

STUDY

Requested by the EMPL committee



# Entrepreneurial Literacy and Skills

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Policy Department for Economic, Scientific and Quality of Life Policies  
Directorate-General for Internal Policies  
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# Entrepreneurial Literacy and Skills

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## **Abstract**

Entrepreneurial literacy and skills (ELS) empower European citizens to act on economic opportunities and enable them to adequately respond to ongoing impactful changes, such as the green transition, the ageing workforce and the digitalisation. This research paper analyses relevant empirical indicators of ELS, highlights the role of underrepresented groups in entrepreneurship and discusses EU-funded mechanisms in relation to ELS. The research paper concludes with recommendations on policy-making in order to more effectively foster ELS among EU citizens.

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## LIST OF ABBREVIATIONS

<b>CBL</b>	Challenge-based learning
<b>CULT</b>	Culture and Education committee
<b>DESI</b>	Digital Economy and Society Index
<b>DG EAC</b>	Directorate-General for Education, Arts and Culture
<b>DG EMPL</b>	Directorate-General for Employment, Social Affairs and Inclusion
<b>EaSI</b>	Employment and Social Innovation Programme
<b>EBO</b>	Established business ownership
<b>EEA</b>	Entrepreneurial Employee Activity
<b>EEP</b>	Entrepreneurship Education Programme
<b>EGF</b>	European Globalisation Adjustment Fund
<b>ELS</b>	Entrepreneurial literacy and skills
<b>EMCO</b>	Employment Committee
<b>EntreComp</b>	The European Entrepreneurship Competence Framework
<b>EP</b>	European Parliament
<b>EPHA</b>	European Public Health Alliance
<b>EPIC</b>	Entrepreneurial Potential and Innovation Competences
<b>EPSCO</b>	Employment, Social Policy, Health and Consumer Affairs Council
<b>EPSR</b>	European Pillar of Social Rights
<b>ESC</b>	European Solidarity Corps
<b>ESF+</b>	European Social Fund Plus
<b>ETM</b>	Education and Training Monitor
<b>EU(27)</b>	The European Union Member States
<b>EUA</b>	European University Association
<b>EYE</b>	Erasmus for Young Entrepreneurs

<b>GDP</b>	Gross Domestic Product
<b>GEM</b>	Global Entrepreneurship Monitor
<b>HEI</b>	Higher education institution
<b>ICM</b>	International Credit Mobility
<b>JRC</b>	Joint Research Centre
<b>NEET</b>	Neither in employment nor in education or training
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>PES</b>	Public Employment Services
<b>PFL</b>	Preparation for future learning
<b>REACT-EU</b>	Recovery Assistance for Cohesion and the Territories of Europe
<b>RRF</b>	Recovery and Resilience Facility
<b>RRP</b>	Recovery and Resilience Plan
<b>SDGs</b>	Sustainable Development Goals
<b>SPHERE</b>	Support and Promotion for Higher Education Reform Experts
<b>STEM</b>	Science, technology, engineering and mathematics
<b>TEA</b>	Total Early-stage Entrepreneurial Activity
<b>UN</b>	United Nations
<b>VET</b>	Vocational Education and Training
<b>YEI</b>	Youth Employment Initiative
<b>YG</b>	Youth Guarantee

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## EXECUTIVE SUMMARY

### Background

Entrepreneurship is a crucial driver of well-being. Not only for its impact on new business creation, but also in the light of the transition towards a prosperous, sustainable society and responsible, inclusive economic growth. The European Parliament seeks to foster EU citizens' entrepreneurial literacy and skills relevant to the creation of (sustainable) value for and with others, as well as to individual resilience and innovativeness in dealing with the urgent, pressing issues of our time, such as an ageing workforce, energy transition and digitalisation.

In this research paper, entrepreneurial literacy and skills are conceptualised as competences relevant for entrepreneurial behaviour across contexts and domains, and reflect the European Entrepreneurship Competence Framework (EntreComp). Entrepreneurial literacy and skills (1) stimulate equal opportunities for (self)employment and (2) are a life skill and integral part of lifelong learning, enabling European citizens to deal with uncertainty, be resilient and solve problems creatively and innovatively.

### Aim

The aim of this research paper is to provide the Members of the European Parliament's Committee on Employment and Social Affairs with an overview of the state of entrepreneurial literacy and skills. It also reports gaps and opportunities for future policy actions, taking into account the impact of the pandemic and the ongoing green and digital transitions.

In addition, the study addresses the role of relevant traits and literacy aspects such as entrepreneurial intentions, self-efficacy and optimism, and important indirect indicators of entrepreneurial literacy and skills such as reading, mathematics, digital skills and workplace learning. The empirical indicators for entrepreneurial literacy and skills as discussed in this paper are mainly drawn from the European Education and Training Monitor, the Annual Global Entrepreneurship Monitor Survey and Eurostat. Furthermore, the paper presents relevant academic literature and policy reports as well as critically reviews EU funding mechanisms targeting entrepreneurial literacy and skills development. Examples illustrate how initiatives in relation to entrepreneurial literacy and skills development are translated into practice.

### Key Findings

This research paper yields four main conclusions. First, EU Member States differ significantly in the amount of entrepreneurial activity and many countries score below the EU targets for different (indirect) indicators of entrepreneurial literacy and skills. Second, women, migrants and youth are underrepresented in entrepreneurship. Seniors and citizens with disabilities also face substantial but different challenges in entrepreneurship. Third, entrepreneurial literacy and skills are relevant for all European citizens and are highly context-dependent. This context dependence is illustrated by the large variety of entrepreneurial activity, intentions, motivations and (indirect) learning indicators across countries and even between regions. Fourth, given the increasing attention to the social economy, further positioning entrepreneurial literacy and skills as a life skill and as an integral part of lifelong learning and value creation for sustainability is key. On the basis of these conclusions, four recommendations have been formulated.

**Recommendation 1: Open up entrepreneurship to all by positioning entrepreneurial literacy and skills as a life skill in the context of the social economy.**

The capability of European citizens to engage with the unknown and deal with uncertainty should be developed from childhood. Experiential or challenge-based learning programmes address this need and its offer should be ensured via progression lines from primary education to higher education and beyond, in the form of lifelong learning (both formal and informal) of adults.

**Recommendation 2: Invest in more customised funding of specific target groups to realise inclusive entrepreneurship.**

A multitude of policy initiatives and funding mechanisms already address different target groups. However, the offer is rather fragmented and does not always reach the targeted (vulnerable) groups. Funding mechanisms should therefore be made more customised and inclusive.

**Recommendation 3: Invest in entrepreneurship education and learning in which mentoring is key.**

The ecosystem plays an essential role in stimulating entrepreneurial thinking and behaviour. Relatable role models and mentors can activate groups in society that are underrepresented or marginalised in entrepreneurial activity.

**Recommendation 4: Establish a shared framework and enlarge the database to systematically evaluate and monitor entrepreneurial literacy and skills development.**

The data discussed in this research paper are *indirect* indicators of entrepreneurial literacy and skills (ELS). Comprehensive and structured monitoring of key ELS indicators is needed to reach a better understanding of the development of ELS among European citizens and their impact on responsible economic growth. The EntreComp framework should be used as shared frame of reference for determining ELS indicators.

The significant role of entrepreneurial literacy and skills in the social economy and in the transition towards a digital, resilient, sustainable society cannot be underestimated. A strong vision and common language on entrepreneurship – that captures inclusiveness, sustainable value creation for others and opportunity-seeking behaviour – should be adopted at the European level and spread to national, regional and local levels via customised funding mechanisms and policy activities.

## 1. INTRODUCTION

Entrepreneurship is a crucial driver for social and economic well-being and inclusive growth in Europe. In recent years, the interest in entrepreneurship has grown because of four reasons.

First, there are transitions related to the **Green Deal** and the **Sustainable Development Goals** (SDGs) of the United Nations. Specifically, there are transitions towards a prosperous, sustainable society and responsible, inclusive economic growth<sup>1</sup>. On a related note, the EU has emphasised strengthening **sustainable socio-economic (re)structuring** in the context of the Recovery and Resilience Facility (RRF)<sup>2</sup>. National RRF plans aim to achieve the urgently needed transitions.

Second, the EU explicitly expressed its interest in **social** and **inclusive entrepreneurship**, referred to as the **social economy**. On 9 December 2021, the European Commission launched the action plan on the social economy<sup>3</sup>. The plan builds upon the Social Business Initiative and the 2016 startup and scale-up initiative. Inclusion, creating a resilient economy and equal employment opportunities for all are at the core of the social economy<sup>4</sup>.

The third reason relates to changing demographics: there are challenges pertaining to the different demands of an **ageing work force** (Kanfer & Ackermann, 2004) and need for lifelong learning, which policy-makers must address with suitable policies.

Fourth, the **digital transition** has accelerated in response to the COVID-19 crisis<sup>5</sup>. The European Union (EU) emphasises the interconnectedness between a resilient, responsible and inclusive economy and the digital transition<sup>6</sup>. In the '2030 Digital Compass: the European way for the Digital Decade', the European Commission stresses the need for digital policies that empower people to co-create the digital future.

To foster and spur entrepreneurship, opportunities for the development of **entrepreneurial literacy and skills** (ELS) of EU citizens are increasingly relevant. ELS encompass fifteen competences<sup>7</sup> which enable European citizens to actively engage in the labour market by (1) turning opportunities into (co)created value, for example by starting their own venture or by pursuing innovative activities working for an employer, and (2) as a life skill and integral part of lifelong learning, by enabling European citizens to deal with substantial transitions that are spiced by uncertainty<sup>8</sup>.

### 1.1. Aim of the research paper

The aim of this research paper is to provide the Members of the European Parliament's Committee on Employment and Social Affairs with an overview of the state of entrepreneurial literacy and skills across the European Union. It also reports gaps and opportunities for future policy actions, taking into account the impact of the pandemic and the ongoing green and digital transitions. Furthermore, the study aims

<sup>1</sup> European Commission, 2019, the Green Deal, available at:

[https://ec.europa.eu/info/sites/default/files/european-green-deal-communication\\_en.pdf](https://ec.europa.eu/info/sites/default/files/european-green-deal-communication_en.pdf).

<sup>2</sup> Official Journal of the European Union, 2021, Regulation (EU) 2021/241 of the European Parliament and the Council of 12 February 2021, available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021R0241>.

<sup>3</sup> More information on the Social Economy is available at: <https://ec.europa.eu/social/main.jsp?catId=1537&langId=en>.

<sup>4</sup> More specific information on the Social Economy Action Plan, is available at:

<https://ec.europa.eu/social/main.jsp?langId=en&catId=89&newsId=10117&furtherNews=yes#navItem-1>.

<sup>5</sup> European Commission, 2021, available at: <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A52021DC0118>.

<sup>6</sup> See for instance the Green Deal available at: [https://ec.europa.eu/info/sites/default/files/european-green-deal-communication\\_en.pdf](https://ec.europa.eu/info/sites/default/files/european-green-deal-communication_en.pdf), the 2030 Digital Compass available at: <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A52021DC0118>, and the Recovery and Resilience Facility available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021R0241>.

<sup>7</sup> These are the fifteen (conceptual) competences contained in the EntreComp model (see Chapter 3).

<sup>8</sup> Chapter 3 presents competences associated with ELS which are aligned with the EntreComp framework (Bacigalupo et al., 2016).

to draw lessons and make recommendations on adjustments to ELS policies based upon the conclusions.

## 1.2. Research questions

The following research questions are addressed:

1. What types of skills, competences, behavioural attitudes and personal traits matter for successful business creation?
2. What statistical information is available on entrepreneurship and ELS development in the EU?
3. What are the challenges in looking at the inclusion of underrepresented groups in entrepreneurialism?
4. How are EU instruments used to support entrepreneurial literacy and skills (development)?
5. What are innovative approaches and best practices in EU 27 to foster entrepreneurship and entrepreneurial ways of learning in education and beyond?

## 1.3. Structure of the research paper

**Chapter 1** presents the policy context, aims and research questions of the current research paper. Next, **Chapter 2** contains an overview of the state of entrepreneurial activity, as well as the impact of the COVID-19 pandemic in EU Member States, based on data from the Annual Global Entrepreneurship Monitor Survey conducted in 2020 (GEM, 2021). Thereafter, **Chapter 3** delineates the most relevant dimensions and policy documents specifically for ELS (development), thus providing the definition of ELS and a deeper understanding of the underlying learning processes. **Chapter 4** examines personal factors and indirect indicators that play a role in ELS development, such as individual motivations, intentions, individual traits, learning skills and adult learning. **Chapter 5** shifts to the situation of, and policies regarding, different underrepresented target groups in entrepreneurship, providing insights into what groups are currently missed out in entrepreneurship. In **Chapter 6**, European funding opportunities are discussed, providing insights into the opportunities the EU offers in terms of ELS development. The paper ends with the conclusions and recommendations in **Chapter 7**.

Throughout the research paper, the reader finds good practices to illustrate successful initiatives across Europe for stimulating ELS development, in the text and in boxes. The cases are selected according to the following: (1) innovativeness of the initiatives, (2) whether or not they receive(d) (direct) funding from European funding mechanisms, (3) the variety of target groups that are addressed by the initiatives and (4) the countries in which they have been performed.

## 2. ENTREPRENEURIAL ACTIVITY IN THE EU27

### KEY FINDINGS

- EU Member States score lower on early-stage entrepreneurial activity (ETA) compared to the rest of the world.
- The available data (GEM, 2021) show that EU Member States located in Eastern Europe report more business startup activity than other EU countries (generally and during the pandemic), while Southern EU Member States report a lower amount of startup activity.
- In most EU Member States, the number of new startups had decreased since the COVID-19 pandemic. However, some EU Member States report an increase, such as Latvia, Croatia, Slovak Republic and the Netherlands.

In this chapter, entrepreneurial activity across the European Union (EU) Member States is compared. Unless indicated otherwise, data come from the **2020 Annual Global Entrepreneurship Monitor (GEM) Survey** (GEM, 2021). It must be noted that the GEM (2021) survey data does not contain information on all 27 EU Member States, as not all of them participate in the Annual GEM Survey. Currently, 15 EU Member States participate in the annual survey. However, for those EU Member States included in the GEM provides very recent and relevant data on the topic of entrepreneurial literacy and skills (ELS). Also, inclusion of GEM data acknowledges the commitment that GEM-participating EU Member States make, as it testifies to their efforts for a more collaborative, transparent as well as high-quality data collection process in the European Union. In Chapter 3, a more detailed explanation of the selection of data resources (such as GEM) is provided.

### 2.1. Three types of entrepreneurial activity

GEM (2021) distinguishes between three different kinds of entrepreneurial activity:

- total early-stage entrepreneurial activity (TEA), related to starting a novel business within the last 3,5 years;
- established business ownership (EBO), associated with the running of an existing and/or established business for more than 3,5 years;
- entrepreneurial employee activity (EEA), also called intrapreneurship, which relates to entrepreneurial activities such as launching new initiatives for a (main) employer or starting or running of a business on behalf of their employer.

The tables that are included in this chapter contain information on European Union (EU) countries that score highest, average and lowest in the EU in comparison to other EU Member States (that also have data available) as reported in the Annual GEM Survey. For a full overview of the available data of the 15 EU Member States that participate in the GEM as referred to in this chapter, see Annex 1.

#### 2.1.1. Early-stage entrepreneurial activity

In 2020, the **total early-stage entrepreneurial activity** (TEA) rate in the EU Member States was highest in Latvia (16%), closely followed by the Slovak Republic (14%) and Croatia (13%). Average TEA in the EU in 2020 can be found in the Netherlands (12%) and Cyprus (9%), while Germany (5%), Poland (3%) and Italy (3%) close the ranking.



To make sense of these numbers, one must consider the number of business exits at the same time. That is because if a country counts more business exits than TEA, it arguably will observe an overall negative impact on the economy. No matter how high the rate of TEA, if there is a higher rate of business exits, it will simply be 'churned out'. The '**churn-out**' rate gives an indication of which EU Member States have a relatively higher 'loss' of entrepreneurial activity in a given year. It offers a useful indicator for ELS insofar as it offers an objective score of the gain or loss of new ventures (regardless of their further qualities). Also, the churn-out rate conveys relevant information to facilitate the identification of leakage by targeted qualitative analysis into regional, local or other factors that might have caused such leakage. The churn-out rate of TEA activity can be gauged by looking at both indicators together (ratio of TEA activity to the number of business exits measured in percentage share of total TEA activity of, percentage share of business exits among the adult population). A smaller churn-out ratio indicates less leakage of entrepreneurial activity.

The GEM data show that some EU Member States' churn-out rate is lower, meaning that EU Member States with more TEA activity do not necessarily witness more business exits. Table 1 shows the churn-out rate in EU Member States (calculated in non-rounded off percentages of the ratio business exits divided by TEA activity of adult population, age 18-64). Italy has the lowest churn-out rate (16%), while Poland closes ranks with the highest churn-out rate (110%) in 2020.

Table 1: Churn-out rate in EU Member States in 2020

	TEA Activity	Business Exits	Churn-out rate
Italy	3.1	0.5	16
Latvia	15.6	3	19
Spain	5.2	1.3	25
Slovenia	6	1.6	27
Luxembourg	8	2.6	33
Croatia	12.7	4.5	35
Greece	8.6	3.1	36
Cyprus	8.6	3.2	37
Germany	4.8	2	42
Slovak Republic	13.9	5.8	42
Sweden	7.3	3.1	42
Austria	6.2	2.7	44
Netherlands	11.5	5.1	44
Poland	3.1	3.4	110

Source: Annual Global Entrepreneurship Monitor Survey 2020 (GEM, 2021).

It should be noted that dissemination of regional or national good practices in the identification and plugging of such leakage would benefit all European Member States, as well as help inform EU-level initiatives, and would be a relevant topic for consideration in the reporting documents of each EU Member State related to the European Semester reporting process.

### 2.1.2. Established business ownership

**Established entrepreneurship**, in the form of running an existing business varies considerably across EU Member States (as well as among regions). Greece scores highest, with a reported 15% of its adult population running an established business in 2020. This is followed by Poland with 12% and Latvia with 11% - compared to 6-7% in average-ranking countries such as Germany and the Netherlands. The EU countries with the smallest share of adults who run an established business are Luxembourg (4%) and Italy (2%).

### 2.1.3. Intrapreneurial activity

Intrapreneurship, or **entrepreneurial employee activity** (EEA) refers to entrepreneurial activities that employees engage in on behalf of their employer and will be paid for by the employer, regardless of the risk associated with the actual success of that intrapreneurial initiative. This so-called intrapreneurship is not so much oriented towards the market as an entrepreneur would need to be, but in accordance with the (functional) role or position she holds within the (business) organisation of her employer (see for example Parker, 2003). Previous research found that employees involved in EEA impact the identification of good quality opportunities (Baggen et al., 2016).

The highest percentage of adult population engaged in EEA in EU Member States in 2020 is reported in Croatia and Germany, closely followed by Sweden (all three countries report an EEA of more than 6 %). It should be noted that Germany's EEA is the second-place country in the global EEA ranking, and only Qatar reported a higher share of EEA in 2020. The lowest rates of EEA in 2020 in the EU27 were recorded in Spain, Italy and Poland (these countries report an EEA score of below 1 %).

## 2.2. Impact of the COVID-19 pandemic

To examine to what extent entrepreneurial startup activity has changed during the pandemic, the entrepreneurial intentions of the adult populations of the countries that start or run a business in 2019 are compared with the same data from 2020.

The results of the GEM (2021) survey show that the level of entrepreneurial activity varies significantly across the EU, but that differences between the adult population of EU Member States regarding the decision to start or continue a business have been 'smoothed out' somewhat due to the COVID-19 pandemic. Table 2 shows that the adult population that started a new venture dropped significantly in most EU Member States, in some countries even almost by half (e.g. Germany). However, some EU Member States experience an increase in the share of adult population that have started a new business from 2019 to 2020, according to the GEM (2021) data, namely Latvia, Croatia, the Slovak Republic and the Netherlands.

Table 2: Percentage of adult population (age 18-64) running a new business, changes 2019-2020

	2019	2020
Latvia	16 %	16 %
Slovak Republic	14 %	14 %
Croatia	10.5 %	13 %
Cyprus	12 %	9 %
Netherlands	10 %	12 %
Germany	8 %	5 %
Poland	5 %	3 %
Italy	3 %	3 %

Source: Annual Global Entrepreneurship Monitor Survey 2020 (GEM, 2021).

Looking at established business owners (see Table 3), the highest percentage of adult population (18-64) running an established venture in 2019 was found in Greece (14.6 %), Latvia and Poland (both 12.5 %). The Netherlands comes in at a close fourth place with 11 %, while Germany reports only 5 % of established business owners in 2019. The same year, the lowest share of established business owners was found in Luxembourg (4.8 %) and Croatia (3.8 %).

Table 3: Percentage of adults (18-64) running an established business, 2019 and 2020

	2019	2020
Greece	14.6 %	15 %
Latvia	12.5 %	11 %
Poland	12.5 %	12 %
Netherlands	11 %	7 %
Germany	5 %	7 %
Luxembourg	4.8 %	4 %
Croatia	3.8 %	4.3 %

Source: Annual Global Entrepreneurship Monitor Survey 2020(GEM, 2021).

The COVID-19 pandemic had varying effects on the relative share of existing business owners of the adult population in EU 27 Member States, suggesting elasticity in entrepreneurial behaviour. The GEM results show that most EU Member States have had a slightly lower share of established ventures in 2020 than 2019, such as Latvia, Poland and Luxembourg, and the Netherlands even saw its share cut from 11 % to 7 %.

Meanwhile, other EU Member States report a contrary trend, with Greece and Croatia in the lead. However, it must be noted that Croatia's existing business owners' percentage share of the adult population is still catching up to most other EU Member States, being the equivalent of a third of Greece's percentage. In Germany, the share of adults running an established business even increased by almost half, from 5 % in 2019 to 7 % in 2020.

During the last two years, there were (partial) economic, social, cultural and educational lockdowns in many EU Member States. Despite the pandemic-related adverse conditions of 2020, Cyprus reported almost one in three adults (30 % of the adult population) who **know someone who started a business because of the pandemic** that year, the impressive highest share of all EU Member States that participate in the GEM. Apart from Cyprus, not even one in four citizens of the European Union (adult population) reported knowing someone who started a business in 2020 because of the pandemic, the average being slightly lower, such as in the Slovak Republic (22 %). Adults in Germany (18%), Slovenia and Luxembourg (both 8 %) were least likely to report knowing someone who started a business because of the pandemic (see Table 4).

Table 4: Percentage of adults (18-64) knowing someone who started a business because of the pandemic

	"to some extent" and "to a large extent"
Cyprus	30 %
Slovak Republic	22 %
Netherlands	20 %
Germany	18 %
Slovenia	8 %
Luxembourg	8 %

Source: Annual Global Entrepreneurship Monitor Survey 2020 (GEM, 2021).

Across EU Member States, the share of adults who **stopped their business due to the pandemic** also varies significantly. In 2020, Poland reported with 47% the highest percentage of the adult population (aged 18-64) who know someone whose reasons to stop their business were (to some or to a large extent) related to the pandemic, followed by Greece (45%) and Spain (42%). On average, around three in ten adults report knowing someone who stopped their business due to the COVID-19 pandemic, such as the case in the Netherlands (28%). Germany (20%) and Sweden (18%) report the least effect of the pandemic on entrepreneurial activities. Only one in five adults surveyed in these two countries reported that they know someone who was forced to leave their business for COVID-19 related reasons (see Table 5).

Table 5: Percentage of adults (18-64) who report knowing someone who stopped business due to the COVID-19 pandemic

	'to some extent' and 'to a large extent'
Poland	47 %
Greece	45 %
Spain	42 %
Netherlands	28 %
Germany	20 %
Sweden	18 %

Source: 2020 Annual Global Entrepreneurship Monitor Survey (GEM, 2021).

### 3. ENTREPRENEURIAL LITERACY AND SKILLS: DEFINITION AND INDICATORS

#### KEY FINDINGS

- Entrepreneurial literacy and skills (ELS) in this study refer to the competences in the European Entrepreneurship Competence Framework and are defined in the context of (self) employment and as a life skill.
- Research shows that entrepreneurial competences can be taught, but the relationship with entrepreneurial activity is hard to evidence. Most studies focus on short-term impact measures such as entrepreneurial intentions, which is problematic.

The chapter starts off with a more elaborate conceptualisation of entrepreneurial literacy and skills (ELS) with the EntreComp framework as point of reference. This is followed by a presentation of the policy context of entrepreneurship education and theoretical underpinnings of entrepreneurial learning (i.e. effectuation theory, identity-learning, adaptive performance and experiential learning theory). The chapter closes with a short overview of results from an entrepreneurship education survey among students and teaching staff in higher education across the European Union.

#### 3.1. Entrepreneurial literacy and skills in policy documents

In 2006, the EU adopted eight key competences for lifelong learning. One of them was '**sense of initiative and entrepreneurship**'<sup>9</sup>. This was a key moment for acknowledging ELS as a crucial capability of each and every citizen of the EU. Only a few years later, entrepreneurial education was recognised as providing higher education students opportunities that foster the development of entrepreneurial mindsets, attitudes and skills, thus enabling individuals to be more creative and self-confident in whatever they undertake (European Commission, 2012).

In 2018, the European Commission explicitly linked entrepreneurship competence to self-awareness, ethical principles and reflection<sup>10</sup>. Thus, entrepreneurship was framed as a 'wider' phenomenon – and in line with ideas for the social economy – that is meaningful in relation to solving the pressing issues related to sustainability in today's society. The concept of entrepreneurship competence was revised and updated, positioning entrepreneurship in the context of dynamic careers and lifelong learning.

Hence, the importance of entrepreneurship is not only acknowledged in the 'narrower' form relating to (self-) **employment** (either as independent entrepreneur or as an employee) but also and perhaps more importantly as a **lifelong learning capability or life skill**. This yields a dual meaning of entrepreneurship, which has been developed similarly in the field of entrepreneurship education. Here, the helpful distinction is made between **narrow and wide entrepreneurship education** (Baggen, Lans, & Gulikers, 2021; Lackéus, 2015).

While narrow entrepreneurship education mainly focuses on venture startup activities (Lackéus, 2015), a wider and more encompassing conceptualisation of entrepreneurship education aims at the development of an entrepreneurial mindset and entrepreneurial competences across educational

<sup>9</sup> Official Journal of the European Union, 2006, Recommendation of the European Parliament and of the Council of 18 December 2006 on Key competences for lifelong learning, available at: <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:394:0010:0018:en:PDF>.

<sup>10</sup> Official Journal of the European Union, 2018 Council Recommendation of 22 May 2018 on key competences for lifelong learning, available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32018H0604%2801%29>.

levels and target groups (Baggen et al., 2021) including lifelong learning and adult learning. At the core of wide entrepreneurship education is the iterative, uncertain entrepreneurial process of new value creation in which individuals identify, evaluate and explore opportunities and translate them into value for others (Baggen et al., 2021; Lackéus, 2020; Lillevälli & Täks, 2017).

The definition of entrepreneurship education presented in the Eurydice Report<sup>11</sup> – and subsequently adopted by the EU – reflects both the narrow and the wide conceptualisation of entrepreneurship education: 'Entrepreneurship education is about learners developing the skills and mindset to be able to turn creative ideas into entrepreneurial action. This is a key competence of all learners, supporting personal development, active citizenship, social inclusion and employability. It is relevant throughout the lifelong learning process, in all disciplines of learning, and to all forms of education and training (formal, non-formal and informal) that contribute to an entrepreneurial spirit or behaviour, with or without a commercial objective' (p. 19).

The EU has further defined and specified entrepreneurship in the European Entrepreneurship Competence Framework, which is presented in the following chapter.

### 3.1.1. EntreComp: A framework for entrepreneurial literacy and skills

The European Entrepreneurship Competence Framework (referred to as **EntreComp**)<sup>12</sup> was the result of the Entrepreneurship Competence study carried out by the Joint Research Centre (JRC) of the European Commission on behalf of DG Employment and Social Affairs (DG EMPL) in collaboration with a large number of stakeholders across the EU in 2015<sup>13</sup>.

EntreComp consists of fifteen competences that have been operationalized in terms of learning outcomes as well as proficiency levels (Bacigalupo et al., 2016). Table 6 presents the fifteen EntreComp competences clustered in **three thematic areas: (1) ideas and opportunities, (2) resources and (3) into action.**

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<sup>11</sup> The complete Eurydice report 'Entrepreneurship Education at School in Europe' is available at: [https://publications.europa.eu/resource/cellar/74a7d356-dc53-11e5-8fea-01aa75ed71a1.0001.02/DOC\\_1](https://publications.europa.eu/resource/cellar/74a7d356-dc53-11e5-8fea-01aa75ed71a1.0001.02/DOC_1).

<sup>12</sup> More information on EntreComp is available at: [https://joint-research-centre.ec.europa.eu/entrecomp-entrepreneurship-competence-framework\\_en](https://joint-research-centre.ec.europa.eu/entrecomp-entrepreneurship-competence-framework_en).

<sup>13</sup> See for instance the website on the EntreComp Community, available at: <https://entrecomp.com/>.

Table 6: EntreComp framework

Areas	Competences	Hints	Descriptors
Ideas and opportunities	Spotting opportunities	Use your imagination and abilities to identify opportunities for creating value	<ul style="list-style-type: none"> <li>Identify and seize opportunities to create value by exploring the social, cultural and economic landscape</li> <li>Identify needs and challenges that need to be met</li> <li>Establish new connections and bring together scattered elements of the landscape to create opportunities to create value</li> </ul>
	Creativity	Develop creative and purposeful ideas	<ul style="list-style-type: none"> <li>Develop several ideas and opportunities to create value, including better solutions to existing and new challenges</li> <li>Explore and experiment with innovative approaches</li> <li>Combine knowledge and resources to achieve valuable effects</li> </ul>
	Vision	Work towards your vision of the future	<ul style="list-style-type: none"> <li>Imagine the future</li> <li>Develop a vision to turn ideas into action</li> <li>Visualise future scenarios to help guide effort and action</li> </ul>
	Valuing ideas	Make the most of ideas and opportunities	<ul style="list-style-type: none"> <li>Judge what value is in social, cultural and economic terms</li> <li>Recognise the potential an idea has for creating value and identify suitable ways of making the most out of it</li> </ul>
	Ethical and sustainable thinking	Assess the consequences and impact of ideas, opportunities and actions	<ul style="list-style-type: none"> <li>Assess the consequences of ideas that bring value and the effect of entrepreneurial action on the target community, the market, society and the environment</li> <li>Reflect on how sustainable long-term social, cultural and economic goals are, and the course of action chosen</li> <li>Act responsibly</li> </ul>
Resources	Self-awareness and self-efficacy	Believe in yourself and keep developing	<ul style="list-style-type: none"> <li>Reflect on your needs, aspirations and wants in the short, medium and long term</li> <li>Identify and assess your individual and group strengths and weaknesses</li> <li>Believe in your ability to influence the course of events, despite uncertainty, setbacks and temporary failures</li> </ul>
	Motivation and perseverance	Stay focused and don't give up	<ul style="list-style-type: none"> <li>Be determined to turn ideas into action and satisfy your need to achieve</li> <li>Be prepared to be patient and keep trying to achieve your long-term individual or group aims</li> <li>Be resilient under pressure, adversity and temporary failure</li> </ul>



Areas	Competences	Hints	Descriptors
	Mobilising resources	Gather and manage the resources you need	<ul style="list-style-type: none"> <li>• Get and manage the material, non-material and digital resources needed to turn ideas into action</li> <li>• Make the most of limited resources</li> <li>• Get and manage the competences needed at any stage, including technical, legal, tax and digital competences</li> </ul>
	Financial and economic literacy	Develop financial and economic know-how	<ul style="list-style-type: none"> <li>• Estimate the cost of turning an idea into a value-creating activity</li> <li>• Plan, put in place and evaluate financial decisions over time</li> <li>• Manage financing to make sure my value-creating activity can last over the long term</li> </ul>
	Mobilising others	Inspire, enthuse and get others on board	<ul style="list-style-type: none"> <li>• Inspire and enthuse relevant stakeholders</li> <li>• Get the support needed to achieve valuable outcomes</li> <li>• Demonstrate effective communication, persuasion, negotiation and leadership</li> </ul>
Into action	Taking the initiative	Go for it	<ul style="list-style-type: none"> <li>• Initiate processes that create value</li> <li>• Take up challenges</li> <li>• Act and work independently to achieve goals, stick to intentions and carry out planned tasks</li> </ul>
	Planning and management	Prioritise, organise and follow-up	<ul style="list-style-type: none"> <li>• Set long-, medium- and short-term goals</li> <li>• Define priorities and action plans</li> <li>• Adapt to unforeseen changes</li> </ul>
	Coping with uncertainty, ambiguity and risk	Make decisions dealing with uncertainty, ambiguity and risk	<ul style="list-style-type: none"> <li>• Make decisions when the result of that decision is uncertain, when the information available is partial or ambiguous, or when there is a risk of unintended outcomes</li> <li>• Within the value-creating process, include structured ways of testing ideas and prototypes from the early stages, to reduce risks of failing</li> <li>• Handle fast-moving situations promptly and flexibly</li> </ul>
	Working with others	Team up, collaborate and network	<ul style="list-style-type: none"> <li>• Work together and co-operate with others to develop ideas and turn them into action</li> <li>• Network</li> <li>• Solve conflicts and face up to competition positively when necessary</li> </ul>

Areas	Competences	Hints	Descriptors
	Learning through experience	Learn by doing	<ul style="list-style-type: none"> <li>• Use any initiative for value creation as a learning opportunity</li> <li>• Learn with others, including peers and mentors</li> <li>• Reflect and learn from both success and failure (your own and other people's)</li> </ul>

Source: Bacigalupo et al. (2016).

The recently published *EntreComp Playbook* underscores the value of the *EntreComp* framework for policies targeting the development of competences going beyond behavioural skills by including '*perseverance, resilience, self-efficacy, creativity, teamwork and sensitivity to ethical and sustainability consequences of actions*' (European Commission, 2020a, p. 12)<sup>14</sup>.

The *EntreComp* framework contains **fifteen competences**, which cover a range of attitudes, skills and behaviours. It is supposed that all of the competences enable individuals to act upon opportunities and transform them into value for others (i.e. social, cultural, environmental or financial). The *EntreComp* framework recognises ELS (development) as relevant within the economic context - for entrepreneurial startup activity or career development – but also as a life skill and as an integral part of the EU citizen's need to develop lifelong learning skills. Hereby also, the *EntreComp* framework acknowledges entrepreneurship in a more narrow and wide sense.

### 3.1.2. Definition of ELS

In this research paper, **entrepreneurial literacy and skills** are defined in line with **the *EntreComp* framework**:

1. **ELS in the context of (self)employment:** ELS empower European citizens and stimulate equal opportunities to the labour market, both in terms of business creation (i.e. as an entrepreneur or self-employed) and as an (entrepreneurial) employee.
2. **ELS as a life skill and integral part of lifelong learning:** ELS enable European citizens to deal with uncertainty, be resilient, adapt to changing circumstances and novel situations, and to solve problems innovatively and creatively, in the context of ongoing digital, socio-economic and sustainability-related transitions in society.

Entrepreneurial literacy and skills are thus understood as attitudes, competences and behaviours that help individuals to act upon opportunities and transform them into value for others (whether social, cultural, environmental and/or financial). This is in accordance with the *EntreComp* framework but also with policy documents and recent literature on entrepreneurship education (e.g. Baggen et al., 2021; Lackéus, 2020).

In Boxes 1-4 at the end of this chapter, different theories on learning and entrepreneurship are presented that further elaborate the theoretical foundation of ELS as defined in the current research paper (see section 3.4.3). Specifically discussed are effectuation theory (Box 1), identity-learning (Box 2), adaptive expertise (Box 3) and experiential learning (Box 4). These theories address the uncertain nature of the entrepreneurial process from different perspectives and together provide a holistic view

<sup>14</sup> European Commission, 2020a, available at: <https://op.europa.eu/en/publication-detail/-/publication/a9772d3b-dd0b-11ea-adf7-01aa75ed71a1/language-en>.

on what it contains to develop ELS, offering relevant theoretical underpinnings for future policy-making. The theories help to understand the empowering value of ELS as a life skill that help individuals to hone their own learning capabilities.

### 3.2. Entrepreneurship education: Can entrepreneurship be taught?

Whether or not entrepreneurship can be taught is an old-age debate. While the United States, Canada and other countries around the world have long-standing experience with entrepreneurship education, entrepreneurship programmes in Europe began to enter in the curriculum only at the end of the 1990s. Comparing university entrepreneurship education in the US, Canada and Europe, the OECD (2008) identified a difference between the more pragmatic approaches to entrepreneurship education in the United States and the more academically oriented programs in Europe<sup>15</sup>. EU policy and funding on promoting entrepreneurship through education and training is based on the findings of studies that suggest that entrepreneurship competences can be learned and that entrepreneurship education can have a very positive impact on people's lives and employability, as well as on startup rates and survival rates of enterprises<sup>16</sup>. A study called 'Effects and impact of entrepreneurship programmes in higher education' prepared in 2012 for the European Commission found, for example, that **entrepreneurship education actually makes a difference**<sup>17</sup>. Those who went through entrepreneurial programmes and activities demonstrate more entrepreneurial attitudes and intentions, get a job earlier after finishing their studies, can innovate more even as employees in a firm, and start more companies.

A compilation of evidence on the impact of entrepreneurship education strategies and measures in 2015 yielded similar results<sup>18</sup>. Examining 91 national and transnational research projects in 23 countries, the meta-study found that students participating in entrepreneurship education are more likely to start their own business and their companies tend to be more innovative and more successful than those led by people without entrepreneurship education backgrounds. Entrepreneurship education leads to improved entrepreneurial skills and attitudes and entrepreneurship education alumni are at lower risk of being unemployed, and are more often in steady employment. Compared to their peers, they have better jobs and make more money.

However, in academics, **the causal relationship between ELS and entrepreneurial activity is still contested**. In 2018, Longva and Foss published a systematic review of the literature on the impact of entrepreneurship education researched using experimental and quasi-experimental designs. They concluded that 88.3 % of the studies had a weak experimental design. Moreover, good quality studies show mixed results – many studies show positive effects of entrepreneurship education on different outcomes, but some studies report non-significant or even negative relationships on entrepreneurship education and its impact. Measured results often address short-term subjective impact measures (Longva & Foss, 2018; Nabi et al., 2017).

<sup>15</sup> OECD, 2008, Entrepreneurship and Higher Education. Available at: <https://www.oecd-ilibrary.org/docserver/9789264044104-2-en.pdf?expires=1651831562&id=id&accname=ocid194994&checksum=EBAEC36A96A8156AB443AAA8B63A1689>.

<sup>16</sup> See for instance the EP resolution (2015) on promoting youth entrepreneurship available at: [https://www.europarl.europa.eu/doceo/document/TA-8-2015-0292\\_EN.html](https://www.europarl.europa.eu/doceo/document/TA-8-2015-0292_EN.html).

<sup>17</sup> The full report is available at: <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKewis8s2Q4Pr2AhWPO-wKHcllCFyQFnoECAYQAQ&url=https%3A%2F%2Fec.europa.eu%2Fdocsroom%2Fdocuments%2F375%2Fattachments%2F1%2Ftranslations%2Fen%2Frenditions%2Fnative&usq=AOvVaw0eF-MyCscPHLBefA9ZQqIC>.

<sup>18</sup> The full report of the study is available at: <http://www.jaeurope.org/component/attachments/attachments.html?task=attachment&id=41>.

Many studies focus on the impact of entrepreneurship education on **entrepreneurial intentions** as an outcome (Kamovich & Foss, 2017; Naia et al., 2014). A meta-analysis by Bae and colleagues (2014) showed that entrepreneurship has a small but significant effect on entrepreneurial intentions. However, when controlled for the entrepreneurial intentions of the participants at the start of the entrepreneurship courses, this result disappeared. Especially students who already have an interest in entrepreneurship, participate in entrepreneurship education. Moreover, studies that do not find any significant effect often do not make it to the wider public, as these studies are often not being published.

Another problem is that most of the available studies refer to university education and only a few (e.g. Hernández-Sánchez, Sánchez-García, & Mayens, 2019) at non-university educational levels.

Taken together, while much research on the impact of entrepreneurial education is ongoing, entrepreneurship education is still 'a tough nut to crack'. It remains unclear what elements from entrepreneurship education lead to what kind of impact in the long term (Baggen et al., 2021). Hence, robust evidence for the widely accepted assertion that entrepreneurship education is effective in generating the desired outcomes in learners is still missing. More **research on entrepreneurship education for different target groups, from primary education to higher education and beyond, is desirable, whilst keeping an eye on the entrepreneurial learning process and its long-term impact** (for instance, on the capability to deal with uncertainty instead of outcomes such as entrepreneurial intentions).

### 3.3. Evaluating entrepreneurship education programmes

To develop a unified model to determine the impact and evaluate the design and content of entrepreneurial education programmes, the European Commission has set up in 2018 the **EEEPHEIC project** (Evaluation of Entrepreneurship Education Programs in Higher Education Institutions and Centres). The aim was to develop an online tool to help students pick the right programme in terms of design, impact and content and to support educators with ensuring that they achieve the intended impact and reach their target group. For measuring entrepreneurial competences (knowledge, skills and attitudes), the **EPIC tool** (Entrepreneurial Potential and Innovation Competences) was developed. Among others, the EPIC tool offers assessment scales of all competences comprised in the EntreComp framework.

The EEEPHEIC project analysed 104 entrepreneurship education programmes (EEPs) at more than 50 different higher education institutions (HEIs) across the EU to examine current features in terms of content and structure. It also covered a survey among students and educators on what *should be learned* versus what *are the learning objectives* of entrepreneurship education programmes<sup>19</sup>. A comparative analysis of its results showed considerable similarity among the student and educator population across the EU (see Table 7). The findings show that European citizens across different EU Member States perceive the actual content as well as the desired learning objectives of EEPs in surprisingly similar ways – even students and teaching staff largely agree on what is and what should be learned.

The results of the EEEPHEIC project underline the acknowledgement of ELS in the context of both (self)employment (e.g. by selecting 'spotting opportunities' by students and teachers) and as an integral part of lifelong learning capabilities (e.g. by the selecting the competence 'coping with

<sup>19</sup> Evaluation of Entrepreneurship Education Programmes in Higher Education Institutions and Centres (EEEPHEIC). Final report contract N° EAC-2017-0568. Available upon request at the authors of this research paper.

uncertainty' and 'self-awareness and self-efficacy' by teachers). It shows that the competences from the EntreComp framework are recognised in educational practice.

Table 7: Overview of students' results on which two competences should be vs. are most focused on in entrepreneurship education programmes (n=455)

Competence area	Should be developed	Is developed
Ideas & Opportunities	<ul style="list-style-type: none"> <li>• Creativity</li> <li>• Spotting opportunities</li> </ul>	<ul style="list-style-type: none"> <li>• Creativity</li> <li>• Spotting opportunities</li> </ul>
Resources	<ul style="list-style-type: none"> <li>• Motivation and perseverance</li> <li>• Financial and economic literacy</li> </ul>	<ul style="list-style-type: none"> <li>• Motivation and perseverance</li> <li>• Financial and economic literacy</li> </ul>
Into Action	<ul style="list-style-type: none"> <li>• Planning and management</li> <li>• Working with others</li> </ul>	<ul style="list-style-type: none"> <li>• Planning and management</li> <li>• Working with others</li> </ul>

Source: Final report of the EEPHEIC project<sup>20</sup>.

The **HEInnovate tool** is a self-assessment tool for higher education institutions (HEIs), set up by the European Commission, DG Education, the Culture & OECD LEED Forum and a panel of six independent experts. The HEInnovate tool includes a number of statements in regards to entrepreneurial activities, as well as leadership, staffing and links with businesses in order to assess higher education institutions on their entrepreneurial education environment<sup>21</sup>. The total number of self-assessments done with the tool is more than 26.000 across 1300 higher education institutions<sup>22</sup>. One of the educational institutions that used the HEInnovate tool to rate their entrepreneurial activity is the Arqus University Alliance – consisting of seven alliance member universities. This alliance aims to stimulate students' entrepreneurial mindset, reinforce regional engagement and build complementary areas of strength, which foster cross sectoral collaboration<sup>23</sup>. To evaluate how well the university is currently doing to achieve these ambitious targets, 210 people completed the self-assessment. The results were shared at the university level and two priorities were identified: (1) to make entrepreneurship courses more widely available and accessible and (2) to embed entrepreneurship courses across different disciplines including cross-disciplinary courses.

### 3.4. Selection of ELS indicators for the current research paper

As already mentioned we rely in this research paper on EntreComp to assess what types of skills, competences, behavioural attitudes and personal traits matter for successful business creation. EntreComp builds thus the conceptual framework for our analysis. The competences it contains are not easily distinguishable from each other, and they also interact with each other. Some competences can more easily be observed and measured than others, due to availability of data, lack of existing measuring tools or simply insufficient validity and reliability of operationalisation and/or assessment

<sup>20</sup> Idem.

<sup>21</sup> HEInnovate (2021). Is your Higher Education Institution prepared for future challenges? Available at: <https://heinnovate.eu/en>.

<sup>22</sup> HEInnovate (2021). Is your Higher Education Institution prepared for future challenges? Available at: <https://heinnovate.eu/en>.

<sup>23</sup> HEInnovate (2021). Resources – user stories: The use of HEInnovate by the Arqus University Alliance. Available at: <https://heinnovate.eu/en/heinnovate-resources/resources/use-heinnovate-argus-university-alliance>.

of empirical indicators.

For instance, financial literacy can be considered a direct indicator of ELS. It is part of the EntreComp framework and Anshika and Singla (2022) showed that the level of financial literacy of entrepreneurs, in combination with other factors<sup>24</sup>, has a substantial influence on the survival of firms. However, because the field on financial literacy and skills is rather young, a standardized way for measuring it is missing. Different dimensions and parameters have been used as an indication for financial literacy and skills (some are referred to in this research paper, e.g. in section 5.2.2).

Thus, while the EntreComp framework contains some direct indicators of ELS, the literature does not provide standardized, reliable instruments for measuring them. Also, while the effects of other EntreComp competences can be observed (e.g. when observing a specific action of an individual), it is not possible to connect the activity's cause to a singular competence of the EntreComp framework. This also means it is difficult to establish priority among the competences. In other words: while it is known that the individual EntreComp competences positively influence entrepreneurial activity, there is no clear pecking order among the traits, attitudes and skills in the competences of the EntreComp framework.

Therefore, for this research paper, **ELS indicators were selected in accordance with their relevance, robustness and availability**. This means that this paper at times presents data sources that do not include information on all EU Member States, while other data sources were excluded that might contain data on all EU Member States but of which the data was deemed less relevant or robust for the purposes of this study.

**Inclusivity** is a major topic with regard to entrepreneurial activity and ELS development. A separate chapter is therefore dedicated to discussing the situation of underrepresented groups in entrepreneurship, namely that of women, migrants, young entrepreneurs, more senior citizens and citizens with disabilities (see Chapter 5).

### 3.4.1. ELS indicators in relation to (self)employment

The relationship between new business creation and ELS development is rather complicated and is not evidenced as such. Evidencing the relationship between entrepreneurial startup activity and ELS requires not only systematic, long-term data collection on learning and entrepreneurial activity, but also the exclusion of other indicators that might affect successful business creation. Most importantly, it is questionable to what extent the relationship between ELS development and new business creation is relevant: business failure and deciding *not* to start a venture after participating in entrepreneurial learning activities are valuable outcomes in itself. Failure may result in rich learning experiences which people bring future employers – or, to use in the creation of another business. And entrepreneurial learning activities might open the eyes of aspirant entrepreneurs, who learn that being an 'intrapreneurial' employee in a corporate context might suit them better than starting their own business.

To provide relevant information on the state of ELS of EU citizens in the context of (self)employment, data from the **Annual Global Entrepreneurship Monitor (GEM) Survey 2020** has been presented in Chapter 2. The GEM data provides an overview of the state of early-stage entrepreneurial activity, established business ownership, *and* entrepreneurial employee activity in 15 of the 27 EU Member States.

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<sup>24</sup> Related important factors are concretely: access to formal finance, lending policies of financial institutions, ease of doing business and training programmes (training of) financial literacy (Anshika & Singla, 2022).

Other data sources are also available, for example Eurostat. However, until 2020, Eurostat received a number of business registrations and bankruptcy declarations within countries on a voluntary basis<sup>25</sup>. These data are perceived to be less reliable compared to the GEM data and more limited in scope, solely providing information about early-stage entrepreneurial activity.

Even though the relationship between new business creation and learning is hard to evidence, research did provide insights into different traits that impact new business creation, such as motivation-drivers like role models, entrepreneurial intentions and traits like self-efficacy that are also presented in Chapter 4 of this research paper.

### 3.4.2. ELS indicators in relation to lifelong learning

Many policy areas could be relevant for ELS as a life skill and as an integral part of lifelong learning capabilities of European citizens. However, to date the academic and practitioner literature has not revealed which indicators suit the best. ELS are related to sustainability-related issues, the social economy, digitalisation, the ageing workforce, and the impact of the COVID-19 pandemic. ELS development as a life skill and as an integral part of lifelong learning should not only lead to new business creation, but also to enable European citizens to be resilient.

The learning indicators relevant in the context of ELS development that are included in this research paper are (see Chapter 4):

- low-achieving 15-year-olds in reading, maths and science;
- tertiary educational attainment (age 25-34);
- early leavers from education and training (age 18-24);
- low-achieving eighth-graders in digital skills (about 12 to 14 years old);
- informal, non-formal and formal learning in the context of adult learning and workplace learning.

These are *indirect* indicators of ELS as they relate to necessary basic skills, in particular in the area of STEM (i.e. science, technology, engineering and mathematics), digital skills and lifelong learning. **Basic skills** matter, as individuals who do not finish compulsory education have a disadvantage in terms of human capital development. Human capital refers to an individual's experience, knowledge and educational degrees. It is positively associated with success in entrepreneurial activities (Davidsson & Honig, 2003). Relevant indicators for ELS development are therefore **reading, maths and science**, as well as **tertiary educational attainment**. The Education and Training Monitor and Eurostat function as important sources of data here.

Low-achieving eighth-grader (about 12 to 14 years old) in **digital skills** serves as an indicator to what extent the EU enables the development of a strong digital workforce. The recently published Data Act (February 2022) further regulates and supports responsible growth of the data economy<sup>26</sup>. In 2021, \$US100 billion in capital was invested in one year in the European technology ecosystem – almost three times the level of 2020<sup>27</sup>. By 2030, more than 90 % of European small and medium enterprises (SMEs) should at least have a basic level of digital intensity. Europe has the ambition to double the number of

<sup>25</sup> More information on Eurostat data on the number of business registrations and bankruptcy declarations is available at: [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Quarterly\\_registrations\\_of\\_new\\_businesses\\_and\\_declarations\\_of\\_bankruptcies\\_-\\_statistics&oldid=504228](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Quarterly_registrations_of_new_businesses_and_declarations_of_bankruptcies_-_statistics&oldid=504228).

<sup>26</sup> See the Commission proposal on the Data Act: [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_22\\_1113](https://ec.europa.eu/commission/presscorner/detail/en/ip_22_1113).

<sup>27</sup> See the European State Tech21, available at: <https://stateofeuropeantech.com/chapter/europe-global-tech-force/article/kicking-full-gear/>.

unicorns<sup>28</sup> in the same year, allowing disruptive innovations to flourish. Europe is performing well in this regard. In 2021, 98 technology companies reached the status of unicorn – still, investing in digital skills starting from a young age seems key.

Another relevant indicator for the state of ESL is a country's percentage of **early leavers from education and training** at the age of 18 to 24 years. Some studies have found that educational attainment is positively related with entrepreneurial activities, while others argue that well-educated individuals are likely to attain high paid wage employment in countries with sound economic opportunities (Oehler et al., 2012). Therefore, participating in initial education is important in laying a strong foundation for someone's level of entrepreneurial skills, most notably his or her financial literacy.

Informal learning captures the experiential nature of entrepreneurial learning, while reflection (in more formal learning programmes) is key to making that learning explicit. **Informal, non-formal and formal learning** are therefore relevant indicators of ELS as an integral part of lifelong learning, conveying the extent to which European adult citizens continue to pursue learning activities throughout their life.

### 3.4.3. Theories underlying entrepreneurial education

Entrepreneurial learning and specifically its 'wide' conceptualisation is based on different theories perceived as key in understanding of what ELS mean. Boxes 1 to 4 describe the most relevant theories for ELS development as a life skill.

#### Box 1: Effectuation Theory

Effectuation theory is a rather new theory in the field of entrepreneurship, introduced by Saras Sarasvathy in 2001. Effectuation theory elaborates on decision-making processes of entrepreneurs, depicting how entrepreneurs act in situations characterised by uncertainty (Sarasvathy, 2001) – which is part of the EntreComp framework as 'coping with uncertainty, ambiguity and risk'. Also in the EntreComp playbook (European Commission, 2020a), effectuation is framed as a way to boost self-efficacy, as it stimulates individuals to pro-actively shape outcomes by focusing on those actions that are in their control.

Effectual thinking is a mindset for creating value with the resources at hand (Who am I? What do I know? Whom do I know?) enabling the emergence of different outcomes – rather than predicting an unpredictable future by realizing fixed goals (i.e. causal thinking). Effectuation theory provides a decision-making framework for understanding and responding to the uncertain nature of problems. It is about focusing on targets and actions that are within your control, instead of trying to realize fixed goals via a pre-set plan. Interestingly, in line with effectuation theory recent empirical research has shown that business planning can lead to negative results for both entrepreneurs and organizations, even when facing financial uncertainty (Honig & Samuelsson, 2021). Embracing the unexpected and allowing uncertainty in the value creation process can be of high importance. In stimulating ELS development, it is therefore important not only to focus on business planning, but also on more effectual ways of thinking and acting. Both causal and effectual thinking can be of value – the circumstances determine which type of behaviour is

Source: Please note the scientific articles as referred to in the box.

<sup>28</sup> A unicorn is a privately owned startup company, which has reached a valuation of about 867 Euro or more. A complete explanation and background information on unicorns is available at: [https://publications.jrc.ec.europa.eu/repository/bits/tream/JRC127712/JRC127712\\_01.pdf](https://publications.jrc.ec.europa.eu/repository/bits/tream/JRC127712/JRC127712_01.pdf).



## Box 2: Identity-Learning

One of the resources in the EntreComp framework relates to 'self-awareness and self-efficacy'. It underlines the importance of reflection on needs on the short, medium and long term. Of believing in your ability to influence the course of events, despite uncertainty. **Identity-learning** provides an interesting theoretical framework for understanding this competence area. The importance of identity is acknowledged in the entrepreneurship literature, for instance by Lackéus (2020,) who argues that identity embedded in value-creation for others is a promising direction in entrepreneurship that deserves further exploration. Developing your identity is a proven way of directing behaviour – especially for situations that are complex and demanding (Meijers, Lengelle, & Kopnina, 2016). Cognitions, emotions, internal (i.e. with the self) and external dialogues (i.e. with others) drive the process of growth and awakening (Meijers et al., 2016). People shape their identity via deep learning processes resulting in new insights on what is important to them. Identity-learning enables individuals to develop a strong, resilient innerworld, providing self-efficacy and a strong driving force for creating sustainable value in situations spiced by uncertainty. **Resilience and self-efficacy** have shown to be positively associated with ELS (Bullough & Renko, 2013). A resilient identity provides a compass and raises awareness among individuals on their own inner world and their relationship with their environment. Perceiving oneself as value-creator from a resilient identity could be a strong motivational driver for European citizens to identify and act upon opportunities in a responsible way.

In the context of reflection and lifelong learning, it is important to consider what the development of ELS actually means, in particular in relation to (meta)cognitive and regulatory aspects of learning.

Source: Please note the scientific articles as referred to in the box.

## Box 3: Theories on Adaptive Performance

A review of the literature shows that professionals who are efficient in domain-specific skills are called routine experts. Some of those professionals do not only perform well in routine circumstances but are also effective in non-routine problem-solving, for example under conditions of uncertainty and (physically or mentally) stressful events (Pulakos et al., 2000; Fisher & Peterson, 2001; Bransford et al., 2005; These **adaptive professionals** apply creative problem-solving skills to solve non-routine issues (Baard et al., 2014), using domain-specific as well as domain-general, innovative skills in doing so (Lin et al., 2007).

Similarly to the concept of ELS, adaptive expertise is described in terms of the competences of the EntreComp framework, specifically cognitive flexibility (Oprins et al., 2018) higher self-efficacy (Stasielowicz, 2020), as well as goal orientation and self-regulatory skills (Stasielowicz, 2020; Oprins et al., 2018).

### Preparation for future learning

A critical element in development of adaptive expertise among students or professionals is 'preparation for future learning' (PFL), aimed at stimulating individuals' ability to learn new information, make effective use of resources as well as invent new procedures in order to support learning and problem solving in practice (Mylopoulos et al., 2018). Research has found that PFL can be supported through specific educational approaches which must (1) **emphasise understanding rather than performance**, (2) **emphasise struggle and risk taking**, (3) **support meaningful variation** and (4) **ensure that learners move beyond procedural knowledge** (namely, knowing how to do something and knowing why) (Mylopoulos et al., 2018).

PFL does not only prepare learners for a professional or domain-related field of expertise but also helps individuals to *learn how to learn*. That is because creative problem-solving which is central to PFL is a means in education to train individuals in **taking different perspectives** and **adopting a learning orientation** (metacognitive development) which is crucial for example in successful interdisciplinary collaboration (Van der Schaaf et al., 2020). Kaffka and colleagues (2021a; 2021b) have shown that when entrepreneurs engage in co-construction of problem-solving with other stakeholders, (meta)cognitive structures are developed.

Exposing students to struggle, risk-taking, and failure have all been shown to support PFL, for example via variability of practice and in particular via 'guided discovery', where students are given the opportunity to engage with new content on their own through struggle or failure, followed by direct instruction (Bohle Carbonell et al., 2014; Mylopoulos et al., 2018). Specifically, the PFL approach encourages the use of experiential learning methods which are described in Box 4.

Source: Please note the scientific articles as referred to in the box.

## Box 4: Experiential Learning Methods

Experiential learning, or learning by doing, is often referred to explain how entrepreneurs learn (e.g. Baggen et al., 2021; Cohen et al., 2020; Cope, 2000; Kolb & Kolb, 2005). The wording of the theory reflects its key attribute: it is about learning from experience, from action in authentic, real situations. As such, experiential learning is an ongoing process, resulting in learning gains throughout life. Entrepreneurial learning is therefore often characterised as unintentional and accidental (Cope & Watts, 2000). At the same time, proactive **reflection** is key in experiential learning. The entrepreneur should reflect on what happened in problem-solving in order to learn from it.

In the literature, different methodologies have been discussed and adopted in both formal education and at work for shaping experiential learning processes. For instance, lean startup captures the iterative value-creation process in three steps: build, measure, learn (Mansoori & Lackéus, 2019; Ries, 2011). Key in **lean startup** is learning from feedback from relevant stakeholders and potential end-users. Another example is **design thinking**, in which problem formulation and validation are central (Garbuio et al., 2018). In different steps of interaction with relevant stakeholders and by emphasizing with the customer, the aim is to design a product (or service) that meets the needs of the customer. Such feedback processes allow the entrepreneur to have iterative, dynamic cycles that repeat themselves based on new information or input from stakeholders. Such feedback processes have been identified as relevant to the development of entrepreneurial skills and mindset (Kaffka & Krueger, 2018; Mansoori & Lackéus, 2019; 2021). In particular, the use of artifacts during feedback loops, as well as engagement in and openness to negative (or critical) feedback is crucial for the development of entrepreneurial (meta)cognitive abilities (Kaffka et al., 2021a, 2021b).

Source: Please note the scientific articles as referred to in the box.

## 4. ENTREPRENEURIAL INTENTIONS, MOTIVATIONS, TRAITS AND LITERACY INDICATORS

### KEY FINDINGS

- An indicator of entrepreneurial motivations is the presence of role models. The share of citizens that knows someone who started a business varies greatly across the EU, ranging from 70% in the Slovak Republic to 30% in Italy.
- The COVID-19 pandemic has greatly affected EU citizens' entrepreneurial intentions in the sense that it lowered them across EU Member States. However, the effects seem to be less marked in the Netherlands and Germany.
- Within the EU, Latvia's adult population ranks high in terms of resilience, followed by Croatia and the Slovak Republic.
- Most EU Member States score below the EU targets in relation to indirect ELS indicators such as reading, mathematics and science. Estonia and Poland score relatively high on reading, mathematics and science skills. In these countries, reforms have taken place towards competence-based education.
- Data on formal, non-formal and informal learning show that countries differ considerably in their scores on these three forms of learning. In most countries, the level of informal learning is relatively high, but formal forms of learning are needed for reflection and to make sure learning is actually happening.

This chapter presents different factors that play a role in the development of entrepreneurial literacy and skills (ELS) and their relevance to ELS policies. The Global Entrepreneurship Monitor (GEM) Survey 2020 gives insight into entrepreneurial intentions and relevant personality traits for entrepreneurial activity such as optimism, resilience and self-efficacy. These (direct) indicators are discussed first. Next, indirect indicators of ELS development are presented that elaborate the learning potential of European citizens, enabling them to develop ELS.

### 4.1. Entrepreneurial motivations: the importance of role models

Motivation plays an important role in someone's decision to participate in entrepreneurial activity. An important determinant of entrepreneurial motivations is the availability of **role models**. Someone who knows an entrepreneur is more likely to be motivated to become one his/herself, as knowing entrepreneurs makes individuals more prone to entrepreneurial aspirations themselves (GEM 2021). The 2020 Annual Global Entrepreneurship Monitor (GEM) Survey results show that of the total adult population, **the share of adults who know someone who started a business** during the last two years varies drastically across European countries. The highest percentage originates from the Slovak Republic: 70 % of adults surveyed here reported to know someone who started a business recently. This is closely followed by Cyprus and Croatia with each 68 %, while other South European countries, such as Greece and Italy, report the lowest percentage of adults knowing novice entrepreneurs (32 % and 30 %, respectively).

It is interesting to note that geographic proximity of EU Member States does not imply similar results; for example, the percentage is 60 % in the Netherlands as compared to 45 % in Germany. These differences are an indicator of varying availability of entrepreneurial role models for individuals across the EU, which might also indicate that at present not all EU citizens benefit equally from the positive

effects of role models

## 4.2. Entrepreneurial intentions

Europe has the lowest share of startup activity in the world. **Resilience** and **self-efficacy** traits affect entrepreneurial intentions; thus, the percentage of adults (18-64 years) in Europe who intend to start their own venture in the next three years is discussed. In Europe, less than one in four adults considered entrepreneurial activity a serious income option in 2020 (GEM, 2021).

The highest share of the adult population intending to start a business in 2020 is found in Croatia (22 %), with Cyprus second with 20%. Both Croatia and Cyprus also report a relatively high score of knowing someone who started a business recently (in comparison to the average score). The GEM (2021) results also show that EU Member States report that on average between one in five adults and one in ten adults have short- or medium-term entrepreneurial intentions. (e.g. Latvia (18 %), the Netherlands (15%) and Germany (10%)). Italy (5 %) and Austria (3 %) report the lowest level of entrepreneurial intentions.

Table 8 shows the extent to which the COVID-19 pandemic influenced the expectation of people to start a business within the next three years. The share of the adult population that sees this influence (at least to a small extent) ranges from the Slovak Republic with 40 % up to Latvia with 83 %. These numbers show that the entrepreneurial intentions of a considerable (if not major) share of the adult population in the EU are negatively affected by the pandemic.

Table 8: The expectation to start a business influenced by the pandemic, in percentage of adults (18-64) who intend to start a business in the next three years

	'to some extent' and 'to a large extent'
Latvia	83 %
Luxembourg	82 %
Netherlands	58 %
Germany	48 %
Slovak Republic	40 %

Source: 2020 Annual Global Entrepreneurship Monitor Survey (GEM, 2021).

The 2020 Annual GEM Survey also monitored the effect of the COVID-19 pandemic on entrepreneurial self-efficacy, which is defined as the belief in one's ability to be an entrepreneur. Just like resilience, self-efficacy has demonstrated significant positive influences on entrepreneurial intentions (Bullough & Remko, 2013). Seeing a business opportunity is used as a proxy for self-efficacy. The results presented in Table 9 show that there were fewer entrepreneurs who reported seeing an opportunity in the pandemic than entrepreneurs who did not because of the pandemic. Those running an established company (over 3,5 years) were significantly *less* optimistic about the pandemic's potential yield of business opportunities compared to their early-stage counterparts (GEM, 2021).

Table 9: Percentage of adults (18-64) running an established business and seeing or not seeing an opportunity during the pandemic

	TEA	Opportunity: yes	Opportunity: no
Latvia	17 %	4 %	13 %
Slovak Republic	14 %	3.5 %	11.5 %
Croatia	12 %	3 %	9 %
Netherlands	11 %	5 %	6 %
Germany	4 %	1.5 %	2.5 %
Poland	3 %	1 %	2 %
Italy	2 %	1 %	1 %

Source: 2020 Annual Global Entrepreneurship Monitor Survey (GEM, 2021).

### 4.3. Entrepreneurial traits: The role of optimism and risk adversity

**Optimism** is an important predictor of attitudes beneficial for successful entrepreneurial activity. Therefore GEM measures a country's percentage of adults (18-64) who agree that it is easy to start a business in 2020. In Europe, the Netherlands is the country with the highest share of adults who indicate that starting a business is easy (82 %), closely followed by Sweden (80 %). Germany (57 %) ranks in the middle, while Greece and the Slovak Republic (both 28 %) report the lowest score.

Regardless of whether individuals find it easy to start a business, their optimism is a crucial factor in persevering in the endeavour. In Poland, almost nine of the ten surveyed adults (85 %) thought that there were good opportunities to start a business in the area they live in 2019; this percentage decreased dramatically to only five in ten in 2020. Sweden and Italy have the highest share of adults thinking optimistically about starting a business (both 62 %). The least optimistic were adults in Cyprus and Spain; here, the GEM (2021) results for 2020 show that the share of adults who think starting a business is a good opportunity fell roughly from one in three to one in five (see Table 10).

Table 10: Percentage of adults (18-64) who think there are good opportunities to start a business in the area they live

	2019	2020
Poland	85 %	50 %
Sweden	80 %	62 %
Italy	42 %	62 %
Norway	70 %	58 %
Netherlands	65 %	50 %
Germany	50 %	30 %
Cyprus	39 %	21 %
Spain	38 %	18 %

Source: 2020 Annual Global Entrepreneurship Monitor Survey (GEM, 2021).

EU Member States also score differently with regard to **risk adversity** (see Table 11). The Italians, together with the Germans and Dutch, report the lowest percentage of risk adversity (measured in terms of share of those who see good opportunities to start a business, but would not start because of fear), while Spain (52 %) and Greece (52 %) score highest on risk adversity.

Table 11: Risk Adversity among adult population in percentage of adults (18-64)

	Risk adversity
Spain	53 %
Greece	52 %
Croatia	51 %
Netherlands	38 %
Germany	31 %
Italy	29 %

Source: 2020 Annual Global Entrepreneurship Monitor Survey (GEM, 2021).

## 4.4. Indirect indicators of ELS

The indirect indicators for ELS development are presented here, drawn mainly from the Education and Training Monitor (ETM) as well as Eurostat if not otherwise indicated. In paragraph 3.4.2. the selection of these indirect indicators is explained. Here, high-, average- and low-scoring countries are presented.

### 4.4.1. Reading, mathematics and science skills

European citizens first and foremost need basic skills, such as reading and mathematical skills, which are required in the exercise of (almost) all competences that figure in the EntreComp framework and cover ELS. **One in five students in the EU cannot complete basic tasks in reading, mathematics and science.** Table 12 contains an overview on the high-, low- and average-scoring EU Member States for low-achieving 15-year-olds in reading, maths and science. Data for all EU Member States can be found in Table A26 in the Annex.

Table 12: Low-achieving 15-year-olds in (1) reading, (2) maths and (3) science in selected EU Member States, and current number (2020) and target value to reach

	EU Target value for 2030 for all three facets (%): <15					
	Number per EU country 2020 (%)			EU-27 number in 2020 (%)		
	Reading	Maths	Science	Reading	Maths	Science
Bulgaria	47.1	44.4	46.5	22.5	22.9	22.3
Cyprus	43.7	36.9	39.0	22.5	22.9	22.3
Latvia	22.4	17.3	18.5	22.5	22.9	22.3
Poland	14.7	14.7	13.8	22.5	22.9	22.3
Ireland	11.8	15.7	17.0	22.5	22.9	22.3
Estonia	11.1	10.2	8.8	22.5	22.9	22.3

Source: European Commission (2022)<sup>29</sup>.

The EU has set the target for 2030 for all basic skill facets at less than 15%. Four out of seven EU Member States currently reach that target for reading (Estonia, Finland, Ireland and Poland), three countries for mathematics (Denmark, Estonia and Poland) and three countries for science (Estonia, Poland and Slovenia). In particular, Estonia and Poland are high performers when it comes to basic skills.

Currently, **women are generally underrepresented at all levels of education in STEM fields**. In 2019 41% of scientists and engineers employed in the EU were women, only 21% in high-tech sectors were women and just 18% of ICT specialists were women<sup>30</sup>. Given the rapid digital and technological developments and the (increasing) economic relevance of tech startups, basic skills development – including STEM – contains large opportunities for growth.

#### 4.4.2. The level of tertiary educational attainment

The level of tertiary educational attainment (meaning: any educational attainment after secondary school) for the age group of 25-34 years across EU Member States provides insight into the general educational achievement of (young) adults. Table 13 shows the high-, low- and average-scoring EU Member States.

<sup>29</sup> European Commission (2022). Education and Training Monitor 2021 – key indicator per EU country. Available at: <https://op.europa.eu/webpub/eac/education-and-training-monitor-2021/en/belgium.html#one>.

<sup>30</sup> For more information see Box 10 of the ETM, available at: <https://op.europa.eu/webpub/eac/education-and-training-monitor-2021/en/chapters/chapter2.html>.



Table 13: Tertiary educational attainment (age 25-34) in selected EU countries, and current number (2020) and target value to reach in 2025

	Target number per EU country 2020 (%)	EU-27 number (2020) (%)	Target value for 2025 (%)
Luxembourg	60.6	40.5	≥ 45
Ireland	58.4	40.5	≥ 45
Malta	40.1	40.5	≥ 45
Bulgaria	33	40.5	≥ 45
Czechia	33	40.5	≥ 45
Hungary	30.7	40.5	≥ 45

Source: European Commission (2022)<sup>31</sup>.

In Luxembourg, most young adults successfully participate in tertiary education (60.6%). Eleven of the EU Member States meet the target value for 2025 of 45% (see Table A27 in the Annex).

#### 4.4.3. Early leavers from education and training

Individuals who do not finish compulsory education have a disadvantage in terms of human capital development. Table 14 provides the percentage of early leavers from education and training in the age of 18-24 of the high-, low- and average-scoring EU Member States.

Table 14: Early leavers from education and training (age 18-24) in selected EU countries

	Target number per EU country 2020 (%)	EU-27 number (2020) (%)	Target value for 2030 (%)
Spain	16.0	9.9	< 9
Romania	15.6	9.9	< 9
Germany	10.1	9.9	< 9
Greece	3.8	9.9	< 9
Croatia	2.2	9.9	< 9

Source: European Commission (2022)<sup>32</sup>.

According to this data, eighteen of the EU Member States currently score below the EU 2030 target of less than 9% (see Table A 28 in the Annex).

#### 4.4.4. Digital skills

Since 2014, the European Commission has been tracking digital progress via the Digital Economy and Society Index (DESI)<sup>33</sup>. In the Recovery and Resilience Plans (RRP; also see Section 6.1) of 22 EU Member States, 26% of the total of expenditures are marked in relation to the digitalisation, of which 17% is allocated for human capital, for instance in the form of online learning or digital skills development in vocational training courses. **Only 56% of European citizens had basic digital skills in 2019** – a small

<sup>31</sup> European Commission (2022). Education and Training Monitor 2021 – key indicator per EU country. Available at: <https://op.europa.eu/webpub/eac/education-and-training-monitor-2021/en/belgium.html#one>.

<sup>32</sup> Idem.

<sup>33</sup> See the Digital Economy and Society Index (DESI) 2021 report, available at: <https://digital-strategy.ec.europa.eu/de/node/9773>.

increase of 2 % since 2015 and far below the 2030 target of 80 %. The number of vacancies in information and communication technology (ICT) is growing, but there remains a shortage of ICT specialists across the EU. More than 70 % of businesses report a lack of staff with the right (digital) skills as an obstacle to investments. **Only 17 % of ICT specialists and one in three graduates in science, technology, engineering and mathematics (STEM) are women.**

Although differences in digital skills are observed between generations, the younger generation does not automatically develop digital skills because they grow up in a digital world. The ETM does not provide comparable data on digital skills (development) of young people (i.e. eighth-graders; (about 12 to 14 years old) across all EU Member States. However, there is data available for about half of the EU Member States. Of these thirteen countries (see Table A 29 in the Annex), seven EU Member States started data collection and reporting in 2010 while the other six only joined this process from 2020 onwards. Table 15 shows an overview of high-, low- and average-scoring EU Member States in 2020 (conditional on availability of data).

Table 15: Low-achieving eighth-graders in digital skills in selected EU countries, and current number (2020) and target value to reach

	Number per EU country in 2020 (%)	Target value for 2030 (%)
Luxembourg	50.6	<15
Lithuania	45.1 (2010)	<15
France	43.5	<15
Slovakia	32.8 (2010)	<15
Poland	25.3 (2010)	<15
Denmark	16.2	<15
Czechia	15.0 (2010)	<15

Source: European Commission (2022)<sup>34</sup>.

Only two EU Member States, namely Denmark and the Czech Republic (2010 data), closely meet the EU 2030 target of less than 15 %. In all other EU Member States of which data are available, **the group of low-achieving eighth-graders in digital skills runs up to 50 %**. In EU policy, the emphasis on digitalisation, data science and artificial intelligence has increased substantially<sup>35</sup> as a response to the issues observed here: (1) the EU misses out of a lot of data on digital skills across Europe and (2) the differences in digital skills development between European Member States seems to be rather large.

It is expected that 90 % of the jobs in all sectors of the future will require some way of digital skills. Currently, the ETM does not provide comparable data on digital skills (development) of young people (i.e. eighth-graders) across all EU Member States; however, there is data available for 13 EU Member States (see Table 29 in the Annex). Of these thirteen countries, seven started data collection and reporting in 2010, while the other six countries only joined this process from 2020 onwards. Table 14 shows an overview of high-, low- and average-scoring EU Member States.

<sup>34</sup> European Commission (2022). Education and Training Monitor 2021 – key indicator per EU country. Available at: <https://op.europa.eu/webpub/eac/education-and-training-monitor-2021/en/belgium.html#one>.

<sup>35</sup> See for instance European Commission, 2021a, available at: <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A52021DC0118>.

#### 4.4.5. Workplace and informal learning

Adult learning and vocational learning are important for personal development, as well as career progression and reducing unemployment<sup>36</sup>. Reported here is the percentage of adults participating in informal, non-formal and formal learning. **Informal learning** captures all forms of learning that are intentional, but not institutionalised, for example learning at the workplace or learning in daily life or a local community. **Non-formal learning** is intentional and institutionalised, for example via a course, workshop or conference. **Formal learning** is intentional, institutionalised and planned, and is part of the formal education system of a country, namely initial education, adult education and other forms of certified educational trajectories.

The data presented in Table 16 show mixed results regarding participation in formal, informal and non-formal learning. On the one hand, there are EU Member States that score overall high(er) (e.g. the Netherlands, Portugal and Sweden) than others, while on the other hand there are EU Member States which score high in terms of participation in informal learning, but considerably low(er) regarding non-formal and formal learning (e.g. Croatia, Bulgaria, Romania). Yet again, other EU Member States convey relatively stable scores but score low on all three learning indicators (for example, Poland and Lithuania). Data for all EU Member States can be found in Table 30 in the Annex.

Table 16: Participating of adults in informal, non-formal and formal learning

	Informal learning (%)	Non-formal (%)	Formal learning (%)
Netherlands	73.2	53.8	64.1
Cyprus	96.1	33.3	48.1
Estonia	79.6	35.7	44.0
Portugal	88.5	40.0	46.1
Sweden	78.6	49.2	63.8
Poland	31.0	19.7	25.5
Croatia	91.9	25.5	31.8
Lithuania	22.4	25.8	27.9
Bulgaria	50.8	22.1	24.6
Romania	64.2	4.0	7.0

Source: Eurostat (2022).

Research shows that the combination of informal and formal learning is especially effective (Tynjälä, 2013). Reflection is key to making learning explicit and, as such, a fundamental part of experiential learning (or learning-by-doing) as discussed in Box 4 (Experiential Learning Methods). **Box 5 contains a good example of such experiential learning**, namely challenge-based learning. Challenge-based learning is an innovative educational form in which university students and adult learning are brought together which, stimulates the entrepreneurial mindset and supports startup creation.

<sup>36</sup> European Commission (2021), Education & Training Monitor, Education and Well-being, available at: <https://op.europa.eu/webpub/eac/education-and-training-monitor-2021/en/chapters/chapter1.html>.

## Box 5: Case: TU/e Innovation Space

At the Eindhoven University of Technology (TU/e) in the Netherlands, TU/e innovation Space is the learning hub for education innovation and expertise for Challenge-Based Learning (CBL). CBL is a form of 'real life education' and offers opportunities for adult learning. As a technical university, the TU/e has as core aim to educate the engineer of the future, equipped with the adequate competences, in line with the expectations of the industry and society. Such engineers are 'T- or Π-shaped, have an entrepreneurial mindset, can collaborate in interdisciplinary teams and can think at a systems level.

At TU/e innovation Space, students can participate in more than 35 interdisciplinary CBL courses. Next to that, tailored workshops are offered on personal and professional skills and students are supported during their entrepreneurial learning journey. Over 50 emerging startups and student teams, for instance on sustainable housing, artificial intelligence and the energy transition, are supported via different learning and mentoring programmes. All kinds of events at TU/e innovation Space bring together students, researchers, industry, governments and other interested stakeholders.

CBL is interdisciplinary by nature. In CBL courses, students with different technical backgrounds collaborate in interdisciplinary teams on real-world challenges. These challenges are presented by **challenge owners**. They are companies, startups, public institutions and even artists, who have a challenge to crack. Students are presented with challenges on different themes and select one close to their passion. During the course, they interact with challenge owners and many other stakeholders. In courses, often the design and engineering of a product, service or system and new business development are combined.

In line with the CBL concept, which puts students and learning central, teachers have moved from teaching into **coaching**. This allows the students to be on the driving seat and consider it not as a simple course but as their own project with a real potential to deliver impact. Students perceive TU/e innovation Space as 'an enormously inspiring and active environment, and a mixture of experienced and less experienced people who all want to do some really cool stuff'.

Source: See the websites: <https://www.tue.nl/en/education/tue-innovation-space/about/> and (slide 15); [https://assets.tue.nl/fileadmin/Survey%20results\\_projectteams\\_2019.pdf](https://assets.tue.nl/fileadmin/Survey%20results_projectteams_2019.pdf).

## 5. UNDERREPRESENTED TARGET GROUPS IN ENTREPRENEURIAL ACTIVITIES AND SKILLS DEVELOPMENT

### KEY FINDINGS

- In recent years, the number of women entrepreneurs has been rising steadily, especially among younger females. However, female entrepreneurs in EU Member States report lower self-efficacy than their male counterparts.
- Young entrepreneurs are less likely to self-report having entrepreneurial skills, but are innovative and optimistic about the number of people they will employ.
- Senior entrepreneurs are more likely to report a lack of financial or digital skills, while they typically outperform their juniors with professional experience, years of work experience, networks and financial resources.
- Migrants are more likely to show entrepreneurial activity but face cultural and language challenges as well as a comparative lack of network ties.
- Only a small share of the unemployed start their own venture. Nevertheless, those that embark on self-employment through public support are mostly successful.
- The entrepreneurial activity among citizens with disabilities is relatively high, but varies greatly among citizens with different disabilities. Sensitive, tailor-made policies are needed to support citizens with disabilities in starting their own venture.

If particular (sub)groups in society do not start businesses as often as other groups, a society does not leverage its full potential in terms of innovation, income generation and other (indirect) benefits that new businesses offer (GEM, 2021). Societal (sub)groups that we know from research as disadvantaged groups in entrepreneurship are women, migrants, youth, seniors, unemployed and citizens with disabilities. If these groups were active in early-stage entrepreneurship, this would yield the European Union (EU) an increase of 50 % increase in citizens (4,5 million) who are active in early-stage entrepreneurship, with 75 % of these potential entrepreneurs being women, 50 % of this group being older than 50 years and around 12.5 % being younger than 30 years (OECD/EU 2021).

### 5.1. Gender

Women entrepreneurs can make a significant contribution to economic progress. As entrepreneurship offers economic security and empowers women, it should therefore be considered an untapped source of economic growth and development (Bastida, 2021). However, in the EU 27, there is a sharp discrepancy between male and female entrepreneurial activity. Generally, **women across Europe are underrepresented in business startup activity**. Even in the countries with the highest business startup activity, Latvia (men: 20 %; women: 11 %) and the Slovak Republic (men: 19 %; women: 9 %), men are about twice as likely to start a business compared to women. The country with the smallest difference between men and women is Germany (GEM, 2021). However, the percentage of men running new business activities is so low (4 % in 2020) that the even lower percentage of women (3.8 %) in the same year does not make a significant difference (in comparison to their male counterparts).

Women are mostly engaged in the consumer and retail sectors but are underrepresented in manufacturing and construction (Bastida, 2021). The discrepancy between male and female total early-stage entrepreneurial activity (TEA) has been related to **institutional barriers**, such as family policies

or tax policies that hinder participation in the labour market and subsequently entrepreneurship. Market failures for successful entrepreneurship and business creation such as **insufficient reach of public policy initiatives** to stimulate women entrepreneurship are also observed (OECD/EU, 2021).

### 5.1.1. Differences between men and women in entrepreneurship in relation to (personality) traits

Studies have shown that women around the world report **lower levels of self-efficacy, self-confidence, independence, autonomy, risk-taking attitude and greater fear of failure** compared to men (Bastida, 2021). As mentioned in the study by Bastida for Parliament's Committee on Women's Rights and Gender Equality, self-efficacy and self-confidence are important determinants in someone's decision to start a business. The finding that female (aspiring) entrepreneurs feel less confident in their own capabilities to start a new business might (partly) explain the significant difference between male and female startup behaviour.

Studies also found that both extrinsic factors (such as financial resources, human capital, environment) and intrinsic factors (such as motherhood, self-concept, risk attitude) make women have different preferences for lifestyle choices than men (Hakim, 2011). Most of these constraints are likely to be reversed through external actions, for instance by public policies geared towards the combination of motherhood and entrepreneurial activity or skills training to enhance women's empowerment (Hakim, 2011; Bastida, 2021).

Women believe that two factors have a major influence on their decision to start a business, namely (1) **support for work–life balance** and (2) having access to **personal and professional resources**. Mentoring, networking and promoting the visibility of **successful models** are major topics for policies aimed at increasing entrepreneurial intentions among women (Bastida, 2021).

However, **the gap between men and women to become entrepreneurs is closing**. The number of female entrepreneurs increases every year, most evidently in Spain, Poland and Greece. This is explained by effective training, coaching and mentoring, women entrepreneurship networks and support organisations, as well as increasing entrepreneurship education rates (Bastida, 2021).

### 5.1.2. Women are less aware of support policies and experience them differently

Women are less aware of support policies and experience them differently compared to men (Bastida, 2021). Men usually have a more active networking activity, and these formal/informal contacts allow them to acquire better knowledge of possible aids or even direct contact with organisations that provide resources. In particular, personal enablers related to improving personal resources, such as programmes to increase self-confidence and financial / regulatory support for work–life balance, have twice the influence on entrepreneurial intentions in the case of women compared to men (Bastida, 2021), and can affect preferences for starting entrepreneurial activity among women (Hakim, 2011).

Bastida (2021) identifies five ingredients for successful policies that target stimulating women entrepreneurship, namely:

1. The engagement of women that act as role models (the Women's Entrepreneurship Ambassadors Program<sup>37</sup> is a good example of this);
2. The acquisition of entrepreneurship skills, notably through entrepreneurship training programmes;

<sup>37</sup> Background information available at: <https://www.womenseday.org/join-us/world-ambassador-program/>.

3. Access to entrepreneurial networks, for example by providing spaces or events to make networks grow;
4. Business advice and women's entrepreneurship centres, providing support and loan programmes geared to women entrepreneurs;
5. Access to finance for women entrepreneurs at the EU Member States level, for example through grants, loans, microcredit and venture capital.

### 5.1.3. Women and science, technology, engineering and mathematics (STEM) literacy

Given the digital transition and increasing attention and need for innovative, technological developments (including tech startups), it is interesting to consider the involvement of women in science, technology, engineering and mathematics (STEM)<sup>38</sup>. Compared to men, women are less likely to report having the STEM skills that are needed to successfully start a business. However, the **gender gap in STEM** is not due to (a lack of) innate abilities associated with biological factors, but rather is the result of both **socialisation and learning processes**. Studies have shown that at a young age, girls generally show just as much interest in science as boys, with a sudden drop in this interest by the time they reach high school (Adamuti-Trache & Andres, 2008; Maltese & Tai, 2010). For example, a UK study found that while half of surveyed girls between the ages of seven and eleven consider Maths and Computer Science enjoyable and fun, this proportion drops to 31 % and 36 % respectively in respondents between the ages of eleven and fourteen<sup>39</sup>. The main reason for which girls opt out of STEM subjects is their **self-selection bias**; girls often do not consider STEM professions to be compatible with their gender<sup>40</sup>. Too often, girls do not find STEM subjects attractive or simply avoid them because they are raised to believe that STEM topics are 'masculine' and that their ability in these fields is innately inferior to that of their male counterparts<sup>41</sup>.

The ideal time to reverse this situation is during early childhood (between 4 and 9 years old), not only because it is the stage when interest in STEM subjects begins, but also because sex-role stereotyping is reinforced at primary school. The existence of **role models** improves girls' and women's self-confidence and interest in STEM careers and courses, while also helping reduce sexist attitudes about STEM (Campbell, & Steinbrueck, 1996). Research shows that it is effective to bring female images in STEM careers more closely to the daily experience of girls who don't want to see scientists as a stereotype but as people (Buck et al., 2008). Academic scholars found that it is important that role models are interesting and attractive to people (Bandura, 1986).

A good practice example in this context is the website [www.botstem.eu](http://www.botstem.eu) of the EU which hosts tips, videos and toolkits for teachers on how to make STEM subjects more attractive to (young) girls<sup>42</sup>. Here, teachers find help with exposing girls to role models by means of arranging direct meetings, videos or success stories.

<sup>38</sup> See for instance the European State Tech21, available at: <https://stateofeuropantech.com/chapter/europe-global-tech-force/article/kicking-full-gear/>; and the 2030 Digital Compass, available at: <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A52021DC0118>.

<sup>39</sup> Background information is available at: <https://www.accenture.com/gb-en/company-news-release-accenture-finds-girls>.

<sup>40</sup> National Academy of Sciences (2007). Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering. Washington, DC: National Academy of Sciences, National Academy of Engineering, and Institute of Medicine. Free summary available at: <http://www.nap.edu/catalog/11741.html>.

<sup>41</sup> Idem.

<sup>42</sup> More information on this and other good practices is available at: <https://www.botstem.eu/women-science/>.

## 5.2. Age

EU Member States show different pictures what age group demonstrate more ELS; also, youth and more senior EU citizens differ with regard to their motivations to start a business. Below, the state of ELS among both groups (youth and more senior citizens) is presented.

### 5.2.1. Youth entrepreneurship

While young people are likely to view self-employment as desirable and feasible, few of them are self-employed or new business owners. The different motivations to become entrepreneurial help explain why younger citizens are more likely to start a business than more senior citizens. Research shows that young(er) entrepreneurs have more energy and drive, are more familiar with technology and trends, and they have not yet learned what they cannot do (GEM, 2021). In addition, they have the temporal benefit: as they are younger, they have longer to reap the benefits of having started a business. **The number of young people active in entrepreneurialism in the EU has been relatively stable over the past 20 years.** In 2020, 7 % of potential entrepreneurs in the EU are self-employed youth entrepreneurs, mainly in the sectors agriculture, service, arts, real estate and construction (Fletcher, 2021). Compared to recent years, self-employed youth currently tend to employ fewer others. It is hard to explain this decline. Possibly, young people prefer to stay flexible – but this needs further investigation. Fletcher (2021) also found that **few young people work in startups**, although they may have an interest in it because of the greater variation in performed tasks and the expanded responsibility individuals typically experience in small startups, as this can accelerate their career progression (Fackler et al., 2019).

It appears that **youth entrepreneurs (aged 18 to 30 years) report being likely to introduce new products and services** between 2013 and 2017, which is confirmed by their customers, as nearly one-third of them (29.7 %) agree with this. The innovation of young entrepreneurs thus scores slightly higher compared to the general average of entrepreneurs (of all ages)<sup>43</sup>. This underlines the importance of (equipping young people with) ELS for innovative activity and ultimately economic prosperity of the EU.

**Regarding ELS, young entrepreneurs are less optimistic.** Although young people have been found to have higher levels of digital skills compared to other age cohorts, only a little more than a third of them believe that they had the skills and knowledge to start a business during the period 2013 to 2017, which is below the proportion of adults who report having the skills for business creation, namely 41.9 %<sup>44</sup>.

Four in five young EU citizens identify at least one, or both, of the following obstacles as main barriers to making entrepreneurship feasible: **a lack of finance** and financial support and/or **a lack of appropriate education and training** to support entrepreneurial ambitions<sup>45</sup>.

<sup>43</sup> OECD/European Commission (2020), 'Policy brief on recent developments in youth entrepreneurship', OECD SME and Entrepreneurship Papers, No. 19, OECD Publishing, Paris, available at <https://doi.org/10.1787/5f5c9b4e-en>.

<sup>44</sup> Idem.

<sup>45</sup> OECD/European Commission (2020), 'Policy brief on recent developments in youth entrepreneurship', OECD SME and Entrepreneurship Papers, No. 19, OECD Publishing, Paris, available at: <https://doi.org/10.1787/5f5c9b4e-en>.



Across all EU Member States, young people are less likely than adult citizens to report having entrepreneurship skills, except for Latvia, Romania, the Czech Republic and Estonia. EU Member States score lower than countries in comparable areas of the world. For example, young people in Canada and the United States of America report a score about 5 % higher than that of the highest-scoring EU Member State<sup>46</sup>. The lower score of young people compared to adult EU citizens indicates **lower self-efficacy** among this group and suggests the need for policies stimulating ELS development among this group more effectively.

There is also good news: the recent policy brief (OECD/European Commission, 2020) on Youth Entrepreneurship confirmed that the introduction of the Youth Guarantee and the Youth Employment Initiative had led to an increase in youth entrepreneurship support programmes in the EU<sup>47</sup>. Some EU Member States report high rates of starting youth entrepreneurs, namely Estonia and Latvia. Greece has introduced policies for ELS development at a younger age via the Youth Entrepreneurship Initiatives at the national level (Fletcher, 2021). A promising public-private initiative to stimulate startup activities of Greek young people is Orange Grove, which is presented in Box 6.

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<sup>46</sup> Idem.

<sup>47</sup> According to the Policy Brief on Recent Developments in Youth Entrepreneurship (2020) in 2015, approximately half of the EU Member states have made entrepreneurship a strategic priority in their Youth Guarantee Implementation Plans which offer combinations of financial support with 'soft' support in the form of entrepreneurship training, advisory services, mentoring and/or coaching ((Policy Brief on Recent Developments in Youth Entrepreneurship, 2020: pp. 9-15).

## Box 6: Case: Orange Grove

Greece was hit hard by the economic consequences of the financial crisis of 2007-2008 which led to an increase in business closures of mainly small and medium-sized enterprises (SMEs), as well as higher unemployment rates (from under 8% in 2008 to more than 20% in 2016) and a declining rate of business startup activity during the last years (Sidiropoulos, 2017).

In order to address these issues, the project Orange Grove, a public-private partnership initiated by the Netherlands Embassy in Greece, aims to stimulate startup activity, especially promising, innovative businesses, by **young people**. It has two offices, in Athens and Patras, is managed day-to-day by Ithaca, a non-profit organisation, and financially supported by Dutch-Greek businesses as well as grant foundations active in Greece. It has evolved into an online platform via which young entrepreneurs all over the country can obtain support in an easy, accessible way and offers programmes that heavily focus on **mentoring, coaching, education and networking activities**. Via the different programme elements, participants learn from mentor networks, sponsors and partners to turn their idea into a profitable, or at least self-sustaining business.

Participants in Orange Grove can attend a **six-month incubation programme** on entrepreneurial skills and innovation-related topics. Activities included in that programme, but also in shorter, more intensive training programmes, are workshops, lectures, bootcamps, coaching and mentoring by experienced professionals as well as face-to-face coaching by famous international and Greek speakers. Indirectly, Orange Grove offers participants access to various **networks**, such as those of its mentors and experts and those of its (international) partners (public and private institutions), as well as those of its donors/sponsors, and it offers access to services from a large international pool of volunteer mentors, coaches and advisors and dedicated Entrepreneurs-in-Residence. The latter are professionals who share their entrepreneurial experiences on how to deal with various issues novice (first-time) entrepreneurs might face. The overall experience is that the Orange Grove brand offers a 'stamp of approval' to its startups, when they do business in Greece or abroad. It has also played an active advocacy role regarding the importance of young innovative entrepreneurship for the Greek economy, for instance by attracting publicity for its initiatives and its startups.

Since 2013, **Orange Grove has helped to found over 220 new ventures** by providing information and other forms of support, thus contributing to ELS, namely in terms of entrepreneurial behaviour(s), characteristic of an entrepreneurial mindset required not just to start a venture (Krueger, 2012; 2015; 2021). Initiatives such as Orange Grove have some impact on the **ecosystem**, it appears: In recent years, there is a growing number of (young) entrepreneurs in Greece who are involved in entrepreneurial activity: between 2012 and 2016, venture startup activity in Greece increased by 16% in product export-oriented businesses, with an increase of 31% in the tourism-related sector (Sidiropoulos, 2017).

Source: <https://orangegrove.eu>.

### 5.2.2. Entrepreneurship among more senior citizens

Generally, seniors (working people between 50 and 64 years old) are **more often engaged in entrepreneurial activity than their younger counterparts**. Of them, 18 % are self-employed, thus active entrepreneurs, which is above average compared to the share of self-employed among other age groups of potential entrepreneurs (GEM, 2021). There are also countries that have a significantly higher share of more senior entrepreneurs, notably the Netherlands.

More senior entrepreneurial activity is not associated with specific (educational or professional) characteristics. The background of more senior citizen entrepreneurs is quite diverse. Some spent their entire career being self-employed, but others show startup activity from a more senior age: those who start a part-time business as a result of retirement, to remain active or to have extra income during retirement (GEM, 2021).

GEM (2021) identifies different motivational factors for startup activity among (more) senior citizens. Starting a business at a later age occurs because one is likely to have more skills and knowledge, an awareness of markets based on longer experience as well as better access to the information, network and other resources needed to launch a business. Other reasons include increased physical and mental health, but also maintaining a social connection.

Although an average of 45 % of more senior citizens in EU Member States self-report that they have the skills to set up a business (GEM, 2021), this number is 5 % lower than non-EU OECD countries. The **lack of entrepreneurial skills, specifically digital training and financial literacy skills, can be a challenge for more senior citizens to become an entrepreneur**, and data shows that senior entrepreneurship policy and programmes are still not well developed in the EU (GEM, 2021). An example of a policy scheme that supports senior people with entrepreneurialism is 'Senior Enterprise' sponsored by the European Commission<sup>48</sup>.

It should be noted that in the Policy Brief on Senior Entrepreneurship from 2012<sup>49</sup>, it is emphasised that there is particular demand for older business mentors, and that there are a number of initiatives in Europe that encourage and support this behaviour. The elderly can become self-employed through business acquisition (instead of setting up shop themselves). The same policy brief reports that few good policy schemes set up to stimulate ELS among more senior citizens in the EU Member States are reported. Unfortunately, information about those initiatives is, for most cases, no longer available, as website links are largely not found or seem to have changed owner.

The same Policy Brief on Senior Entrepreneurship makes five general recommendations for policies aimed at increasing ELS: (1) the promotion of benefits of entrepreneurship, (2) improving ELS with training, (3) development and support of networks, (4) improving access to finance and (5) eliminating potential hindrances or disincentives for entrepreneurship in social support systems.

## 5.3. Migrants

In the EU – as everywhere else - migrants have more difficulty becoming entrepreneurs than people born in their native country (OECD/EU, 2021). In addition to liabilities of **newness and smallness** (Stitchcombe, 1965; Gimenez-Fernandez et al., 2020), migrant entrepreneurs encounter barriers to entrepreneurship such as **(native) language and (business) culture**, but also a **smaller professional network** and **experience the new institutional environment as difficult**. This is accompanied by a

<sup>48</sup> For background information, available at: <http://www.seniorenterprise.ie>.

<sup>49</sup> For the policy brief, available at: [https://www.oecd.org/cfe/leed/EUEMP12A1201\\_Brochure\\_Entrepreneurial\\_Activities\\_EN\\_v7.0\\_accessible.pdf](https://www.oecd.org/cfe/leed/EUEMP12A1201_Brochure_Entrepreneurial_Activities_EN_v7.0_accessible.pdf).

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**lower level of awareness of the support** available to them. Additionally, this support is not easily accessible or adapted to their needs.

Despite that entrepreneurship is a difficult employment option for migrants, they form the **fastest growing group of potential entrepreneurs**, both absolute and relative (OECD/EU, 2021) as their share of the total population is growing, as well as their participation in entrepreneurial activity. Furthermore, despite the difficulties, **migrants are more likely than natives to be self-employed**, as a result of language, skills and institutional barriers that prevent them from accessing waged jobs in the host country (Dana et al., 2020). For them, starting their own business is therefore more interesting than entering the challenging labour market, especially for those who have lower skill levels. Therefore, countries have tried to provide tailored support and expanded support schemes for skills training, as well as the ability to adapt to the country where their business is set up.

The COVID-19 pandemic deepened the gaps between migrant groups and the native population in entrepreneurship and becoming self-employed – among EU Member States, but also among the various subgroups of society (Fletcher, 2021). These entrepreneurs were working in the sectors that were hit the hardest, such as hospitality and personal services, and because they made less use of access to publicly available resources and government support measurements than native entrepreneurs.

In Box 7, the European Enterprise Promotion Awards (EEPA) are presented. The EEPA are announced by the European Commission and reward entrepreneurial projects for underrepresented groups at the national, regional and local level<sup>50</sup>.

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<sup>50</sup> European Commission (2021). Internal Market, Industry, Entrepreneurship and SME: European Enterprise Promotion Awards. Available at: [https://ec.europa.eu/growth/smes/supporting-entrepreneurship/european-enterprise-promotion-awards\\_en](https://ec.europa.eu/growth/smes/supporting-entrepreneurship/european-enterprise-promotion-awards_en).

### Box 7: Case: The European Enterprise Promotion Awards and the Award-Winning Project COMPETENZentrum für Selbständige

Awarding promising entrepreneurial projects of underrepresented groups is a policy that has been in place at EU level since 2006. The European Enterprise Promotion Awards (EEPA) can be won by (potential) entrepreneurs that promote entrepreneurship and small business at the national, regional and local level. The 4000 projects that have entered the competition since 2006, have together created 10.000 new companies. With the award, entrepreneurship policies and practices can be showcased. It also helps in recognising successful activities and initiatives that promote entrepreneurship. The award categories range from promoting the entrepreneurial spirit, to improving the digital transition and inclusive entrepreneurship. The EEPA offers a fruitful way for promoting migrant entrepreneurship.

In 2021, a winning project was **COMPETENZentrum für Selbständige**. The initiative is supported by the association Initiative Selbständiger Immigrantinnen (ISI). It is an initiative *by migrants and for migrants*. As part of the project, migrant women receive support such as training of skills and skills for professional development to become self-employed. This is done by offering free training, coaching and networking opportunities to women who are willing to put business ideas into practice. Winning the award resulted in more attention for the project and helped to further promote it. Currently, the project runs in Germany, but the team has the ambition to grow internationally – supporting refugee women, migrant women in the pre-founding phase and migrant women in the post startup phase growing their business. The project is supported by the ESF and the State of Berlin.

Source: More information on the EEPA and the Grand Jury Prize 2022:  
<https://blogs.ec.europa.eu/promotingenterprise/eepe-the-grand-jury-prize/>.

## 5.4. Unemployed people

Although there are a variety of supported business creation schemes in countries for unemployed people to become active in work again, only a small share of the unemployed in the EU start their own venture. However, **those who do return from unemployment as a self-employed person are mostly successful** because well-targeted training programmes (especially for startups) have pushed this group back to the labour market (Fletcher, 2021). These programmes support the acquisition of skills and experience of the unemployed individual, as well as support for the professional network of the unemployed to help him or her move back into self-employment. Skills that are taught pertain to business skills for setting up a small business, such as financial literacy, accounting or computer skills, as well as how to identify an opportunity.

## 5.5. Citizens with disabilities

Disability can take many different forms and may relate to physical, mental, cognitive, sensory and intellectual or developmental impairment<sup>51</sup>. Data from 15 EU Member States for the period 1995-2001 show that **self-employment rates among people with disabilities are higher compared to people without disabilities (Kitching, 2014), but the entrepreneurship rates differ strongly for different impairments**. Kitching (2014) discusses different barriers that people with disabilities may face in starting their own venture in an OECD report, such as difficulties in accessing startup capital, the

<sup>51</sup> For a full definition of disability, see the report available at: <https://www.oecd.org/cfe/leed/background-report-people-disabilities.pdf>.

perceived high risks of starting a new venture, the absence of sensitive business support, and the lack of relevant business knowledge, skills and confidence. Kitching (2014) concludes that entrepreneurship certainly provides employment opportunities for people with disabilities but also points towards the complexities involved in creating long-term, sustainable opportunities. Given the wide variety among people with disabilities, policies should provide general and custom-made entrepreneurship support programmes that can be costly.

## 6. EU FUNDING MECHANISMS AND DEVELOPMENT OF ENTREPRENEURIAL LITERACY AND SKILLS

### KEY FINDINGS

- There is a considerable number of EU policy instruments targeting entrepreneurial literacy and skills development for different underrepresented groups in entrepreneurial activities.
- Policies, however, do not yet succeed fully in reaching underrepresented groups in entrepreneurship, such as women, migrants, seniors and youths.
- There is also an overlap among various funding instruments but also a lack of targeted funding mechanisms for ELS development.
- There is no systematic monitoring and evaluation of outcomes of initiatives funded by the EU.

This chapter examines a number of European Union (EU) funding mechanisms in the light of their contribution to entrepreneurial literacy and skills (ELS) development of European citizens. Table 17 contains an overview of **EU funding mechanisms for both ELS development for (self)employment and as an integral part of lifelong learning**. This overview is by no means complete, as there are a multitude of initiatives potentially relevant to the development of ELS. The EU-funded initiatives presented here are deemed most relevant to the development of ELS among EU citizens.

Table 17: Overview European funding mechanisms

Funding mechanism	Main focus	(Self)employment and/or lifelong learning	Relation to other funding mechanisms (if applicable)
Employment and Social Innovation programme (EaSI)	Microfinance for vulnerable groups, social enterprise finance	Mainly (self)employment	InvestEU Sometimes part of RRP
European Fund for Strategic Investments Equity Instrument	Social enterprise finance	Mainly (self)employment	InvestEU Sometimes part of RRP
European Social Fund Plus	Unemployed, vulnerable groups, support employment opportunities	Both: Training, skills development, finding financial resources	InvestEU Sometimes part of RRP
The Recovery and Resilience Facility	Very broad: inclusion, resilience, green, digital, pandemic	Both, emphasis on ELS as an integral part of lifelong learning	

Funding mechanism	Main focus	(Self)employment and/or lifelong learning	Relation to other funding mechanisms (if applicable)
InvestEU	Infrastructure economy, SMEs, new (social) enterprises, investors and project promoters	Mainly (self)employment, with limited attention to ELS development as an integral part of lifelong learning	Next Generation EU, RRF
Erasmus+	Education, training, youth and sport. Increase mobility of students	Mainly ELS as an integral part of lifelong learning: social skills, organisational and planning competences, dealing with uncertainty	European Education Area, Digital Education Action Plan, European Skills Agenda (pillars)
Erasmus for Young Entrepreneurs (EYE)	Novice and aspiring entrepreneurs learn from experienced entrepreneurs	Mainly (self)employment, ELS development in the context of startup activity	Erasmus+
European Solidary Corps (ESC)	Finances activities or initiatives of young people (18-30) from the EU who want to work for communities in their own country or abroad. Preferably for socially excluded target groups	Mainly as an integral part of lifelong learning: policy skills, personal qualities, respect for diversity	European Public Health Alliance (EPHA)
European Globalisation Adjustment Fund (EGF)	Helps workers who lost their jobs due to globalisation to find job opportunities by co-financing of projects such as career advice, training and education, mentors and coaches, skills development for new business creation	Both: self-employment as job opportunity and ELS development at existing organisations	



Funding mechanism	Main focus	(Self)employment and/or lifelong learning	Relation to other funding mechanisms (if applicable)
Youth Guarantee (YG)	Ensure all young people (<30) receive good quality job offer, apprenticeship, continued education and/or traineeship within a period of four months of becoming unemployment or graduation	Both: supporting youth employment and ELS development in general	Youth Employment Support
Youth Employment Initiative (YEI)	Support young people living in regions where youth unemployment is higher than 25 %	Both: supporting youth employment and ELS development in general	Youth Guarantee, European Social Fund, Recovery Assistance for Cohesion and the Territories of Europe (REACT-EU)

Source: Authors' compilation.

## 6.1. The Recovery and Resilience Facility

The Recovery and Resilience Facility is at the heart of the NextGenerationEU programme: a strong recovery plan to recover from the COVID-19 pandemic by 2027. In order to create a resilient, **inclusive economy**, focus on **long-term growth**, recover from the **COVID-19 crisis** and boost the **green and digital transitions**, the Recovery and Resilience Facility (RRF) provides financial support (723.8 billion) to the development and implementation of reforms in the EU Member States.

In the assessment guidelines skill development for 'entrepreneurship and adaptability of enterprises to change' (p. 57) is named as one of the intervention fields in relation to climate change. Furthermore, support for self-employment is mentioned as intervention in relation to the digital transition. The RRF covers a wide range of urgent issues – including education and job creation – but it is up to (international, national and local) initiatives and programmes to further colour and enrich the plans. By July 2022, the Commission will share an evaluation report on the implementation of the RRF.

## 6.2. InvestEU

The InvestEU programme was introduced in 2021 as a one-stop hub for funding (372 billion), technological and investment advice (including capacity building) and as a platform where investors and project promoters can meet<sup>52</sup>. InvestEU builds on the Investment Plan for Europe (i.e. Juncker Plan)<sup>53</sup>. The budget from InvestEU partly stems from Next Generation EU, having the Recovery and Resilience Facility as a core instrument<sup>54</sup>. InvestEU closely collaborates with the European Investment Bank, international financial institutions and national promotion banks. It brings together different

<sup>52</sup> More information available at: [https://europa.eu/investeu/about-investeu\\_en](https://europa.eu/investeu/about-investeu_en).

<sup>53</sup> More information available at: [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_19\\_6119](https://ec.europa.eu/commission/presscorner/detail/en/IP_19_6119).

<sup>54</sup> More information available at: [https://europa.eu/investeu/invest-eu/investeu-and-recovery\\_en](https://europa.eu/investeu/invest-eu/investeu-and-recovery_en).

programmes and initiatives, thereby contributing to simplicity and effectiveness in organising funding opportunities. The programme will run till 2027. **Inclusion, social impact and measures to promote education and skills** are mentioned as important foci. As such, the InvestEU programme seems to support economic growth via investments and indirectly by acknowledging the importance of ELS, as educational support programmes on ELS are not explicitly part of the InvestEU programme itself. The advisory support is mainly directed towards private project promoters, public promoters and financial and other intermediaries, all in relation to financing and investment operations<sup>55</sup>.

### 6.3 Erasmus+

The Erasmus+ Programme is considered **one of the major success stories** of the European Union. The programme explicitly facilitates the realisation of priorities set out in the European Education Area, the Digital Education Action Plan<sup>56</sup> and the European Skills Agenda (European Commission, 2020b), including social inclusion, and the green and digital transition. More specifically, Erasmus+ projects enable organisations active in the fields of **education, training, youth and sport** to form partnerships and collaborate with each other as well as with other actors, such as private-sector companies and public authorities. Mobile students are twice as likely to find a job one year after graduation compared to their non-mobile counterparts, and one in three students who do traineeships abroad are then offered a position by their host company<sup>57</sup>. In addition, surveys conducted with participants since 2014 show 96 % are satisfied with having taken part in the programme<sup>58</sup>.

In 2020, the European University Association carried out a study on the inclusiveness of the Erasmus+ Programme (EUA, 2020). The study was conducted under the European Commission's initiative 'Support and Promotion for Higher Education Reform Experts' (SPHERE) and on obstacles hindering the mobility of students from disadvantaged backgrounds in European Member States under Erasmus+ International Credit Mobility (ICM)<sup>59</sup>. One of the main findings of the evaluation was that **the focus on students from disadvantaged backgrounds is much weaker than that intended by the European Commission**. This is partly due to the fact that legal definitions of 'disadvantage' in the European Member States vary, as does their implementation. Although disadvantage is an additional selection criterion for students based on equal academic merit, it is rarely used, and selection for the ICM is in most cases only based on academic and linguistic preparedness.

The same study shows that going abroad equips young people in Europe with relevant entrepreneurial skills – e.g. social skills, organisational and planning competences and dealing with uncertainty – hence improving their prospects for a successful career. This is not necessarily related to business startup but more generally to the development of an open mind that deals better with socio-economic challenges of the 21<sup>st</sup> century. Based on the evaluative data collected about the programme, **it can be concluded that Erasmus+ stimulates and catalyses the development of ELS as an integral part of lifelong learning**.

<sup>55</sup> More information available at: [https://europa.eu/investeu/investeu-advisory-hub\\_en](https://europa.eu/investeu/investeu-advisory-hub_en).

<sup>56</sup> The plan sets out a number of actions for the period 2021 – 2027 and is available at: <https://education.ec.europa.eu/focus-topics/digital/education-action-plan>.

<sup>57</sup> The website of the European Commission provides more detailed information on the history of the Erasmus+ and is available at: [https://ec.europa.eu/commission/presscorner/detail/en/MEMO\\_17\\_83](https://ec.europa.eu/commission/presscorner/detail/en/MEMO_17_83).

<sup>58</sup> Idem.

<sup>59</sup> The full study is available at: <https://eua.eu/news/458:study-on-international-credit-mobility-for-disadvantaged-students.html>.

## 6.4. Young Entrepreneurs

Erasmus for Young Entrepreneurs (EYE) is a cross-border exchange programme that offers novice and aspiring entrepreneurs the opportunity to learn from experienced entrepreneurs who run small businesses in one of the other cooperating countries<sup>60</sup>. EYE is funded by the EU and operates with the help of local contact points that have experience in business support. The programme finances **short-term visits** (usually a stay of a few months) during which the novice entrepreneur stays with the experienced entrepreneur during the visit. This (work) visit helps the novice entrepreneur acquire the skills needed to run a small business from the more experienced 'hosting' entrepreneur. The host entrepreneur benefits from new perspectives on his/her business and is given the opportunity to work with foreign partners and learn about new markets.

The programme has a direct link with startup businesses as it contributes directly to the dissemination of business know-how. Skills development encourages the exchange of ideas among entrepreneurs from different EU Member States. Experienced entrepreneurs may act as **role models** for novice entrepreneurs. The programme thus directly benefits entrepreneurial skill development, business development and innovation in the EU.

## 6.5. European Solidarity Corps

The European Solidarity Corps (ESC) finances activities or initiatives of young people in EU Member States between the age of 18 and 30 years who want to work for communities in their own country or abroad. The ESC supports this by financing projects in the context of **volunteering or participation in local solidarity projects** in other EU Member States or participating third countries.

In 2018, the European Public Health Alliance (EPHA) participated in the ESC programme. A year later, in 2019, it published a report that provides an overview of EPHA's experience with the ESC programme (EPHA, 2019). The report shows that through these traineeships participants are able to 'enhance both policy skills (e.g. administrative, organisational and communication), but also personal qualities such as teamwork, tact, diplomacy and respect for diversity and the views of others' (EPHA, 2019: p. 8). These skills match competences from the EntreComp framework, such as ethical & sustainable thinking, self-awareness & self-efficacy, and working with others (see Chapter 3). EPHA underlines the importance of **mentoring** for the better development of (learning goals regarding) aforementioned skills.

However, it must also be noted that EPHA observed that **ESC candidates did not suffer from a lack of opportunities**. This is supposed to be a distinguishing feature of the ESC programme, as the EPHA noted, however instead 'the ESC becomes an avenue for already highly qualified young professionals to secure yet another foreign work experience that can be added to their CVs' (EPHA, 2019: p.7).

## 6.6. European Globalisation Adjustment Fund

In 2007, the EU created the European Globalisation Adjustment Fund (EGF) to co-fund policies aimed at **helping workers negatively affected by globalisation find new jobs**. The EGF has an annual budget of 210 million euros for the period 2021-2027 and can finance 60-85 % of the costs of projects that help employees who lost their job in their search to find a one or to set up their own business<sup>61</sup>. The EGF can help through co-financing, career advice, education and training including skills development of business creation, as well as guidance by mentors and coaches.

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<sup>60</sup> More information on EYE is available at: <https://www.erasmus-entrepreneurs.eu/page.php?cid=20>.

<sup>61</sup> Information on the EGF is available at: <https://ec.europa.eu/social/main.jsp?catId=326&langId=nl>.

A policy evaluation of the EGF (Claeys & Sapir, 2018) found that only a small proportion of EU workers who had lost their jobs because of globalisation received EGF financing. The evaluation results also stress that it was impossible to assess (at the time of the evaluation) whether those workers who received EGF help performed better in their employment searches than those who did not receive such EGF help.

The EGF is very much focused on mediating the negative effects of employment loss caused by major restructuring events in a region more than it is focused on stimulating the development of ELS. Therefore, it is not an ideal instrument for reaching EU citizens in an easy way such as young people or immigrants. However, it is important to note that its strategy still benefits the development of ELS among EU citizens, as well as startup creation. The EGF explicitly co-funds activities related to the development of ELS for (self)employment and as an integral part of lifelong learning, namely via **labour market skills development in the form of psychological identity works** (coaching in the context of back-to-work initiatives) as well as **skills trainings related to new venture formation or intrapreneurial activities**. Coaching and skills training in the form of reflection and feedback can enhance the development of adaptive performance among employees (see also Box 3 in Chapter 3). Also, in times of crises, such a fund can be of great significance for swiftly and pointedly reacting to labour market developments and 'cushion' the negative consequences of job losses by having the means and structure in place to do so.

## 6.7. Funding mechanisms supporting youth

The EU uses the Youth Employment Initiative (YEI) as one of the main financial instruments of the reinforced Youth Guarantee. The EU launched it in 2013 to provide support to young people living in regions where youth unemployment was greater than 25 %. The EU funding made available under the Recovery Assistance for Cohesion and the Territories of Europe (REACT-EU) initiative can be used by EU Member States to increase their YEI for 2021-2023. The European Social Fund Plus (ESF+), with a budget of 99 billion euros, is a key EU financial resource to support the implementation of YG in the 2021-2027 EU budget. As a result, YEI, YG and ESF+ strongly reinforce each other.

### 6.7.1. European Social Fund Plus

All EU Member States will have to invest an appropriate amount of their ESF+ resources in targeted actions and structural reforms to support youth employment, education and training. EU Member States with a higher rate than the EU average of young NEETs should devote at least 12.5 % of their ESF+ resources to youth employment, education and training measures.

ESF+ specifically targets the **promotion of self-employment and the social economy**, especially for **unemployed and disadvantaged groups**, via the implementation of YG. It aims to increase the learning of **entrepreneurial and digital skills** through inclusive education and training systems. Flexible learning opportunities should promote **lifelong learning**<sup>62</sup>. Hence, the ESF+ is a particularly valuable initiative for ELS development with the objective of (self)employment and to develop lifelong learning skills. The EU also launched other funding opportunities in relation to the social economy: (1) microfinance for vulnerable groups via the Employment and Social Innovation programme (EaSI) and (2) social enterprise finance via EaSI and the European Fund for Strategic Investments Equity instrument<sup>63</sup>.

<sup>62</sup> See article 4 of the ESF+ available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32021R1057>.

<sup>63</sup> Background on the funding instruments is available at: <https://ec.europa.eu/social/main.jsp?catId=1561&langId=en>.

### 6.7.2. Youth Employment Initiative

YEI exclusively supports **young people who are not in education, employment or training** (NEETs), including the long-term unemployed or those not registered as job-seekers (up to 29 years). Typically, the YEI funds the provision of **apprenticeships, traineeships, job placements and further education** leading to a qualification<sup>64</sup>.

The YEI appears to have only **limited impact on boosting startup creation**, according to Rodríguez-Soler & Verd (2018). Still, it can be concluded that **the YEI is very relevant for ELS development as an integral part of lifelong learning**. As young people were hardest hit by the financial crisis of 2007-2009, as well as during the recent COVID-19 pandemic-related crisis, the YEI presents an interesting programme to reach that group. It is aimed at young people, with targeted support in parts of Europe where the labour market challenges are most urgent.

### 6.7.3. Youth Guarantee

The reinforced Youth Guarantee (YG) is a commitment by all EU Member States to ensure that all young people under the age of 30 receive a good quality offer of employment, continued education, apprenticeship and/or traineeship within a period of four months of becoming unemployed or leaving education. All EU countries have committed to the implementation of the YG in a Council Recommendation of October 2020. The Recommendation is based on a Commission proposal, which is part of the Youth Employment Support package.

The reinforced YG includes references to **entrepreneurial skills, self-employment and startups**. Specifically, it refers to preparing young people for the changing labour market by offering upskilling and re-skilling in the context of the digital and green transitions, and for developing **entrepreneurial and career management skills**. It also refers to offering employment and startup incentives in order to create good quality opportunities for young people, including **in-depth training and entrepreneurial counselling**<sup>65</sup>.

Results of the initiative show that 24 million young people once registered in YG schemes have started an offer of employment, continued education, apprenticeships and traineeships. In about seven years' time, just before the COVID-19 pandemic, there were around one and a half million fewer young people NEET across the EU. Youth unemployment had dropped to a record low of 14.9% by February 2020. However, it is not clear what the exact contribution of the YG was to this development. Although evidence suggests that the YG has had a major transformative effect, the global macroeconomic context improved significantly during the decade after the financial crisis of 2008/9, which is not related to the efforts of the YG initiative. Results from a more recent study (Focacci, 2020) show that participants in YG-related policies are 7.4% more likely to be offered a job compared to non-participants, and 4.4% more likely to be offered an open-ended contract, independent of becoming employed.

However, there are some **controversies** about the design and duration of YG-related funding. A policy analysis of the Spanish YG found that the implemented policies were, in fact, a continuation of the previously existing lines of action (Rodríguez-Soler & Verd, 2018), due to the tight implementation schedule of these policies, as well as to the pressure imposed by the financing system proposed by the EU. Specifically, the analysis looked at measures that involved tailored advice, in the form of personal

<sup>64</sup> See the website of the European Commission for more information, available at: <https://ec.europa.eu/social/main.jsp?catId=1079&langId=en>.

<sup>65</sup> A full explanation of the reinforced YG is available at: [https://www.eumonitor.eu/9353000/1/i4nvk6yhcbpeywk\\_i9vvik7m1c3qyxp/vldi9e2npka3](https://www.eumonitor.eu/9353000/1/i4nvk6yhcbpeywk_i9vvik7m1c3qyxp/vldi9e2npka3).

mentoring or counselling, that would have been expected from such a programme. Interestingly, Rodríguez-Soler & Verd (2018) reported that they did not observe such personalised measures. They also reported that the measures did not take sufficiently into account the labour market context in which these profiles of young people were placed, as well as their heterogeneity. The authors argue that these measures can hardly be considered tailored.

## 7. CONCLUSIONS AND RECOMMENDATIONS

This research paper provides the Members of the European Parliament's Committee on Employment and Social Affairs with an overview of (policy initiatives to foster) entrepreneurial literacy and skills in the EU 27. Entrepreneurial literacy and skills were conceptualised in this study not only for the narrower purpose of **(self)employment** but also for the wider purpose of developing entrepreneurial literacy and skills as **life skill relevant for (the development of) lifelong learning capabilities** as introduced in Chapter 3.

### 7.1. Conclusions

Four main conclusions are drawn on the basis of the data and theories discussed in the current research paper.

- EU Member States differ significantly in the amount of entrepreneurial activity and many countries score below the EU targets for different (indirect) indicators of entrepreneurial literacy and skills.

In 2020, Europe reported the lowest level of early-stage entrepreneurial activity in the world (GEM, 2021). There are large differences between EU Member States in the amount of self-employment. Some European Union (EU) Member States have a significantly higher proportion of older citizens engaged in entrepreneurial activity, such as the Netherlands. In other countries, early-stage entrepreneurial activity among women is especially high. When looking at indicators of entrepreneurial activity, such as traits, motivations, and attitudes, European countries score quite differently, with Eastern European countries scoring highest in EU comparison (GEM, 2021). Indirect indicators of ELS show that many EU Member States score below the EU targets in relation to basic skills, such as reading, mathematics and science, and digital skills. EU Member States also differ significantly in the amount and extent of formal, non-formal and informal learning opportunities for adults in the EU, with significant variation in levels of (informal and formal) education in different EU countries. Those skills are an indispensable condition for the attainment of higher-level knowledge and skills. However, it must be noted that many EU countries are scoring well or at least average on various indicators, which suggests that there is in fact a solid foundation for further entrepreneurial literacy and skills development.

- Women, migrants, unemployed and youth are underrepresented in entrepreneurship.

The analysis of existing data shows that **underrepresented groups in entrepreneurship – women, migrants, unemployed and youth – are as yet not sufficiently reached with existing policy initiatives**. Other groups, such as more senior citizens and citizens with disabilities, are represented in entrepreneurship, but they face different challenges. For instance, the share of **senior entrepreneurs** is low in comparison to non-EUOECD countries. In addition, the variety in impairments among **citizens with disabilities** is so high that it requires a tailor-made, costly policy to address the needs of this specific target group – still, the sources discussed in the current research paper suggest that entrepreneurship certainly offers fruitful opportunities to citizens with disabilities.

These results on underrepresented, vulnerable groups mean that the EU is not only missing out on a competitive advantage, but still more important, it is also missing out on ideas to tackle future challenges. The COVID-19 crisis pandemic has worsened the situation for underrepresented groups. However, there is evidence that the group of women entrepreneurs is growing and that women feel more attracted to social entrepreneurship. The increasing interest in policy for the **social economy** could help support this.

- **Entrepreneurial literacy and skills are relevant for all European citizens and are highly context-dependent.**

The large differences in entrepreneurial activity, traits, intentions, motivations and (indirect) learning indicators between countries and target groups illustrate that entrepreneurial literacy and skills in EU Member States are highly context-dependent. **Cultural as well as socio-economic factors influence** the probability that citizens think and act in an entrepreneurial spirit or not, either in terms of employment or in perceiving entrepreneurial literacy and skills as a life skill and as an integral part of lifelong learning. Attracting each and every European citizen to develop entrepreneurial literacy and skills requires attention to the characteristics of the local context and the needs of different target groups. It requires a clear vision, embedded on the EU-level, guiding European, national and local initiatives with regard to entrepreneurial literacy and skills development.

- **Further positioning entrepreneurial literacy and skills as a life skill and as an integral part of lifelong learning as well as value creation for sustainability is key.**

Entrepreneurial literacy and skills have the potential not only to motivate business creation but also to empower entrepreneurial employees and European citizens in all spheres of life. In line with recent literature in entrepreneurship education and the European EntreComp model, **the meaning of entrepreneurial literacy and skills as a life skill and as an integral part of lifelong learning is expected to become ever more important in the future**, especially considering the urgent green, digital, social and economic transitions. It also fits the innovative strength the EU is in need for in order to keep up with rapid technological developments. Entrepreneurial literacy and skills facilitate the (co)creation of sustainable value for others in situations that are riddled by uncertainty because it provides individuals with a strong, resilient inner compass (i.e. identity) to navigate along their entrepreneurial learning journey while flexibly embracing unexpected events and surprises along their way. **This requires a new paradigm and common language around entrepreneurship and entrepreneurial literacy and skills development**, with a core focus on inclusion, sustainable value creation and resilience.

In order to reach such positioning, four recommendations are presented for EU policies for a more effective development of entrepreneurial literacy and skills.

## 7.2. Recommendations

**Recommendation 1: Open up entrepreneurship to all by positioning entrepreneurial literacy and skills as a life skill in the context of the social economy.**

Being able to deal with uncertainty is key in engaging in entrepreneurial activity and contributing to the urgent digital, social, sustainability and economic transition. The capability of EU citizens to engage with the unknown should already be developed from childhood. Notably, training the capability to take and engage with different perspectives, for example interdisciplinary training, is associated with (the development of) a creative mindset, leading to innovative and thus superior performance in the workplace.

To further position entrepreneurial literacy and skills as a life skill, it is recommended to integrate entrepreneurial literacy and skills in long-term progression lines in formal education and at the workplace as an integral part of lifelong learning. **Progression lines** capture the learning of individuals from young to old, in continuing learning lines across educational levels and domains, from primary education to higher education, adult learning and workplace learning.



**Challenge-based learning** has the potential to (1) stimulate the development of entrepreneurial literacy and skills as a life skill and as an integral part of lifelong learning (resulting in resilience, optimism and self-efficacy) and (2) the development of a learning orientation not only among students but also among professionals (e.g. entrepreneurs, NGOs, governmental organisations, businesses). Such learning of professionals could be accredited via so-called **micro-credentials**. The same holds for other promising forms of education and learning, programmes in which the experiential nature of entrepreneurship, value creation for others, experimentation, authenticity and interaction with different stakeholders are embedded.

**Recommendation 2: Invest in more customised funding of specific target groups to realise inclusive entrepreneurship.**

The data show that specific groups in society – women, migrants, more senior citizens, young people and citizens with disabilities – are underrepresented or face other challenges in engaging in entrepreneurial activity. There are funding mechanisms that aim to increase inclusion in entrepreneurship, such as the Employment and Social Innovation programme (EaSI), the European Fund for Strategic Investments, the European Social Fund, the European Solidarity Corps (ESC), and the Youth Employment Initiative. However, evaluation of these funding mechanisms (see Chapter 6) suggests that the different target groups are not yet reached sufficiently. By **developing entrepreneurial literacy and skills among underrepresented groups by means of targeted tailor-made policies**, EU Member States could leverage a much greater potential of entrepreneurs.

There are other funding mechanisms that more explicitly target the development of ELS for (self)employment, such as EaSI, the European Fund for Strategic Investments, InvestEU, and Erasmus for Young Entrepreneurs. These **funding mechanisms could be extended and better connected to other funding mechanisms**, such as the European Social Fund Plus, the Recovery and Resilience Facility, Erasmus+, ESC, European Globalisation Adjustment Fund and Youth Guarantee, that have a stronger focus on the development of entrepreneurial literacy and skills as a life skill and integral part of lifelong learning. Because of the different timeframes and limited duration of various projects supported by these different policy initiatives, valuable information on good practices might get lost due to the sheer multitude of activities deployed as well as lack of systematic knowledge dissemination on this topic.

Unlike the richness of initiatives, **there is no data bank that offers an overview of the results achieved and the lessons learned**. Although Erasmus+ projects are demonstrated with a short summary, and various large-scale evaluations of different funding initiatives have been carried out during the last decade, there is no central point that ties together and assesses the findings of such monitoring.

A shared frame of reference would help the EU Member States to effectively formulate policies geared at the development of entrepreneurial literacy and skills of different target groups (see also Recommendation 4).

**Recommendation 3: Invest in entrepreneurship education and learning in which mentoring is key.**

The **ecosystem** plays a quintessential role in stimulating entrepreneurial thinking and behaviour. **Role models** can play an important role in the entrepreneurial ecosystem as they can reach and activate groups in society that are underrepresented or marginalised in entrepreneurial activity. Of particular importance in this type of learning is the use of mentoring. Mentors who have demonstrated entrepreneurial success are relatable, provide positive experiences and represent a source of motivational inspiration in their respective communities. Coaching in a business incubator has been

shown to produce metacognitive development among (aspiring) entrepreneurs (Kaffka et al., 2021b). **Investing in mentoring or coaching programmes** can boost entrepreneurial aspirations in startup activity. Therefore, positioning role models and mentors/coaches in entrepreneurial ecosystems and providing easy access to such a regional or local ecosystem for all EU citizens should be essential part of any policy aimed at entrepreneurial literacy and skills development.

**Recommendation 4: Establish a shared framework and expand the database to systematically evaluate and monitor entrepreneurial literacy and skills development.**

In order to improve the development of entrepreneurial literacy and skills among European citizens, it is indispensable that policy-making is based on **recent, comprehensive and structural data collection**. Such data would ideally provide insights into the state of *both* entrepreneurial activity in terms of (self)employment *and* entrepreneurial literacy and skills development as a life skill and integral part of lifelong learning across the EU Member States.

The Annual Global Entrepreneurship (GEM) Monitor Survey provides timely and valuable insights into entrepreneurial activity, as well as on factors influencing entrepreneurial activity across participating countries. As yet, only 15 of 27 EU Member States participate in the GEM. Consequently, the picture as drafted in this report is not complete, causing blind spots that hinder the formulation of policy on entrepreneurial activity in Europe. A closer collaboration between the European Commission and the GEM consortium is therefore recommended. Alternatively, as of 2021, EU Member States are required to share the absolute number of registrations of bankruptcies with Eurostat. As a result, also Eurostat will become a more reliable source of entrepreneurial activity – especially in combination with other numbers on entrepreneurial activity, such as the number of established business owners and intrapreneurship.

Furthermore, it is recommended to explore opportunities to combine questions on the development of entrepreneurial literacy and skills with questions on entrepreneurial activity. This could result in a **long-term, systematic and structured approach to measuring the relation between entrepreneurial activity and entrepreneurial literacy and skills development in Europe**, allowing for cross-country comparisons. This in turn enables the exchange of good practices and evidence-informed policy-making that targets entrepreneurial literacy and skills development. As stated, such data could be collected in collaboration with the GEM consortium and/or Eurostat.

The recommendation is to use the **EntreComp framework as a European frame of reference** for policy-makers at the European, national, and regional level in design, implementation and evaluation of policies relevant to the development of entrepreneurial literacy and skills. EntreComp is an already existing and accepted framework in practice (see Chapter 3). To facilitate this process, it is necessary to select and translate EntreComp competences into accepted indicators throughout the EU to monitor entrepreneurial literacy and skills development. In this regard, design and testing of new instruments to assess the competences of EntreComp could be encouraged. Large-scale European-level survey research could be combined with more qualitative research designs, such as ethnographic research, focus groups, the use of apps to measure skills and mindset development, or diary-based data collection. Survey research would allow comparisons between countries. Qualitative and regional research design would allow for context specificity, as entrepreneurship is a highly context-dependent endeavour.

As a concluding remark, the significant role that entrepreneurial literacy and skills play in the **social economy** underscores the necessity for a **common language** on entrepreneurship. Such a language should be **inclusive** and define entrepreneurship in terms of **sustainable value creation with and for others**. Positioning **entrepreneurial literacy and skills as a life skill** will enable all European citizens to flourish and contribute to a strong, resilient and sustainable economy and society.

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## ANNEX 1 – GEM INDICATORS

Table A18: COVID-19 pandemic-related items

Pursue new opportunities due to the pandemic, in percentage of Total Early-stage Entrepreneurial Activity (TEA) (highest to lowest)		Starting a business is more difficult compared to a year ago, in percentage of TEA (highest to lowest)		Pandemic has led to a delay in getting the business operational, in percentage of TEA (highest to lowest)	
UK	49.4	Italy	78.1	Italy	91.9
Netherlands	41	Greece	75.5	Croatia	73.4
Italy	40.1	Spain	71.4	Spain	69.5
Cyprus	38.8	Switzerland	60.6	Greece	69.3
Norway	37.8	UK	60	Luxembourg	67.6
Austria	36.5	Luxembourg	58.6	Austria	65.5
Poland	35.3	Austria	54.6	Cyprus	64.5
Sweden	34.5	Slovak Republic	53.6	Poland	64.3
Latvia	32.9	Netherlands	52.5	Latvia	63.7
Slovenia	32.3	Croatia	48.6	Germany	63.4
Slovak Republic	32	Germany	46.7	UK	60.1
Luxembourg	30.7	Cyprus	42.1	Netherlands	53.4
Croatia	29	Poland	38.3	Slovak Republic	49.4
Spain	25.5	Norway	29.3	Switzerland	48.1
Germany	24.9	Slovenia	25.9	Norway	47.6
Switzerland	24.2	Sweden	24.4	Sweden	46
Greece	20.6	Latvia	11.9	Slovenia	44.9

Source: 2020 Annual Global Entrepreneurship Monitor Survey (GEM, 2021).

Table A19: Indicators used for analysis COVID19-related effects on entrepreneurial intentions

Knowing someone who has started a business due to the pandemic, in percentage of adults (18-64) (highest to lowest)		Knowing someone who has stopped the business due to the pandemic, in percentage of adults (18-64) (highest to lowest)	
Cyprus	29.2	Poland	47.4
UK	22.1	Greece	45.6
Slovak Republic	20.6	Spain	41.8
Netherlands	16	Croatia	40.7
Croatia	15.9	Cyprus	38.5
Greece	13	Italy	37.1
Poland	12.8	UK	32.9
Spain	12.7	Slovak Republic	31.9
Austria	11.9	Netherlands	25.9
Sweden	10.5	Slovenia	25.4
Switzerland	9.8	Austria	24.1
Latvia	7.9	Latvia	22.7
Italy	7.6	Switzerland	21.6
Norway	7.5	Germany	20.8
Germany	7.3	Sweden	17.9
Slovenia	6.4	Norway	17.8
Luxembourg	6.3	Luxembourg	17.2

Source: 2020 Annual Global Entrepreneurship Monitor Survey (GEM, 2021).

Table A20: Entrepreneurial self-efficacy

Self-efficacy							
	Perceived opportunities in percentage of adults (18-64) highest to lowest		Perceived ease of starting a business in percentage of adults (18-64) highest to lowest		Perceived capabilities in percentage of adults (18-64) highest to lowest		Fear of failure, in percentage of adults (18-64) seeing opportunities highest to lowest
Sweden	62.5	Norway	84.1	Croatia	75	Spain	53.6
Italy	62.2	Netherlands	82.9	Italy	60.8	Greece	53.1
Norway	57	Sweden	80.1	Poland	60	Croatia	52.1
Poland	51.6	Italy	78.1	Slovenia	59.4	Cyprus	49.1
Netherlands	48.8	UK	69.8	Cyprus	58.1	Slovak Republic	48.7
Croatia	47.2	Luxembourg	63.8	Slovak Republic	56.4	UK	48.3
Slovenia	42	Slovenia	62	Latvia	55.3	Slovenia	43.8
Luxembourg	41.9	Poland	58.9	UK	54.5	Sweden	42.8
Slovak Republic	40.9	Switzerland	55.5	Austria	53.3	Luxembourg	42.3
Latvia	37.1	Germany	54.4	Greece	53.3	Latvia	41.6
Germany	36	Cyprus	49.7	Sweden	52.1	Poland	41.2
Austria	31.2	Austria	47.5	Spain	51.9	Netherlands	38.3
Greece	27.9	Spain	34.6	Germany	47.6	Austria	36.8
UK	27.3	Latvia	33.2	Luxembourg	45.7	Switzerland	33.5
Switzerland	26.7	Croatia	30.7	Switzerland	44.5	Germany	31
Cyprus	21.1	Slovak Republic	26	Netherlands	43.6	Italy	28.4
Spain	16.5	Greece	25.9	Norway	41.6	Norway	27.4

Source: 2020 Annual Global Entrepreneurship Monitor Survey (GEM, 2021).

Table A21: Total early-stage entrepreneurial activity (in percentage) and business exits (in percentage) of adult population age 18 to 64

Total early-stage entrepreneurial activity, in percentage of adult population (18-64) (highest to lowest)		Exited a business in past year, in percentage of adult population (18-64) (highest to lowest)	
Latvia	15.6	Slovak Republic	5.8
Slovak Republic	13.9	Netherlands	5.1
Croatia	12.7	Croatia	4.5
Netherlands	11.5	Poland	3.4
Switzerland	9.2	Cyprus	3.2
Cyprus	8.6	Greece	3.1
Greece	8.6	Sweden	3.1
Luxembourg	8	Latvia	3
UK	7.8	Austria	2.7
Norway	7.6	UK	2.7
Sweden	7.3	Luxembourg	2.6
Austria	6.2	Germany	2
Slovenia	6	Norway	2
Spain	5.2	Slovenia	1.6
Germany	4.8	Switzerland	1.5
Poland	3.1	Spain	1.3
Italy	1.9	Italy	0.5

Source: 2020 Annual Global Entrepreneurship Monitor Survey (GEM, 2021).

Table A22: Availability of entrepreneurial role models

Personally know an entrepreneur, in percentage of adult population (18-64) (highest to lowest)	
Slovak Republic	71.9
Cyprus	68.1
Croatia	67.8
Poland	62.7
Netherlands	60.8
Slovenia	57.9
Austria	53.9
UK	49.8
Sweden	48.5
Luxembourg	45.9
Norway	44.7
Switzerland	44.6
Germany	44.4
Spain	37.4
Latvia	36.8
Greece	32.5
Italy	30.6

Source: 2020 Annual Global Entrepreneurship Monitor Survey (GEM, 2021).

Table A23: Reasons given for exit from business (with a distinction between non- as well as COVID19-related reasons)

Reason for exit, in percentage of adult population (18-64) (highest to lowest)					
	Positive reasons	Negative reasons not including the COVID-19 pandemic		Reasons related to the Covid-19 pandemic	
Netherlands	1.6	Slovak Republic	3.2	Slovak Republic	1.9
Luxembourg	1.4	Netherlands	2.7	Poland	1.7
Sweden	1.1	Latvia	2.1	Cyprus	1.4
Slovak Republic	0.7	Greece	1.9	Netherlands	0.8
Norway	0.6	Sweden	1.7	Greece	0.7
Poland	0,6	UK	1.4	UK	0.7
Slovenia	0.6	Cyprus	1.3	Latvia	0.4
UK	0.6	Germany	1.3	Switzerland	0.4
Cyprus	0.5	Norway	1.3	Luxembourg	0.3
Germany	0.5	Poland	1	Sweden	0.3
Greece	0.5	Luxembourg	0.9	Germany	0.2
Latvia	0.5	Slovenia	0.8	Slovenia	0.2
Switzerland	0.3	Spain	0.8	Spain	0.2
Spain	0.2	Switzerland	0,8	Italy	0.1
Italy	0.1	Italy	0,4	Norway	0.1
Austria	No data	Austria	No data	Austria	No data
Croatia	No data	Croatia	No data	Croatia	No data

Source: 2020 Annual Global Entrepreneurship Monitor Survey (GEM, 2021).

Table A24: Total early-stage entrepreneurial activity according to gender

Male total early-stage entrepreneurship in percentage of adult population (18-64) (highest to lowest)		Female TEA in percentage of adult population (18-64) (highest to lowest)	
Latvia	20	Latvia	11.2
Slovak Republic	18.8	Netherlands	9.6
Croatia	16.1	Croatia	9.3
Netherlands	13.4	Slovak Republic	8.9
Cyprus	11	Switzerland	8.7
Luxembourg	10.9	Greece	6.7
Greece	10.6	UK	6.2
Norway	10,2	Cyprus	6.1
Switzerland	9.8	Austria	5.3
Sweden	9.7	Luxembourg	4.9
UK	9.5	Norway	4.9
Slovenia	7.1	Slovenia	4.8
Austria	7	Spain	4.8
Spain	5.6	Sweden	4.8
Germany	5.1	Germany	4.4
Poland	3.8	Poland	2.4
Italy	2.9	Italy	0.9

Source: 2020 Annual Global Entrepreneurship Monitor Survey (GEM, 2021).



Table A25: Total early-stage entrepreneurial activity, per age profile of age groups

Age profile of total early-stage entrepreneurial activity, in percentage of age group (highest to lowest)									
	18-24		25-34		35-44		45-54		55-64
Latvia	25.6	Latvia	28.4	Latvia	16	Slovak Republic	12	Switzerland	9
Slovak Republic	19.4	Croatia	22	Croatia	14.8	Switzerland	11.5	Netherlands	8.4
Greece	18.2	Slovak Republic	19,1	Slovak Republic	14.6	Netherlands	10.2	Norway	7.4
Croatia	14.2	Netherlands	16.5	Netherlands	11.4	Latvia	9.6	Sweden	5.8
Netherlands	11.4	UK	12.6	Cyprus	10.7	Croatia	9.1	Luxembourg	5.4
Sweden	10	Cyprus	12	Switzerland	10.1	Cyprus	8.1	Slovak Republic	5.3
UK	9.7	Slovenia	11.7	Slovenia	8.4	Luxembourg	7.7	Cyprus	5
Luxembourg	8.3	Austria	10	Luxembourg	8.3	Norway	7.7	Spain	4.3
Norway	8.1	Luxembourg	9.8	UK	8	UK	6.4	Croatia	4,1
Austria	6.9	Sweden	9.8	Greece	7.4	Greece	6.1	Latvia	3.8
Germany	6.8	Greece	9.7	Norway	7.1	Sweden	5.7	Austria	2.8
Switzerland	6	Norway	8	Austria	6.8	Spain	5.3	UK	2.7
Cyprus	5.4	Switzerland	7.9	Spain	6.2	Austria	5	Greece	2.6
Spain	4.5	Germany	6.5	Sweden	5.7	Germany	4.2	Germany	2.4
Italy	3.6	Poland	5.1	Germany	5.6	Slovenia	3.6	Slovenia	2.2
Slovenia	3,2	Spain	5	Poland	4.3	Poland	3	Italy	1
Poland	1.1	Italy	1.5	Italy	3.3	Italy	1.1	Poland	0.6

Source: 2020 Annual Global Entrepreneurship Monitor Survey (GEM, 2021).

## ANNEX 2 – INDIRECT INDICATORS OF ELS DEVELOPMENT

Table A26: Low achieving 15-years-olds in: (1) reading, (2) maths and (3) science per EU country; current number (2020) and target value to reach

	Low-achieving 15-year-olds in (1) reading, (2) maths and (3) science					
	EU Target value for 2030 for all three facets (%): <15					
	Number per EU country 2020 (%)			EU-27 number in 2020 (%)		
	Reading	Maths	Science	Reading	Maths	Science
Austria	23.6	21.1	21.9	22.5	22.9	22.3
Belgium	21.3	19.7	20.0	22.5	22.9	22.3
Bulgaria	47.1	44.4	46.5	22.5	22.9	22.3
Croatia	21.6	31.2	25.4	22.5	22.9	22.3
Cyprus	43.7	36.9	39.0	22.5	22.9	22.3
Czechia	20.7	20.4	18.8	22.5	22.9	22.3
Denmark	16.0	14.6	18.7	22.5	22.9	22.3
Estonia	11.1	10.2	8.8	22.5	22.9	22.3
Finland	13.5	15.0	12.9	22.5	22.9	22.3
France	20.9	21.3	20.5	22.5	22.9	22.3
Germany	20.7	21.1	19.6	22.5	22.9	22.3
Greece	30.5	35.8	31.7	22.5	22.9	22.3
Hungary	25.3	25.6	24.1	22.5	22.9	22.3
Ireland	11.8	15.7	17.0	22.5	22.9	22.3
Italy	23.3	23.8	25.9	22.5	22.9	22.3
Latvia	22.4	17.3	18.5	22.5	22.9	22.3
Lithuania	24.4	25.6	22.2	22.5	22.9	22.3
Luxembourg	29.3	27.2	26.8	22.5	22.9	22.3
Malta	35.9	30.2	33.5	22.5	22.9	22.3
Netherlands	24.1	15.8	20.0	22.5	22.9	22.3
Poland	14.7	14.7	13.8	22.5	22.9	22.3
Portugal	20.2	23.3	19.6	22.5	22.9	22.3
Romania	40.8	46.6	43.9	22.5	22.9	22.3
Slovakia	31.4	25.1	29.3	22.5	22.9	22.3
Slovenia	17.9	16.4	14.6	22.5	22.9	22.3
Spain	23.2	24.7	21.3	22.5	22.9	22.3
Sweden	18.4	18.8	19.0	22.5	22.9	22.3

Source: European Commission (2022).

Table A27: Tertiary educational attainment (age 25-34) per EU country, and current number (2020) and target value to reach in 2025

	Tertiary educational attainment (age 25-34)		
	Target number per EU country 2020 (%)	EU-27 number (2020) (%)	Target value for 2025 (%)
Austria	41.4	40.5	≥ 45
Belgium	48.5	40.5	≥ 45
Bulgaria	33	40.5	≥ 45
Croatia	36.6	40.5	≥ 45
Cyprus	57.8	40.5	≥ 45
Czechia	33	40.5	≥ 45
Denmark	47.1	40.5	≥ 45
Estonia	43.1	40.5	≥ 45
Finland	43.8	40.5	≥ 45
France	49.4	40.5	≥ 45
Germany	35.1	40.5	≥ 45
Greece	43.7	40.5	≥ 45
Hungary	30.7	40.5	≥ 45
Ireland	58.4	40.5	≥ 45
Italy	28.9	40.5	≥ 45
Latvia	44.2	40.5	≥ 45
Lithuania	56.2	40.5	≥ 45
Luxembourg	60.6	40.5	≥ 45
Malta	40.1	40.5	≥ 45
Netherlands	52.3	40.5	≥ 45
Poland	42.4	40.5	≥ 45
Portugal	41.9	40.5	≥ 45
Romania	24.9	40.5	≥ 45
Slovakia	39.0	40.5	≥ 45
Slovenia	45.4	40.5	≥ 45
Spain	47.4	40.5	≥ 45
Sweden	49.2	40.5	≥ 45

Source: European Commission (2022).

Table A28: Early leavers from education and training (age 18-24) per EU country, and current number (2020) and target value to reach

	Early leavers from education and training (age 18-24)		
	Target number per EU country 2020 (%)	EU-27 number (2020) (%)	Target value for 2030 (%)
Austria	8.1	9.9	< 9
Belgium	8.1	9.9	< 9
Bulgaria	12.8	9.9	< 9
Croatia	2.2	9.9	< 9
Cyprus	11.5	9.9	< 9
Czechia	7.6	9.9	< 9
Denmark	9.3	9.9	< 9
Estonia	7.5	9.9	< 9
Finland	8.2	9.9	< 9
France	8.0	9.9	< 9
Germany	10.1	9.9	< 9
Greece	3.8	9.9	< 9
Hungary	12.1	9.9	< 9
Ireland	5.0	9.9	< 9
Italy	13.1	9.9	< 9
Latvia	7.2	9.9	< 9
Lithuania	5.6	9.9	< 9
Luxembourg	8.2	9.9	< 9
Malta	12.6	9.9	< 9
Netherlands	7.0	9.9	< 9
Poland	5.4	9.9	< 9
Portugal	8.9	9.9	< 9
Romania	15.6	9.9	< 9
Slovakia	7.6	9.9	< 9
Slovenia	4.1	9.9	< 9
Spain	16.0	9.9	< 9
Sweden	7.7	9.9	< 9

Source: European Commission (2022).

Table A29: Low-achieving eighth-graders in digital skills per EU country; current number (2020) and target value to reach

	Low-achieving eighth-graders in digital skills		
	Number per EU country in 2020 (%)	EU-27 number in 2010 (%)	Target value for 2030 (%)
Austria	-	-	<15
Belgium	-	-	<15
Bulgaria	-	-	<15
Croatia	35.9 (2010)	-	<15
Cyprus	-	-	<15
Czechia	15.0 (2010)	-	<15
Denmark	16.2	-	<15
Estonia	-	-	<15
Finland	27.3	-	<15
France	43.5	-	<15
Germany	33.2	-	<15
Greece	-	-	<15
Hungary	-	-	<15
Ireland	-	-	<15
Italy	-	-	<15
Latvia	-	-	<15
Lithuania	45.1 (2010)	-	<15
Luxembourg	50.6	-	<15
Malta	-	-	<15
Netherlands	26.4 (2010)	-	<15
Poland	25.3 (2010)	-	<15
Portugal	35.5	-	<15
Romania	-	-	<15
Slovakia	32.8 (2010)	-	<15
Slovenia	35.8 (2010)	-	<15
Spain	-	-	<15
Sweden	-	-	<15

Source: European Commission (2022).

Table A30: Type of learning participation per EU in for whole EU in 2016 (in percentage of total numbers male and female respondents)

	Informal learning (%)	Non-formal (%)	Formal learning (%)
Austria	79.3	48.3	59.5
Belgium	62.7	34.5	45.2
Bulgaria	50.8	22.1	24.6
Croatia	91.9	25.5	31.8
Cyprus	96.1	33.3	48.1
Czechia	70.2	39.3	46.1
Denmark	70.8	38.3	50.4
Estonia	79.6	35.7	44.0
Finland	68.7	41.6	54.1
France	68.5	39.2	51.3
Germany	43.5	42.7	52.0
Greece	47.2	11.5	16.7
Hungary	40.6	38.7	55.7
Ireland	62.1	43.9	53.9
Italy	74.4	33.3	41.5
Latvia	82.1	37.9	47.5
Lithuania	22.4	25.8	27.9
Luxembourg	68.7	36.8	48.1
Malta	42.0	27.6	36.3
Netherlands	73.2	53.8	64.1
Poland	31.0	19.7	25.5
Portugal	88.5	40.0	46.1
Romania	64.2	4.0	7.0
Slovakia	75.1	41.9	46.1
Slovenia	66.0	37.4	46.1
Spain	58.7	32.3	43.4
Sweden	78.6	49.2	63.8
<b>Total EU-28 (2013-2020)</b>	60.3	35.3	44.6
<b>Total EU-27 (from 2020)</b>	59.5	34.6	43.7

Source: Eurostat (2022).

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Entrepreneurial literacy and skills (ELS) empower European citizens to act on economic opportunities and enable them to adequately respond to ongoing impactful changes, such as the green transition, the ageing workforce and the digitalisation. This research paper analyses relevant empirical indicators of ELS, highlights the role of underrepresented groups in entrepreneurship and discusses EU-funded mechanisms in relation to ELS. The research paper concludes with recommendations on policy-making in order to more effectively foster ELS among EU citizens.

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