp of their training requirements and are relatively adept at finding and funding suitable training opportunities on their own. They may also seek guidance from career counsellors or recruitment agencies. This group also benefits from a wider range of training options, particularly those available in English. Also employers offer education to these groups.

However, the situation is less favourable for individuals with lower educational qualifications, limited English proficiency, or those who are unemployed, disabled, or otherwise disadvantaged. They often face financial constraints and struggle to afford educational expenses. While private educational providers are willing to offer training to this group, public employment services primarily cater to their training and counselling needs.

Especially for the latter group it would be more advantageous to use the tool with the assistance of public employment services, or to prepare very explicit and simple instructions, instructional videos and last but not least to optimise the user environment as simply as possible. For better educated and oriented users, there should be an option, for example, for enhanced data entry about themselves and their educational goals and preferences.

- 3) **The state** plays various roles in adult education. As an employer, it takes responsibility for educating its own employees. This entails complying with statutory requirements for further training, such as those applicable in the healthcare sector, as well as adhering to career regulations within civil service and ministries. In addition, the state serves as a provider of education to the general public through public employment services. These services offer guidance on pursuing adult education and assist individuals in selecting suitable educational paths. They also provide education opportunities through retraining programs and other courses. Typically, these programs are (co)financed to ensure affordability for citizens. The target audience for this type of education primarily includes unemployed individuals, individuals with lower educational attainment, various disabilities (including health-related impairments) etc.

An example from the Czech Labour Offices demonstrates that certain state service institutions could benefit from using tools to facilitate the selection of adult education options. Despite having access to an information system called "OKsystem," which contains comprehensive data about registered jobseekers, the Czech Labour Offices do not utilise any software to match individuals with suitable educational opportunities. This presents an opportunity for our project's outcomes to make a positive impact.

Positive for the development of AE is the growing awareness of the need for AE and the development of soft skills and the ability of private companies to organise the necessary training.

Respondents provided a wide scope of insights on **how companies manage decision processes related to training** selection for their employees. Employers (managers) typically have the final authority in making the final decision, although employees also have their say in it. Key issue in this regard is commitment to soft skills training at the level of the management, their awareness/experience/opinion, whether the soft skills training pays off or not (i.e. efficiency of the training). This implies an important question of measurement, which includes (a) **measurement of quality/quality assurance of the training**, and (b) **measurement of efficiency**. Efficiency of the training is specific for the company/job as even high quality training does not have to be "the right choice" for the given situation. Companies often lack instruments and processes to measure the effectiveness of training.

Respondents spontaneously commented on soft skills as such and pointed out their **specific characteristics** that need to be taken into account when applying data driven approaches:

- **Difficult categorisation and measurement of soft skills** (incl. problematic generalisation and levelling). They are in this regard much more "elusive" than the hard skills.
- **Soft skills are often mixing with personal traits and attitudes** (or even values). That implies they might not be easy to change/develop as it involves changing a personality in some cases.

- **Soft skills are more difficult to teach/learn compared to hard skills.** The teachers/lecturers must have the soft skills themselves. It was stressed that the quality of the lecturers plays a key role.

In this context, a valuable outcome is the recognition of a need to use less vague terms (such as transversal competences) and to provide extended operationalization of soft skills.

In relation to the above, two important **current challenges** were revealed which shape the way respondents think about soft skills development now and in the near future:

- (1) **Efficient soft skills training is crucial.** Though very frequent and widespread, soft skills training is often seen as not as efficient/well targeted as the hard skills training. Employers do not have adequate skills/tools to assess the soft skills needs and to tailor the training well to the individual conditions of trainees. Many needs in the field of soft skills are subtle, complex, individual and hard to pinpoint, while the employees frequently receive somewhat standardised/generalised training that might miss the actual point.
- (2) **AI development might require changing our approach to soft skills.** Although there is not yet a clear idea about how the concept/approach will be transformed, there was a strong opinion among experts that some rethinking would be necessary. Soft skills and ICT skills might blend to a large extent. It also has a lot of implications on training schemes. In the future, there will be AI-based tutorials, educational services and consulting. The AI might replace/amend some of the soft skills. Soft skills to work with the AI systems and develop them would become crucial (e.g. critical thinking, evaluation/verification of information, ability to ask the right questions), on the other hand, other skills might be not so important any more (e.g. literacy/grammar skills, basic programming).

**Soft skills in general are seen as crucial** for the current and future labour market. It was not easy for respondents to assess which of them are the most important. It was frequently stated that they are all interlinked and/or that they strongly depend on the context (e.g. on character of the job). Nevertheless, in summary of the responses, certain soft skills consistently emerged as **the most important**, they are the following:

- Teamwork and communication
- Ability to learn
- Adaptability/flexibility
- Problem solving/critical thinking

Two prominent strong trends ("hot topics") have surfaced, demonstrating a changing societal landscape that highlights new skill requirements:

- (1) **Skills related to diversity and inclusion.** There is a need for employees to have awareness and skills to communicate and work in the environment of rising cultural, language and other diversity, which is seen as an inevitable development and a condition already felt by companies in practice (esp. in terms of rising multinationality and multiculturalism). Also skills in gender issues were mentioned as important, bordering with attitudes: behaviour that is overcoming stereotypes that some work is "male" work and some is "female" work.
- (2) **Well-being and mental health** of employees is getting much more attention. The companies notice rising levels of stress related problems among their employees. Thus, the skills to manage stress and to take care of one's own well-being are seen as increasingly important. Opinions were

expressed that the well-being related training (such as e.g. yoga, leisure education etc.) should be offered not only as a benefit but as a necessity to maintain good mental health and adequate work performance.

The opinions of respondents on the importance of **ICT skills** were unanimous. ICT skills are absolutely crucial for the current labour market and will increasingly be in the future. The need for their development is universal, but there are big differences among various groups. One particular group – the manual (lower qualified) workers received varying assessments. Many opinions suggest that they need (or will need) ICT skills as the technologies are penetrating their work. Nevertheless, there is also some evidence from data suggesting that they themselves do not report the need to upskill in this area. It might imply that they are either not aware of these skill needs or that they in fact so far do not need ICT skills in their practice.

In general, among the **most important ICT skills** the respondents named the following:

- ICT/internet security
- skills related to databases and networks
- web and multimedia development incl. graphic design
- AI
- programming
- Microsoft Office: might be automatically expected for any job – might be a serious problem of employability if someone lack this skill

There was also an **emerging trend** identified pointing out that **ICT skills need to be complex, interlinked and paired with other soft skills**, especially e.g. cognitive skills – to be able to formulate assignments, to evaluate the information with critical thinking, to validate outcomes, to be able to develop and use new tools such as AI that will be a key factor of reshaping landscape of ICT skills in the future.

In the area of language skills, **English language** was reported as absolutely necessary, overshadowing the role of other foreign languages. Nevertheless, the situation in practice is more complex than that. There are many jobs, where English is advertised as a requirement, but not really needed in practice, which results in dissatisfaction of employees. Also the rising role and improving quality of automatic translators might lessen the importance of languages in the future.

More than a few times, concerns about difficult conceptualization or complicated dealing with the **green skills** training were expressed. The green skills are difficult to measure and their training is often not considered effective/viable as a separate training. The single **most important concrete green skill** that emerged from the interviews was the ability to apply **energy efficiency (or energy awareness)**.

As regards to the skill needs of different **occupational groups**, there was one unifying element: the requirement for ICT skills appropriate to the group, as digital technologies are infiltrating all types of jobs.

There were varying opinions about the soft skills training for **manual workers**. On one hand, teamwork and communication was regarded as necessary for them, on the other hand several companies expressed an opinion that manual workers do not need soft skills training, only the hard skills development. In line with that, there was a comment about on-the-job training that is typical and



regarded as sufficient for this group. Different roles of stakeholders (thus different promoted goals of AE in general) in relation to society are reflected here, as non company based respondents (notably from the public sector) stressed several times the importance of soft skills training specifically for lower-qualified people who tend to be omitted from training in companies.

For **administrative workers**, keeping up with ICT developments was seen as the most important, besides that also managerial and organisational skills, incl. wider/systemic understanding of in-company processes.

For **service workers**, social competences such as communication, assertiveness and conflict resolution skills and mental hygiene were seen as indispensable.

In case of **specialists** more sophisticated handling of ICT is expected compared to other occupational groups, and also the necessity to pair it with work with information and critical thinking. From social skills the interdisciplinary communication outside of their narrow specialisation was stressed.

For **managers** the companies provided most information of all occupational groups, which reflects the fact that this group receives soft skills training routinely and the companies have a good overview of it. They see the following skills as crucial for managers: Leadership and managerial skills, interpersonal abilities, cooperation and communication skills, creative thinking and constructive problem solving etc. Representatives of public institutions and educators added an important aspect of the necessity to develop democratic management approaches.

The majority of companies indicated that **professional training is provided more often than the soft skills training**. Most of them were businesses whose activities were closely related to various kinds of technology. The top management/head offices, middle management and sales/customer service are the departments which are most often regarded as the primary target group for soft skills training in companies. It was noted that the demand for soft skills training is cost-dependent; therefore, employers usually target only selected groups of employees. *If the ILAs were in place, employers would more likely support their employees and let them attend soft-skills training.*

**Foreign languages** and **ICT** seems to be the most common soft skills training in terms of the content. This applies for companies as well as for PES (CZ), where training for driving licences is also very frequent (CZ, PL). Besides, it is also **social skills training** in companies such as communication, teamwork, conflict management etc. Nevertheless, other soft skills training is also quite common.

Companies perform **training needs analysis**, but they are **not systemized**, rather based on **individual personal or managerial assessment**. SMEs usually do not develop their own training, nevertheless, they might join forces with universities or vocational training centres. The following approaches to training needs analysis were identified:

- Usually, there is no systematic unified in-company system of determining training needs, but individual development/training plans are created.
- Training needs are derived from the strategic objectives (or more general goals) of the enterprise.
- Companies employ various internal and external applications and tools to support their training initiatives (e.g. 180/360° feedback questionnaires, training module of SAP etc.)

- Training is closely embedded into the company practice / managers themselves train their employees or there is a specialised staff who organises training.
- Tools for skill needs prediction are not commonly used, companies rather concentrate their current or ad-hoc needs.
- Training suppliers (their offer) helps to shape the training selection.

A different role of **educators** reflected different approaches to the training courses development. The following were mentioned:

- Training companies perform market research that may vary from sophisticated to rather informal.
- Learning needs of the client (mostly the institution, but also individuals) are the primary guideline when developing their courses.
- Eligibility for public funding is an important criterion for educators.

The exact process of determining the training needs of their clients was not specified in detail by the educators. As regards PES experts, they usually rely on individual interviews with their clients and no sophisticated data-driven approaches were reported.

Bearing in mind a few insightful comments of other respondents that neither the individual people nor their employer might be able to define well their training needs (especially in the field of soft skills), a **possible threat of inefficiency** opens here. It seems that in many cases the education provider relies on the orders from the client company (“the client knows what they want”) while at the same time the company might somewhat rely on the provider expecting them to effectively address the issues of their employees (“the educator knows what they are doing”). In the end, the wrongly matched training proves to be inefficient, leading to frustration for the employer, employees, and the provider alike, which was reported by a significant number of respondents (see above). Thus, the role of **proper matching and in-depth training needs analysis is crucial** here.

**The most common barriers** identified during interviews **on the side of individual participants** could be summarised as follows:

- **Time constraints:** Lack of time is a significant barrier. Adults, especially employees, often have busy schedules and find it difficult to allocate time for training. Balancing work, family responsibilities, and personal life makes it challenging for individuals to engage in adult education. Additionally, limited staff within companies can also contribute to a lack of available time for employees to participate in education.
- **Financial constraints:** Financial limitations, both for employees and employers, can impede participation in training. Often, training programmes are the first to be cut when a company faces profitability issues.
- **Problems on the employer's side:** Factors such as the size of the company, the mind-set of management, and a lack of human resources can create barriers to training. Decision-makers may not be convinced of the value and monetary benefits of investing in soft skills training.

- **Lack of information:** Many interviewees mentioned a lack of information and awareness regarding available training opportunities and their potential benefits. Insufficient information leads to a lack of interest and motivation to participate in training programs.
- **Lack of motivation:** Various barriers relate to individuals' motivation to engage in training. Some individuals may believe they already possess sufficient knowledge and skills or have had negative experiences with ineffective training or wrong choices of training. Others may view education primarily as a social occasion and exhibit scepticism towards the benefits of soft skills training.
- **Personal and family reasons:** Difficult personal circumstances and family responsibilities can diminish individuals' motivation to pursue adult education. However, older age groups may be more motivated due to the fear of job loss and the desire to stay up-to-date.
- **Infrastructural barriers:** Transportation and housing challenges pose significant obstacles, particularly for individuals with lower skills, low social status, bad economic situation, the unemployed, and mothers. Expensive housing in urban areas and limited public transportation networks outside the cities or in geographically remote areas hinder mobility and access to training opportunities. Additionally, the absence of adequate childcare facilities can be a barrier.
- **Low qualification:** Factors that usually correlate with low qualification such as low self-confidence, lack of knowledge about labour market trends, inadequate language and IT skills, limited mobility, and physical fatigue can impede participation.
- **Lack of educational culture, public awareness:** Insufficient promotion and dissemination of information about training programs and missing social value of adult education contribute to people overlooking the potential benefits of adult education.

Addressing these barriers requires a comprehensive approach, including increased awareness, improved access to information, tailored support for disadvantaged groups, and a proactive educational culture that emphasises the importance of lifelong learning. Community support plays a vital role in addressing the needs of the endangered groups, including the provision of basic skills training, ongoing mentoring, communication, and community engagement.

The decision process of **matching learners and courses** does not have a single level. There is a hierarchy of decision steps: some factors are regarded as the most important, and others play a secondary role. In this regard, different respondents present different hierarchy of decision making factors. The role of the given stakeholder in society is reflected here. Representatives of public institutions emphasised the non-discriminatory approach to education which is seen as everybody's right or path to improve individual's participation in the society and wellbeing. The "life story" of the candidates, their personal "dreams" and their motivations play a key role in this context. On the other hand, companies more often stress the practical aspects of job performance and what is needed for its improvement and seek career steps for employees that are beneficial for the company.

Among the **measurable characteristics** of the learner, that are the most important for a good decision about the training to be recommended to them, the following are reported as the most important:

- **Job/profession/position in the company** (content of the job the candidate actually performs or needs to perform in the future) – may include also previous job history, department in the company and the level of the position (low/middle/senior)
- **Previous level of skills/competences** – level of expertise and work experience, previous courses taken, discrepancy between the initial level of skills and the requirements of the specific job position. The existing skills level is more important than the formal certificates.
- **Education attainment** – may include initial education and qualifications.

Besides that, the **other (“soft”) characteristics**, that are not easily measurable and require more sophisticated methods to assess play a key role, according to many respondents even more crucial than the demographic characteristics:

- **Individual preference** of the person (goals, ambitions, “dream job”, aspirations etc.) The profession is important, but the personal choice is decisive – e.g. if the person seeks training in line with their current position or if they want to proceed in their career pathway or change their recent job. Professional guidance and help with matching might be needed as not everybody is clearly aware of these personal inclinations.
- **Attitude towards education** (inner motivations) – either to the education in general or to the concrete course offered. Without individual commitment education will not be effective.
- **Learning prerequisites** – the potential to learn
  1. learning style
  2. "cognitive fitness" (are they used to learning or have not learned for a long time?)
  3. the ability to put the knowledge and skills learned into practice

In relation to the data model development, the results imply some **important questions/suggestions** to consider:

- **General purpose of the training** is a very important factor. From this point of view significantly different training recommendations can be reached for the same person. The questions here are e.g.: Who should benefit from the training the most – an individual/company/society? Often these interests are in line, but sometimes this is not the case (as shown e.g. on the issue of manual workers needing/not needing soft skills training). Whose criteria should prevail (an employee/an employer/the state)?
- **Is the role of the learner supposed to be more active or passive?** This concerns not only the training selection as such, but also identifying the skills needs/gaps of the person. It was commented that in some cases the candidates are not able to evaluate realistically their own level of skills (or even their future ambitions). Also the companies might struggle to define their employees’ skill needs well. There is a significant room for professional help and quality tools.
- **Can assigning training according to demographic characteristics be negatively discriminatory?** Closely related to the universal societal goals were comments highlighting the risk of omitting certain demographic groups from training when applying these criteria in the model. An example of age was illustrative: if age is considered as a criterion, is there risk that

we limit access to education for some groups that would need it? Or does it on the contrary represent a potential to help especially those who need it most?

- **Profession** seems to be the most important factor for training recommendation, but a more complex approach is needed. The time/intention aspect needs to be taken into account: is the training intended to improve an individual's performance in their current job, or to qualify them to a position one step higher in the career ladder in the same profession? Or is the goal to transfer to a different profession?
- How (if) the **key factors that do not concern learners** should be incorporated in the model? E.g. the quality/suitability of training, labour market characteristics in the given region?
- The model can evolve into an **application for capturing the learning process**: *"An attractive, simple and clear application where you could create your own mini-project to track your own progress could be helpful."*
- **Dividing learners into groups according to their needs**, not according to demographic characteristics might be advisable.
- A **targeted approach** was strongly recommended, to limit the otherwise very wide scope of AE landscape – e.g. to people who have difficulties to orient themselves. In the previous texts, we have several times approached the question of choosing an appropriate group of adults to use our tool.
- **We should consider how to adapt the model to at least some groups that are disadvantaged in adult learning**. It can include non-privileged groups such as people residing in smaller settlements and non-industrial areas, those with disadvantageous employment contracts and irregular working hours, and individuals with educational qualifications below the university level. The family life and stages of the life cycle might be taken into account, because it could strongly influence the choice of a particular form of adult education, field of study, appropriate length and form of training, day times and budget, needed babysitting. Notably worse is the situation of parents and caring persons. Suitable form and time spent learning with information about babysitting information could be helpful. At least some of this information about courses could be included into our model to make possible searches according to them. For other vulnerable groups could be foreseen also other supports, such as specialised learning methodologies for older persons, mentoring and accompaniment for the socially disadvantaged. It would be realistic for our project to consider the learning needs and capabilities of older people when describing and selecting appropriate courses (length, learning methods).
- It is very challenging to correctly **identify learning needs** and often even companies with professional HR and training departments fail to do so; private individuals have even more difficult conditions to identify their learning needs. Our model could serve for users, among others, to clarify their own learning needs by filling in basic information about their education, profession, experience or other personal interests and characteristics. However, this would be a positive side effect. In the first case, it is more a possible inspiration for a follow-up project.
- Rather problematic is the approach of state institutions, especially labour offices, whose courses are usually aimed at lower qualification levels, and which are not always up-to-date and relevant to current labour market needs. **Offering these institutions a tool to facilitate**

**the selection of training or retraining possibilities for a given person could help to somewhat expand the clientele of the labour offices to include the better educated and at the same time adjust the range of services for these people - as part of promoting lifelong learning.** At the same time, however, this would first require an increase in the amount of funding and training offered to the better-qualified citizens. In the Czech Republic, for example, this is being done by the Ministry of Labour and Social Affairs by making courses available to the entire working (and unemployed) population with significant subsidies supported by EU funding in National recovery plan (the so-called e-shop of courses at <https://www.mpsv.cz/web/cz/jsem-v-kurzu>). However, this wide range of courses is limited in time and it is not clear whether it will be sustainable in the future.

- Most of the countries surveyed suffer from a lack of basic comprehensive information and guidance tools, which hinders the faster expansion of adult entry into education. A tool that advises them on finding and selecting an appropriate education and learning pathway would be a step towards better access to education. **Linking the tool to the education offer**, with a search engine for suitable education, or at least with a valid list of links to partial DBs of AE opportunities would be beneficial. The tool would thus contribute even more to the accessibility of adult education.
- Not-fulfilled **need for counselling** emerges strongly from the survey. Especially in socially vulnerable groups, among persons with lower qualifications, the need is very high, because they are not able to understand, which education would help them or which skills would help them to get a better job. Interconnecting our model/instrument with counsellors would be of a big advantage, especially for socially and educationally disadvantaged persons, but also for the rest of the adult population.

## 7. Exploring the application possibilities of artificial intelligence

The goal of this chapter of the feasibility study is to assess the possibility of using Artificial Intelligence (AI) for the purpose of supporting digital ILAs. The information gathered in the previous chapters of the feasibility study will be used here.

### 7.1. Analysis of potential for application of AI

In this chapter, we analyse the general application possibilities of AI.

#### 7.1.1. What is AI?

AI is a general purpose technology that can be used for automation of processes, data analytics and supporting human decision-making. AI, refers to the field of computer science and technology that aims to create intelligent machines capable of simulating human cognitive functions. While there isn't a universally agreed-upon definition of AI, various sources in literature provide useful perspectives on the topic.

Definition	Source
"Artificial Intelligence is the science and engineering of making intelligent machines, especially intelligent computer programs" (Nilsson, 1998, p. 14).	Nilsson, N. J. (1998). Artificial Intelligence: A New Synthesis. Morgan Kaufmann Publishers.

"AI is the study and design of intelligent agents, where an intelligent agent is a system that perceives its environment and takes actions that maximise its chances of achieving its goals" (Russell & Norvig, 2016, p. 2).	Russell, S. J., & Norvig, P. (2016). <i>Artificial Intelligence: A Modern Approach</i> (3rd ed.). Pearson.
"Artificial Intelligence is the branch of computer science that is concerned with the automation of intelligent behaviour" (Luger, 2009, p. 2).	Luger, G. F. (2009). <i>Artificial Intelligence: Structures and Strategies for Complex Problem Solving</i> (6th ed.). Pearson.
"AI is the development of computer systems that can perform tasks that would require human intelligence if performed by a human" (Poole, Mackworth, & Goebel, 1998, p. 1).	Poole, D., Mackworth, A., & Goebel, R. (1998). <i>Computational Intelligence: A Logical Approach</i> . Oxford University Press.
"AI is the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings" (Haugeland, 1985, p. 5).	Haugeland, J. (1985). <i>Artificial Intelligence: The Very Idea</i> . MIT Press.

These definitions reflect the core concept of AI, which involves the development and utilisation of machines that possess "intelligent" behaviour, such as perception, reasoning, learning, and problem-solving capabilities, typically resembling human cognitive functions. The umbrella term 'Artificial Intelligence' may refer to various technologies, such as<sup>144</sup>:

- **Machine Learning (ML):** Machine learning is a fundamental technology in AI that enables computers to learn from data without explicit programming. It encompasses a range of algorithms and approaches.
- **Neural Networks:** Neural networks are computational models inspired by the structure and functioning of the human brain. They are widely used in deep learning and have shown remarkable success in various applications.
- **Natural Language Processing (NLP):** NLP focuses on enabling computers to understand and process human language. It involves techniques like language modelling, text classification, and sentiment analysis.
- **Reinforcement Learning:** Reinforcement learning involves training agents to make a series of decisions in an environment to maximise a reward signal. It is commonly used in applications like game playing, robotics, and optimization.
- **Knowledge Representation and Reasoning:** AI systems often employ formal representations to organise and process knowledge. These representations can include logic, ontologies, semantic networks, or probabilistic graphical models to enable reasoning and decision-making.

<sup>144</sup> Mitchell, T. M. (1997). *Machine Learning*. McGraw-Hill; Haykin, S. (1999). *Neural Networks: A Comprehensive Foundation*. Prentice Hall; Jurafsky, D., & Martin, J. H. (2020). *Speech and Language Processing* (3rd ed.). Pearson; Szeliski, R. (2010). *Computer Vision: Algorithms and Applications*. Springer; Jackson, P. (1998). *Introduction to Expert Systems* (3rd ed.). Addison-Wesley; Siciliano, B., & Khatib, O. (2008). *Springer Handbook of Robotics*. Springer.

- **Computer Vision:** Computer vision involves enabling machines to understand and interpret visual information from images or videos. It encompasses tasks like image recognition, object detection, and image segmentation.
- **Expert Systems:** Expert systems are AI systems that mimic human expertise in a specific domain. They utilise rules, heuristics, and knowledge representation to make decisions or solve problems.
- **Robotics:** Robotics combines AI with physical systems to create autonomous machines capable of interacting with the environment. AI techniques are used for perception, decision-making, and control in robots.

From the above groups of technologies or fields of AI development, the last three<sup>145</sup> seem to be irrelevant in terms of applications for Individual Learning Accounts. The remaining ones: machine learning, neural networks, NLP, reinforced learning and knowledge representation, can be used in different combinations for a wide variety of purposes that can be linked with financing adult learning, supporting learners choice of training etc.

#### 7.1.2. What is the scope of possible use of AI for ILAs?

The application of AI should address some of the challenges related to the implementation of ILAs in member states. The challenges cannot be solved by AI application itself, some of them have a political or financial character, others have no apparent solution that could be automated, yet this group of technologies can be used to provide at least partial solutions. The table below proposes a working list of challenges with comments on AI application:

Challenges in ILAs implementation	Short description	Comments on AI application
Funding and Sustainability	Adequate funding is crucial for ILAs to provide meaningful learning opportunities to individuals. Sustaining the financial support required to maintain ILAs can be challenging, especially if there are limited resources or competing priorities.	Optimisation of resource allocation is needed to better spend limited resources. AI could help in recommending relevant and high quality training. AI can also suggest optimal prioritisation of limited resources. One of the key variables influencing the cost of training is the number of participants. AI could be used for the identification of larger groups of learners with similar needs and/or interests and lead to formulating a bulk request (tender?) for tailored training for a group.

<sup>145</sup> However computer vision and expert systems could be used. Firstly, to process some types of documents, such as CV's, computer vision is often an easier solution. Because CV's come in different formats and structure, parsing may be a complicated and difficult task. Instead a text document is treated as an image, OCR (Optical Character Recognition) is used to extract content and layout analysis allows for identification of blocks of text. Secondly, although large expert systems have diminished in popularity in the '90, the expert systems are often embedded in various algorithms (e.g. matching) as well as in knowledge representation and reasoning (e.g. knowledge graphs).



Access and Equity	It is essential to address barriers such as digital literacy, and access to technology to ensure that ILAs and the training offered are accessible to learners from diverse backgrounds and socioeconomic statuses.	Collecting data on sources of limitations, e.g. related to distance on time-availability of training. Possibly AI could be used to assess training based on the prerequisites such as education attainment, level of digital skills, etc., which would help addressing the access and equity challenge.
Quality Assurance	Maintaining the quality of learning experiences funded using ILAs can be challenging. There is a need to ensure that the available learning resources, courses, and programmes financed using ILAs meet established quality standards and are relevant to learners' needs.	AI could be used to support assessment of quality assurance using machine learning. For example by: <ul style="list-style-type: none"> <li>- initial assessment of adherence of quality assurance with established standards (based on comparison of a set of practices description and the standards);</li> <li>- developing fraud detection mechanisms related to patterns of training provision, pricing or course description;</li> <li>- providing feedback for training providers and learners in the course of learning (improved training and learning quality = quality assurance)</li> </ul>
Personalization and Customization	Providing personalised and adaptive learning pathways that cater to diverse learning styles and preferences can be a complex challenge.	Tailoring learning experiences to individual learners' needs requires robust technological infrastructure, knowledge representation and sophisticated AI systems. An example of this could be gathering data which allows for identification of learning needs and learning styles and matching thereof with the content and types of training and/or other development services.
Motivation and Engagement	Maintaining learner motivation and engagement is crucial for successful ILAs. Designing learning experiences that are engaging, interactive, and aligned with learners' interests can be challenging, as learner engagement can decline over time.	Being able to recommend training or learning of adequate size and difficulty for a specific learner (important factors for sustained engagement and motivation) could be one of the fields of AI application in relation to ILAs. Another possibility is to present the learning opportunities / development services in a context that would provide additional motivation (e.g. showing possible workplace / labour market applications of a given training).

		Finally AI can be used in the learning process for optimisation of learner focus, by regulating the pace of learning, personalisation of learning content etc.
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The abovementioned uses of AI provide a broad picture of application opportunities, which leads to a conclusion that many of the challenges can be tackled by the use of AI for profiling and matching learners and training offer. This would require employing NLP (as this would mostly be based on text), as well as other AI related technology.

## 7.2. Proposed applications of AI for D-ILA V4 project

In the course of analysis, specific narrower applications of AI in the context of D-ILA V4 project have been identified. These include the following:

### 7.2.1. Profiling

#### What is profiling?

Profiling in general refers to the practice of collecting and analysing data about individuals or groups of individuals to create detailed representations of their characteristics, behaviours, preferences, and interests. This process typically involves gathering information from various sources, such as online activities, social media interactions, browsing history, purchase behaviour, demographic data.

Profiling is commonly employed by organisations, including businesses and service providers, to better understand their target audience or customer base. By analysing user profiles, companies can gain insights into consumers' needs and preferences, enabling them to tailor their products, services, and marketing strategies accordingly.

The information used for profiling can be both explicit and implicit. Explicit data is willingly provided by users themselves, such as through surveys or registration forms, while implicit data is collected through passive means, like tracking online behaviour or analysing patterns in user interactions. Noteworthy user profiling raises ethical considerations and privacy concerns.

#### Profiling in the context of ILAs

**In the case** of Individual Learning Accounts profiling can refer to individual learners as well as training content or training providers. Profiling can be seen as the transformation of a variety of natural language descriptions of objects into a more uniform and machine-readable / machine-understandable representation.

Therefore, the starting point is the identification of the object of profiling (a person, a company, a course) and the data, such as: a CV, an answer in a survey, a course description (etc.). The data can be structured (as in CV, course description) or unstructured (survey answer on training feedback), it may also contain descriptions of various granularity and/or style.

The possible types and sources of data have been discussed in previous chapters. The data needs to be collected (e.g. provided by users, fetched via an API from a database) and, in most cases, structured (which may require employing various techniques related to document upload, structuring, text lemmatization, entity recognition, entity resolution). The value of AI techniques in this context lies in the possibility to automatically or semi-automatically structure the data. For example NLP can help in

disambiguation of words, machine learning can be used for developing a mechanism of automatic identification of phrases that describe a skill, a technology, job position etc.

As a result of this process profiles of the persons, companies of other objects are created, which can further be used for providing a better recommendation, a match with another object or for improving the understanding of the processes in the company and implementation of improvements (e.g. which learners choose what, what are the deficits in the training offer, which training providers receive good feedback).

### **Profiling learners**

Profiling learners means collecting information about individuals which allows for creating a representation of their interests, previous experiences, capabilities etc., which can be used for providing recommendations of interesting learning opportunities / development services.

The following sources of information can potentially be used for profiling learners:

- Personal surveys, tests, diagnosing tools on interests and learning needs submitted by learners;
- Previous learning and work experience indicated by learner (e.g. CV upload, digital badges backpack, survey on work and educational experience or by allowing access to specific social media accounts data (e.g. LinkedIn);
- Career / Professional Development Plans submitted by learner or another person (these are often developed with the aid of professional counsellor);
- History of learner choices financed with Individual Learning Accounts mechanism;
- Personal data from public databases concerning learning achievements (if such databases exist in a given country and the user agrees to accessing and using such data by the organisation running ILAs);

The collected data on learners may require augmentation. An example of this could be an indication of specific work experience in a CV, which (for a machine) is meaningless unless there is an indication of a sector (e.g. banking, construction), tasks (e.g. bricklaying, risk assessment of clients) and skills (e.g. data analysis, teamwork organisation, budgeting) related to this position. Another example could be linking an indicated education (e.g. BA in Finance and Accounting at SGH Warsaw School of Economics) with related programme data (e.g. learning outcomes, course list).

### **Profiling training offer / development services and training providers**

The assumption of ILAs is that profiles of development services / training offers will be embedded in a database, so there would not be a need for creating a profile. Yet it is possible that some process of profiling (adding information about objects from another source and/or structuring data) will also need to be applied.

It is possible that the information gathered in an existing database will not encompass all relevant fields for some purposes such as course recommendation to learners. Examples for such data fields are:

- Sector indication;
- Feedback on the course from previous learners;

- List of persons or generalised characteristics of learners who have taken the course;
- Related interests / keywords;

It may also be the case that the data will be fetched from more than one database, with different structure, data granularity and/or style of descriptions. In this case a profile may be understood as a standardised (or at least identically structured) representation of objects from various sources.

### 7.2.2. Recommendations based on content matching

Data about learners and training offer can be matched using different mechanisms based on content matching. Because of the way that they work they are also sometimes called similarity algorithms. Matching algorithms are computational methods used to pair or match entities from different sets based on specific criteria or similarity measures. These algorithms aim to identify and establish meaningful connections or relationships between elements in the sets, often with the goal of optimising compatibility or achieving desired outcomes. These algorithms can use various measures of similarity and text representation.

Box XX. Text representation, similarity measures and vector space models

**Text representation** refers to the process of transforming textual data into numerical vectors that can be operated on and analysed using mathematical techniques. It allows us to represent text data in a format that can be utilised by various machine learning and statistical algorithms.

Similarity measures, also known as similarity metrics or distance metrics, are mathematical techniques used to quantify the similarity or dissimilarity between two objects or sets of data.

**Similarity** measures play a crucial role in various fields, including information retrieval, data mining, pattern recognition, and recommendation systems. They help assess the resemblance, proximity, or correlation between objects based on their characteristics or features.

**Vector space models** represent text as vectors in a high-dimensional space, where each dimension corresponds to a unique feature or term. The values in the vector capture the presence, frequency, or weight of the corresponding feature in the text.

The similarity matching can yield spectacular results; however, it is a very case specific task. In other words, one needs to try various combinations of text representations and similarity measures for fine-tuning the results. The basic methods are listed below.

Examples of text representation techniques are:

- **Bag-of-Words (BoW):** The Bag-of-Words representation represents text as a collection of individual words or terms, disregarding grammar and word order. It creates a vector where each dimension corresponds to a unique word in the corpus, and the value represents the frequency or presence of that word in the text. BoW is simple and effective but lacks contextual information.
- **Term Frequency-Inverse Document Frequency (TF-IDF):** TF-IDF represents text by considering the importance of words in a document relative to the entire corpus. It calculates a weight for each term based on its frequency in the document (TF) and inverse document frequency (IDF) across the corpus. TF-IDF is commonly used to downweight commonly occurring words and highlight important terms.

- **Word Embeddings:** Word embeddings represent words as dense vector representations in a continuous vector space. They capture semantic relationships and contextual information. Popular word embedding models include Word2Vec, GloVe, and FastText. Pre-trained word embeddings are often used, where words are represented by vectors learned from large corpora.
- **Sentence and Document Embeddings:** Sentence and document embeddings aim to represent entire sentences or documents as fixed-length vectors. Models like Doc2Vec, Universal Sentence Encoder, and BERT (Bidirectional Encoder Representations from Transformers) can generate embeddings that capture the meaning and context of the text.

Examples of similarity measures are:

- **Cosine Similarity:** Cosine similarity measures the angle between two vectors representing the content. It calculates the cosine of the angle (in n-dimensional space), which indicates the similarity between the vectors. It is often used for comparing text documents, where each document is represented as a vector of term frequencies or TF-IDF values.
- **Jaccard Similarity:** Jaccard similarity compares the intersection and union of sets to determine similarity. It is commonly used for comparing sets of items or binary data. In the context of content matching, Jaccard similarity can be applied to compare sets of words, tags, or features associated with the content.
- **Edit Distance:** Edit distance, also known as Levenshtein distance, measures the minimum number of edits (insertions, deletions, or substitutions) required to transform one string of characters into another. It is useful for comparing text strings and assessing their similarity based on the number of modifications needed to match.
- **Euclidean Distance:** Euclidean distance calculates the straight-line distance between two points in a multi-dimensional space. It is commonly used in feature-based matching, where content is represented as feature vectors. The lower the Euclidean distance between two vectors, the higher their similarity.
- **Longest Common Subsequence (LCS):** LCS measures the length of the longest subsequence common to two sequences. It is frequently used for comparing sequences of characters or words. In content matching, it can be applied to measure the similarity between two texts based on the longest shared sequence of words.

There are also some more complex architectures of neural networks used in deep learning for various tasks, including natural language processing, computer vision, and sequence modelling:

- **Word-Level or Character-Level Convolutional Neural Networks (CNN):** CNN-based approaches can process text at the word or character level. Word-level CNNs apply convolutional filters over word embeddings to capture local patterns, while character-level CNNs operate directly on character sequences to learn representations from character-level information.
  - **Recurrent Neural Networks (RNNs):** RNNs are designed to handle sequential data, making them suitable for NLP tasks. They process text by capturing dependencies between words in a sequence. Models like Long Short-Term Memory (LSTM) and Gated Recurrent Unit (GRU) are commonly used in NLP tasks such as sentiment analysis, machine translation, and text generation.

- Transformer Models: Transformer models, exemplified by BERT, GPT (Generative Pre-trained Transformer), and RoBERTa, have revolutionised NLP. They employ self-attention mechanisms to capture contextual relationships between words and achieve state-of-the-art performance on various tasks, including question answering, language translation, and text classification.

### Special cases of content matching

One of the approaches to matching based on content would be to develop custom representation models, for example tagsets or using a domain ontology. In this approach two sets of data are being tagged or mapped onto the ontology and matched based on the commonality of tags / objects in ontology. This approach requires a careful selection of tagsets or an ontology, which need to be suited for the domain and goal of matching. It is not uncommon that both tags and ontologies are developed manually or semi-manually.

Another special case is when profiling of users is done with intention of matching, in that case the profiles format may be developed in a way that makes content matching easier – for example by assuring common structure (or elements of structure) of profiles and/or using controlled vocabularies.

#### 7.2.3. Recommendations based on exploration and text prompt

In many cases finding an object in a sufficiently large database is difficult. Because of that mechanisms of text search, especially semantic search have been developed, another way of helping in search is providing an understandable set of categories that users can use to navigate a database.

Semantic search is an advanced search technique that aims to understand the meaning behind user queries and the content of documents, enabling more accurate and contextually relevant search results. It goes beyond simple keyword matching and takes into account the context and relationships between words and concepts. The mechanism of semantic search is similar to the content matching; however, the search phrase here is one of the objects. It would typically require a general model of language to interpret the user input. This method can also lean on ontologies and tagsets, which would in most cases be used as an additional layer.

#### 7.2.4. Recommendations based on collaborative filtering

Collaborative filtering is a technique used in recommendation systems to provide personalised recommendations by leveraging the collective knowledge and preferences of a group of users. It is based on the assumption that users who have similar preferences in the past will have similar preferences in the future.

In collaborative filtering, the system analyses the historical behaviour, interactions, or ratings of a group of users to identify patterns and make recommendations. There are two main types of collaborative filtering:

- User-based collaborative filtering: This approach identifies users who have similar tastes or preferences to a target user and recommends items that those similar users have liked or interacted with. It involves finding users with comparable item ratings or behaviour and suggesting items that the target user has not yet experienced.
- Item-based collaborative filtering: In this approach, the system looks for similarities between items based on how users have rated or interacted with them. If users have shown a

preference for one item, the system recommends similar items based on the assumption that users will continue to have similar preferences for similar items.

Both user-based and item-based collaborative filtering methods rely on constructing a similarity matrix or model that quantifies the similarity between users or items. This similarity information is then used to generate recommendations for users.

Collaborative filtering has several advantages. It does not require explicit knowledge or information about the items being recommended. It can provide personalised recommendations even for niche or less popular items. It can adapt to changing user preferences over time.

However, collaborative filtering also has some limitations. It relies heavily on the availability of user data and suffers from the cold-start problem for new users or items. It may face challenges when dealing with sparse data or when users have limited interaction history. It can result in a "bubble effect," where users are only exposed to recommendations within their existing preferences and miss out on discovering new items or diverse content. Because of these limitations collaborative filtering is not recommended for high stakes situations.

### 7.3. Limitations in AI use for Individual Learning Accounts

There are ethical and legal limitations on using AI in the context of ILAs. Especially when it comes to recommending learning opportunities, there are several issues that need to be considered:

**Privacy:** AI systems often rely on collecting and analysing large amounts of user data to make personalised recommendations. It is essential to handle this data with utmost care, ensuring that individuals' privacy is protected, and their personal information is not misused or shared without consent. Please, note, that according to some interpretations, even collecting data on job offers may be subject to GDPR regulations.

**Bias and Fairness:** AI algorithms can unintentionally perpetuate biases present in the training data, leading to unfair recommendations. For instance, if the system is trained on data that is biased against certain groups based on race, gender, or socioeconomic status, it may reinforce those biases in its recommendations. Developers must be careful in identifying and addressing biases in AI models to ensure fair and equitable recommendations. It is an agreed upon ideology in the EU, that equal opportunities for all users should be provided, regardless of their background or characteristics.

**Accountability:** When AI is used to recommend learning, it is essential to establish clear lines of accountability. Developers, educators, and administrators must take responsibility for the recommendations generated by AI systems and ensure that they align with educational goals and ethical standards. If issues arise, there should be mechanisms in place to address and rectify them promptly.

**Transparency:** Users should have a clear understanding of how AI systems make recommendations and what factors influence those recommendations. The inner workings of the AI algorithms should be transparent and explainable to the extent possible, allowing users to make informed decisions about their learning choices. Black box AI systems that provide recommendations without clear explanations can lead to distrust and hinder user autonomy.

**Human oversight:** While AI can enhance learning recommendations, it is crucial to maintain human oversight throughout the process. Educators and professionals should play an active role in reviewing, validating, and augmenting AI-generated recommendations. Human judgement and expertise are essential for ensuring the appropriateness, quality, and relevance of learning recommendations.

**Informed consent:** Users should have the ability to provide informed consent for their data to be used in AI-powered learning recommendation systems. They should also have the option to opt out or customise their preferences regarding the recommendations they receive. Transparent communication about data usage and the purpose of AI recommendations is vital to building trust with users.

These considerations have led to the Artificial Intelligence Act (AI Act), which is currently being processed in the EU. In light of this proposed legislation, using AI for the purpose of supporting high-stakes decisions (educational choices) will be subject to regulation. The category of high risk includes AI systems used in critical infrastructure, such as transportation, healthcare, and energy, as well as AI systems used in areas like law enforcement, employment, and **education and vocational training**.

High-risk AI systems are subject to specific obligations and requirements to ensure their compliance with safety, accuracy, and non-discrimination standards. This includes the use of high-quality data, transparent and accurate information to users, appropriate human oversight, and safeguards against bias and discrimination. High-risk AI systems also need to undergo a conformity assessment before they can be placed on the market or used. This assessment involves examining the AI system's compliance with the regulatory requirements, including the creation of technical documentation, risk management, and evaluation of system behaviour. Providers of high-risk AI systems are required to keep detailed technical documentation that demonstrates compliance with the AI Act. This documentation should include information on the system's functionality, its intended use, potential risks, and any mitigation measures implemented.

National competent authorities will be responsible for overseeing and enforcing the AI Act within their respective jurisdictions. They will have the power to carry out inspections, request information, and impose penalties for non-compliance with the regulations.

**Box. XX. The AI Act.**

The Artificial Intelligence Act proposed by the European Commission aims to establish a comprehensive regulatory framework for AI systems within the European Union. The key aspects and provisions of the proposed regulation include:

- **Scope and Risk Categories:** The regulation applies to AI systems used in various sectors and establishes risk categories based on potential harm, ranging from unacceptable to minimal risk.
- **Prohibited Practices:** The AI Act prohibits certain practices that are considered high-risk and pose significant threats to individuals' rights, safety, or well-being. These include AI systems that manipulate behaviour, use subliminal techniques, exploit vulnerabilities, or discriminate on prohibited grounds.
- **Transparency and Traceability:** The regulation emphasises the importance of transparency, requiring AI systems to provide clear information about their capabilities and limitations. Systems that interact with users and generate or manipulate content must disclose their AI nature.



- Data and Dataset Requirements: High-risk AI systems must adhere to data and dataset requirements, including quality, relevance, and diversity. They should not rely on biased or discriminatory data, and appropriate measures should be taken to ensure data protection and privacy.
- Human Oversight and Governance: The AI Act promotes human oversight and control over high-risk AI systems. It mandates that certain systems have human-in-the-loop mechanisms, allowing individuals to make informed decisions and intervene when necessary.
- Conformity Assessment and Certification: High-risk AI systems must undergo a conformity assessment procedure, ensuring compliance with the regulatory requirements. Certification mechanisms will be established for certain AI applications.
- Market Surveillance and Supervision: The regulation outlines the roles and responsibilities of market surveillance authorities and competent national supervisory authorities to enforce compliance with the AI Act.

The Artificial Intelligence Act is subject to the legislative process, and its content may change as it undergoes scrutiny, amendments, and potential adoption by the European Parliament and the Council of the European Union.

#### 7.4. Cost-benefit analysis of ILA and the analysis of the benefits of the ILA data model

In the context of preparing a feasibility study, a cost-benefit analysis is a systematic process that evaluates the costs and benefits associated with a particular project, investment, or decision. It is done to determine whether the potential benefits outweigh the costs, thereby helping stakeholders make informed choices about the feasibility and viability of a proposed endeavour. The analysis is expressed in quantifiable measures (i.e. in monetary cost).

In this case, the goal of the analysis is to provide an early assessment as to implementing a data model and AI-based tools for optimising ILA providing an attractive ratio of benefits to costs.

**Detailed analysis can be found in the background study.**

##### 7.4.1. General remarks on the cost-benefit of the project outputs

In economic terms the project outputs can be seen as a net benefit for countries – providing a set of inputs which offer know-how, lower entry barriers and decrease the costs of developing certain solutions. Because the costs of the project implementation are external to member states administration (or other users of the data model, e.g. partner countries, private companies), the only possible assessment of the cost-benefit analysis would be that there are only benefits.

Without doubt, there will be future costs to implementation of the data model, yet these will be diminished by the benefits offered by the use of D-ILA V4 project outputs. This line of thought can be exemplified as follows.

**Box XX.** Example of economic reasoning on the cost-benefit analysis of using the data model developed in the framework of the D-ILA V4 project.

Project output: “data model” can be used by a member state for developing own data model with the cost of “application of data model to national context (policy goals, data ecosystem etc.)” and the relative benefit of “not having to develop one’s data model from scratch” These costs and benefits could be assessed in financial terms (e.g. number of working days of various professionals) or, less tangible, but also quantifiable terms (e.g. increasing the effectiveness of developed ILA national solution in terms of productivity or employability of people participating in the training).

Source: own work.

**Box XX.** Example of economic reasoning on the cost-benefit analysis of using the test database developed in the framework of the D-ILA V4 project.

Project output: “test database” can be used by data scientists to test various technology stacks and develop own test data (populated with original national language texts)

with the cost of “conducting test of various modelling approaches (for example some of the options listed in chapter 7.1.)” and relative benefit of “being able to limit the scope of tests needed” (because of the know-how about data types and exemplary results from D-ILA project)

with the cost of “gathering own data from national sources” and the benefit “being able to use a predefined data model” and “being able to better / faster identify adequate data in national context”.

Source: own work.

Assessing the costs and benefits of specific design characteristics of a data model would require gathering some practical experience and, hence, is still out of reach at the stage of preparing this feasibility study. The hereto unclear aspects can be tracked down to specific variants of the: structure of data model, policy goals and technological stack that will direct the data scientists work needed for an effective AI-supported Individual Learning Accounts.

The goal of this chapter is to gain a clearer understanding of the potential risks, rewards, and trade-offs associated with implementing / using the mode by stakeholders / model users. This analysis helps inform decision-making, facilitates resource allocation, and minimises the likelihood of building an ILA solution that is unlikely to deliver a favourable result.

#### 7.4.2. Discussion on the subject of cost-benefit analysis

The work on this chapter of the feasibility study started with a fundamental question of what should be the subject of the cost-benefit analysis. The first option being, the analysis of the development of the data model in the framework of the project: how much will it cost and what kind of benefits it will provide? This approach has been discarded since most costs and benefits of the data model will take place starting with the implementation of the model in a national context. The conclusion therefore is that one has to assert a future state in which there is a data model being modified for the specific needs and goals in a given country and used in concert with technologies associated with artificial intelligence (such as discussed in chapter 7.1). The assumption is that functionality of the data model and data-based tools is achieved simultaneously with implementation of the ILA scheme in general. For this purpose the baseline scenario is an existing ILA system without implementation of the data model and the AI based tools.

Without doubt any ILA requires a data model to function, however developing a data model which is “AI-ready” seems to be just a specific case. Just implementing a data model (without AI application) is therefore not subject to this analysis. On one hand, there is the cost-benefit analysis of the ILA done by the European Commission (EC) during preparation of the Recommendation on ILA, that already incorporates the aspect of ‘effective governance’ and ‘guidance’ as the necessary elements for ILA effective implementation. These elements, which can be broadly understood as creating the enabling framework, may be realised with the use of available data and in-person guidance, which would be seen as a complementary and (to some extent) alternative solution to what the D-ILA project proposes. On the other hand, the cost-benefit analysis provided by EC is rooted in factual data on functioning of systems based on training entitlements – none of which has AI services implemented. It seems that it

is more appropriate to assume that the results of the EC cost-benefit analysis should be updated / modified to provide at least an indication on the range of costs and benefits related to developing a system of digital individual learning accounts.

There are numerous possible implementations of the data model and various technologies may be applied for different goals. To tackle this, an assumption is made that a reference AI application will be selected and used for approximating the possible costs and benefits. The application of AI chosen is identifying patterns of training needs (profiling) and matching it with the training offer (e.g. via recommendations/ suggestions or more effective training offer search).

The choice of profiling and data analysis as reference application is based on the findings of the feasibility study concerning possible applications of AI for ILA (Chapter 7.1.). It is also one that has been observed in various settings and is known to be feasible – such actions are currently being undertaken by private companies (e.g. learning system management platforms providers, e-learning platforms) and corresponding technologies are being tested also in the public domain (e.g. virtual learning assistants, labour market analysis using natural language processing, digitalization of qualifications registers and training databases).

To provoke thinking about how relevant the difference can be for the learning domain, it may be useful to think of the impact that data analysis and user profiling has in the domain of sales and marketing (see Box XX below).

**Box. XX.** What profiling and data analytics does for sales and marketing?

Digital marketing has become a very successful field in business, because of the availability of information about clients and opportunities of creating useful knowledge based on this data. Some examples providing a general overview of the impact for sales and marketing are provided below:

- **Segmenting customers and creating targeted marketing campaigns.** Tailoring the communication and product offer for specific customer segments, increases the likelihood of sales.
- Insights into customer needs and preferences enable **developing new and upgraded products or services.** Companies can identify gaps in the market and create products that cater to specific customer segments and needs, resulting in higher sales potential.
- Delivering personalised experiences to customers. Analysing individual preferences and purchase history allows **customised product recommendations, personalised offers, and targeted promotions**, which increases the chances of conversion and repeat purchases.
- Understanding customer behaviour and preferences allows companies to **build stronger relationships with customers and improve retention.** Patterns such as purchase frequency, buying cycles as well as identified customer preferences can be a basis for targeted retention strategies (e.g. personalised loyalty programs or exclusive offers).
- User profiling helps identify opportunities for **cross-selling and upselling.** Companies can **recommend complementary products or alternatives**, increasing the average order value and driving additional sales.

Source: Own work

The dimensions of cost-benefit analysis which seem to be especially relevant are: participation in learning, productivity increase, employability, administrative costs.

The chapter first summarises the outcomes of cost-benefit analysis of the baseline scenario and then moves-on to indication of the impact of implementing the data model on the costs and benefits.

### 7.4.3. General remarks on the cost-benefit of the project outputs

#### **Reference publications on the cost-benefit analysis of individual training entitlements**

The cost-benefit analysis of spending on individual training entitlements: how much, on whom (which groups) and with what possible effectiveness can one allocate funds to achieve certain benefits.

This discussion is key for policy makers and has been already a subject to a quite wide analysis in policy and economic papers / reports. The table below shows selected publications on the topic, which to some extent have been consumed in the impact assessment report accompanying the EU proposal for recommendation on ILA.

Although analysis of the costs and benefits of the ILA schemes is not the essence of the D-ILA project, nor the main subject of the feasibility study of the data model, it is nonetheless a necessary context. The specific variants of the mode of delivery and allocation of funds for individual training entitlements will have impact on the costs and benefits related to implementing the data model and applying AI models in ILA systems.

Because of project limitations, the literature on the cost-benefit analysis is not subject to more detailed analysis. It remains an artefact of preparatory work, that is not deleted because it may be found useful to readers of this chapter, who would like to look beyond the summarised results of the cost-benefit analysis in the Commission Staff Document accompanying the EU Recommendation on ILA.

#### 7.4.4. Summary

The chapter focuses on the costs and benefits of using artificial intelligence (AI) to support digital Individual Learning Accounts (ILA). The analysis is based on a comparison with a baseline scenario in which no AI is applied.

In the analysis a conservative stance has been taken. This means a bias towards underestimation of benefits and overestimation of costs.

The cost-benefit analysis shows that the ratio of costs and benefits of implementing a data model for ILA with AI applications is positive. Implementing the data model is an additional boost to the effectiveness of the trainings, since it is a solution aimed at improving the match between learners interests and needs and the training offer.

The costs of implementing AI services are estimated to be relatively low, to the extent that even if no additional benefits would be achieved, the benefits of the ILA described in the baseline scenario describing would suffice to achieve a positive cost-benefits ratio in the second year.

In the analysed D-ILA implementation scenario, an increase in the productivity and employability of the learners has been assumed. The slight premium over the baseline scenario has been assumed. This reflects the fact that developing a mechanism that would provide significant increases would require time and possibly some historical data, yet even early developments could be seen as an implementation of mass training choice advisory (e.g. recommender system, virtual assistant). The second reason for a conservative estimation of benefits is that the reference application of the AI would not solve some of the fundamental issues linked for example to learners motivation or quality of training (although it is not impossible to derive such benefits in general – e.g. fraud detection).

## 8. Experiences and recommendations

In the summary chapter of the feasibility study, the most important lessons learnt regarding the development of the ILA data model are presented and target-group-specific recommendations are provided regarding the applicability of the ILA data model.

### 8.1. Findings concerning the development of the ILA data model

The chapter summarises the main conclusions of the feasibility study. In all cases, a concise formulation of the conclusion appears in the title of the section and they are explained and elaborated in the text of the section.

#### 8.1.1. The action plan and the planned scope of activities indicated in the project proposal are feasible

Based on the feasibility study and continuous professional consultations, it can be stated that the goal formulated in the application can be implemented according to the original ideas, without changes:

- Partnership experts can create a data model for the individual learning account.
- The data model can be tested with the help of artificial intelligence-based solutions.
- The process of creating a data model and its applicability conditions can be explained in the methodological guide.

The analysis of 42 interviews conducted in 4 countries within the framework of the feasibility study suggests that the resulting products can be used well in practice.

At the same time, it is important to note that the designation of the target group and the field of use plays a significantly greater role in the design of the data model than originally conceived. The universality of the data model is therefore questioned on the basis of the feasibility study.

#### 8.1.2. There are limitations to the introduction of an individual learning account

An important conclusion of the feasibility study is that there are limitations to the implementation of the EU concept of individual learning accounts:

- Adult learning systems in the countries examined vary considerably. The differences are not only technical, but also reflect fundamental differences.
- Efforts to introduce individual learning account schemes also vary. Among the countries examined, there are examples of freely usable support allocated to all adult citizens. Other ILA schemes regulate the use of resources in line with national priorities, e.g. to support specific target groups or skills.
- Differences between countries are also reflected at data level, which complicates interoperability at EU level as well; therefore, flexible metadata fields and datasets should be defined.
- Some interviewees draw attention to the fact that the current adult education systems would benefit from individual learning account schemes by generating learning opportunities, as adult education organisations do not receive direct funding. Due to the lack of direct resources, adult education organisations may have a counter-interest in the full implementation of the ILA. In other countries the AE providers do benefit from the ILA concept. They can allure more participants as the participants make use of the ILA individual financial support.

- During the interviews, most of the representatives of multinational companies claim that they have their own resources for soft skill training of their employees, which is planned in the annual budget. Based on this, there are methods for assessing the competences of employees, as well as a methodology for training and employee matching. They are rather "soft" methods such as interviews and questionnaires. Systematic or data-driven schemes are very rare even among large companies.

In summary, without further developing the adult learning systems in each country along uniform principles, we see limited possibilities for transferring the financial entitlements allocated to persons between countries, which is one of the potentials to be envisaged of the ILA concept. At the same time, based on the feasibility study, individual learning account solutions based on country-specific characteristics can be successfully applied as one of the tools to increase the number of participants in adult education.

### 8.1.3. Full implementation of individual learning accounts leads to paradigm shift

In the feasibility study, we deal with the financing solutions of adult education in the countries studied. In our view, compared to the current situation, the full introduction of the concept of an individual learning account would result in a paradigm shift, i.e. it would fundamentally and substantially change the financing model of adult education by highlighting the individual's role as the recipient of funding for training at the expense of institution's being the recipients and, indirectly, the adult education system itself.

It is important to note that many countries are currently examining the feasibility of the EU concept. It is far from being decided whether the individual learning account will be supported as an exclusive funding model or whether it will be introduced in parallel with current funding methods.

The current adult education in the countries examined is characterised by the fact that the methods and sources of financing for AE vary from country to country. A significant part of the training is free of charge for the trainees, or requires a very low contribution. In some countries, state grants are directly awarded to training organisations, while enterprises also directly finance training organisations. In the case of fully self-financed trainings, the adult education services provided by the training organisation are financed directly by the trainee from their own resources and/or training loans. Commercial educational institutions providing education for direct remuneration are an integral part of the education systems. There are also a number of mixed solutions, for example, a particular enterprise receives state aid for the training of its employees.

According to the EU concept of an individual learning account, funds for adult learning can be allocated based on the citizens' individual selection of the training. In this case, state, employers' and private resources are concentrated in one hand. It is up to citizens to take advantage of the opportunities provided by these resources. An efficient guidance system is needed to influence the efficient decision-making by the individual.

It is important to note that the EU concept of an individual learning account does not exclude the principle that the person funding the training should ultimately have a say in the choice of training. This is likely to be the biggest difference between countries, if the individual learning account is fully implemented. In one case citizens can spend the amount allocated through the ILA scheme on the adult education market without any restrictions. In other cases, the state/company stipulates what



specific training it can be spent on. (Of course, both solutions can be implemented with the help of an information system.)

In practice, various solutions are expected to spread. For example, there may be a restriction of the amount allocated for the individual learning account that can only be spent on accredited courses. Another solution is that a company covers a part of the training costs for its employees, but orients the choice of training for employees with a recommended training pool. The state can also specify target groups for training, such as some vulnerable groups.

During the development of the ILA data model, the individual learning account can appear as a stand-alone funding model. In the ILA data model, we do not interpret trainings whose costs would be paid directly to training organisations, independently of the training participants.

#### 8.1.4. Differences between ILA data model and company trainings

Let us consider the state or companies involved in financing adult education may have an influence on the target group and on the courses chosen by the given target group. In this case, it is essential to create a data model that reflects the needs of the parties involved. What are these needs?

It follows from the role of the public sector in compensating for disadvantages that data fields and data series used to describe the target group focus on labour market status and some demographic, social and educational characteristics, while in the case of soft skill courses, basic ones relevant to a wide social stratum are most suitable. At the same time, companies seek to map the difference between the competence profiles of employees and the competence profiles required by jobs, and accordingly, they offer and finance corresponding – in many cases higher level – soft skill trainings.

The funding logic is also different in the two cases: Adult education courses organised by the public sector and financed through individual learning accounts can include lower qualifications in order to support low-qualified individuals. The financial contribution can also be limited. Based on the feasibility study, data series representing persons should also appear, where both the participant's own contribution and the corporate subsidy amount are 0 EUR.

Thus, the data field requirements and edited data sets of the public sector and the corporate sector related to individual learning accounts differ both in terms of target group and soft skill training. This claim is supported by interviews conducted.

Based on the feasibility study and a non-profit orientation of the project, it is recommended to develop the model aiming primarily at public systems. Nevertheless, the model can also have limited uses in the corporate environments (see chapter 8.2.).

#### 8.1.5. The importance of soft skill trainings is growing within adult education

Based on the available adult education statistics, no breakthrough can be detected in terms of soft skill development courses and persons applying for them. At the same time, our interviewees all emphasised the importance of soft skills on the labour market, and predicted the further appreciation of soft skill courses expected in the near future. They drew attention to the fact that the development of soft skills is fundamentally different from the profession-specific approach of adult education:

- Soft skills are usually much more "elusive", i.e. they are more difficult to measure and level, and their use in the short or longer term is not obvious. In order to increase the role of soft

skill trainings in adult education, it is necessary to develop methodologies for measurement and levelling and quantification of the impact of trainings.

- Soft skills are often mixed with personal traits and attitudes (or even values). This means that it is not easy to change or develop them, since in some cases it involves changing personality.

Some interviewees expressed the opinion that due to the transversal nature of soft skills (non-discipline-related, widely applicable), the measurability and impact assessment based approach should be abandoned, and citizens should be provided with the opportunity to develop soft skills independently of these aspects. They believed that less purposeful soft skill development had an indirect effect both socially and economically.

Nevertheless, based on the results of the feasibility study, the development of the ILA data model focuses on measurability and consideration of the effects of training. The primary reason for this is that an individual learning account is a financial solution, so it is advisable to follow a financial approach. The interviews confirm this idea: measurability and quantifiability of impacts are to account for the amount of costs available for adult education.

#### 8.1.6. In the ILA data model, positive discrimination is recommended

One of the reasons for creating the ILA data model is the constraint of financial resources. If financial resources were available without limitation, everyone involved would be able to participate in the amount and level of soft skill training that best suits them for the rest of their lives. The ILA data model, and similar solutions, make it possible to model the range of training that can be completed at the individual level applying financial resource constraints. Conversely, what are the total costs of training assigned to a given target group broken down into state, company and individual costs?

If we take into account the limited financial resources, the methodology for allocating the financial resources automatically arises, which we must also follow when designing the data series of the ILA data model.

In the background studies prepared for the feasibility study, we examined at the level of data how the adult education systems of each country allocate the available financial resources. Based on results, partners it seems that resources are not necessarily allocated in the most appropriate way for social and economic goals in adult education systems. Based on our analysis, the most obvious example is that the participation rate of disadvantaged groups in adult education is underrepresented, while participation in adult education is clearly a breakout point for them, i.e. it is extremely important from a social point of view. (Actually, this is not a specific statement; a multitude of analyses come to similar conclusions. The EU concept of ILA also aims to change the current situation and increase the number of participants in adult education along equal opportunities criteria.)

Based on the above, it is important to point out that in the ILA data model we are not trying to map the characteristics of existing adult education systems. We work with participant data modelled along social goals. The guideline used in the development of the ILA data model can be interpreted simply as positive discrimination. An example of this is that despite the fact that the share of disadvantaged groups in adult education is relatively low based on real statistical data, they appear in higher numbers in the ILA data model.



### 8.1.7. Desired data connections can be established along different EU frameworks

One of the most important features of the ILA data model is that it creates a data link between citizens' existing competences, input and output competences of training, and social and/or corporate competence expectations. To achieve this, soft skills in the ILA data model must be well-defined, non-overlapped, and levelled.

Various solutions are being examined in the framework of the feasibility study, among which the Common European Framework of Reference for Languages (CEFR) seems ideal for establishing a data link. With the help of CEFR and the assessment and development tools built around it, the target foreign language competence level (e.g. job expectations) can be defined. In comparison, the current level of foreign language competence of citizens can be established. The input level of a training can be defined, based on which the training can be selected. The learning outcomes of the training can be given, which must be in line with the objectives set with the CEFR. With this method, not only separate courses can be recommended, but also learning pathways by building courses on each other.

The feasibility study presents further EU reference frameworks relevant for soft skills. According to our analysis, reference frameworks are at very different levels of development, but their common feature is that soft skills are well defined and form a system. It is also important to note that the reference frameworks reflect EU ambitions.

### 8.1.8. The role of AI should be made transparent

In the feasibility study, we pointed out that advanced AI-based solutions are increasingly able to find and process information sources related to individuals and adult education, and to offer specific training to real people.

Previously, this required basically structured databases, which were more or less transparent with human expertise, so the operation of AI could be verified. The situation has now changed radically. AI is built from algorithms and relies on information sources whose operation cannot be tracked and controlled with the involvement of human resources. There is a risk that people and adult education will be paired with the use of AI, without human influence and transparency.

The ILA data model can be used to resolve the anomaly presented above.

As it follows from the feasibility study, a new, previously hidden application of the ILA data model may be developed. Namely, that the application of AI can take place in 2 phases. In the first phase, AI is responsible for filling in the ILA data model tables for people and training using the widest possible range of unstructured information sources. At this point, it is possible to intervene humanly, check and, if necessary, modify the competences and competence levels established by AI. This ensures transparency and allows for intervention. Based on the interviews conducted, we know that the operation of companies is similar: the manager and the employee discuss the competence profile of the employee together and determine the soft skill development needs of the given person based on this. AI in phase 1 essentially acts as a complex measuring tool.

In phase 2, the ILA data model verified by stakeholders and modified if necessary serves as the sole source of information for AI. Based on the completed ILA data model, AI creates a match between participants and courses. This project focuses exclusively on phase 2, as the ILA data model is populated with data by Partnership experts rather than AI.

Of course, it is debatable whether AI has really reached the outlined level of development, but in our view, we can treat it as a fact that the rapid development is heading in this direction.

## 8.2. Recommendations for the applicability of the ILA data model

The chapter summarises the recommendations for the ILA data model's practical application.

### 8.2.1. Applicability in practice

In the ILA data model, structured data is used, i.e. the data on people and courses that do not exist in reality. This approach was based on the feasibility study and accompanying discussions with stakeholders (e.g. interviews) which suggested that obtaining real-life data on persons and courses would be close to impossible within the framework of the project. Real-life personal data would require extensive measures towards privacy protection and subjects possessing such databases are restrictive regarding their sharing. At the same time, real-life databases of courses are often restricted in terms of data categories available, biased according to the database's purpose and difficult to optimise for the data model. The solution with non-real-life data has many advantages in terms of project feasibility. One of the most important advantages is that it models a possible future state when the concept of an individual learning account is already implemented in the field of soft skill training.

The practicality of the ILA data model is ensured by its flexibility. The design of the ILA data model allows the replacement of the data fields in it according to current expectations, the expansion of the value sets for filling in the data fields, the filling of data sets for training artificial intelligence with real data, and the replacement of test data with real data. With the help of the methodological guide that will be created later as the result of the project, the listed activities can be carried out under real conditions. The data tables and applied AI solutions required for this are fully available to those interested.

The ILA data model basically provides opportunities for the customer side (citizen, state, company). The results obtained with the help of the ILA data model ultimately result in types of training, on the basis of which it is possible to assign specific training to individuals.

There are basically two approaches to application in practice. In one case, the breakdown of the available budget by person can be modelled, while in the other case, the cost requirement for an optimal training portfolio can be modelled and calculated.

### 8.2.2. Application cases for the data model

The use cases identified in the ILA data model feasibility study include:

- In the case of publicly funded schemes, a budget is set for adult education. With the help of the ILA data model, it is possible to make the training offer more targeted by uploading the data tables relating to specific target groups during the planning phase of the project. The ILA data model can be used to determine the characteristics of the training in the ILA scheme, e.g. for digital skills. The ILA data model allows organisations to calculate the total cost of a planned program, while testing different ways to match people and courses.
- The data model developed can be used to define training parameters and record training participants' data. In accordance with a company policy, with the help of previously trained AI, an organisation can assign courses in order to calculate the costs.

- In career guidance, a training offer can be made using AI that has been previously trained with clientele-specific data and is part of the ILA data model. Knowing the types of training will help to select specific training and enrolment.

### 8.2.3. Supportive environment

The introduction of the concept of an individual learning account has an impact on adult education as a whole. By providing citizens with a wide range of training funding opportunities, it also increases the need for citizens to consciously plan their participation in adult education.

The feasibility study points out that citizens need to be provided with a wide range of support services in order to benefit from the opportunities offered by individual learning accounts. The support system includes self-assessment and measurement tools, career guidance opportunities, publicly available and continuously updated training registers, research analysing and publishing adult education processes, future forecasts for adult education, and quality assurance in adult education.