



# A critical analysis of the Portuguese Framework for entrepreneurship education considering the EntreComp competence framework

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## Abstract

This paper critically examines the recently approved Portuguese Framework for Entrepreneurship Education (REE), in 2024, a key policy document aimed at implementing entrepreneurship education (EE) in compulsory public education. It addresses the historical context and current challenges of EE in Portugal, where participation in EE programmes has been limited. The REE is part of a broader initiative under the Citizenship Education subject, aiming to develop entrepreneurial skills among students as they progress through the education system. This article explores the evolution of EE frameworks, particularly focusing on the European Entrepreneurship Competence Framework (EntreComp), which has been widely adopted across Europe. It investigates how these frameworks, including the REE, contribute to the development of entrepreneurial competencies—skills that go beyond business creation to foster creativity, resilience, and problem-solving. The paper also highlights the benefits and challenges of implementing EE, including the need for tailored teaching materials and the importance of teacher support. By presenting Portugal's recent efforts to integrate EE into its curriculum, this paper contributes to the international discourse on effective strategies for fostering entrepreneurial skills. It emphasises the role of such frameworks in overcoming barriers to EE, ensuring inclusivity, and addressing the evolving needs of global education systems in the face of rapid socio-economic changes.

**Keywords** Entrepreneurship education · Portuguese framework for entrepreneurship education · European entrepreneurship competence framework (EntreComp) · Entrepreneurial competencies · Education policy

## Introduction

This article critically analyses the recently approved “Referencial de Educação para o Empreendedorismo” [Portuguese Framework for Entrepreneurship Education] (REE) in Portugal, a fundamental tool for implementing entrepreneurship education (EE) in compulsory public education in the country. The background and content of this document warrant detailed examination, particularly given that, as highlighted in recent studies (Banha, 2020), the number of students receiving EE during compulsory education in Portugal has been residual. The academic contribution of this paper lies not only in its critical engagement with this pivotal document, thereby enriching the existing literature on EE in Portugal, but also in presenting a case study that can serve as a comparative example for future international research.

In Portugal, EE is one of eighteen optional domains within a compulsory subject titled “Educação para a Cidadania” [Citizenship Education]. This subject, which spans multiple years of schooling, is divided into three groups: two compulsory and the other optional.<sup>1</sup> The REE emerged after a prolonged period of reflection regarding the role of entrepreneurship education in the country and its articulation with the reference document “Perfil dos Alunos à Saída da Escolaridade Obrigatória” [Profile of Students at the End of Compulsory Education], which enshrines the key competencies and objectives that the public school system is expected to impart and achieve.

For decades, various academic and scientific sectors have recognised EE as an essential tool for fostering critical competencies throughout the educational journey of children and young people (European Commission, 2006, 2019; Fayolle, 2013; Moberg et al., 2014; Seikkula et al., 2021; Banha et al., 2022a; DGE, 2024). The academic and former European Commissioner for Education, Youth, and Sport, Tibor Navracsics, argued in 2016 that the question is no longer whether entrepreneurial skills can or should be taught but rather how they can be most effectively disseminated (JAP Annual Report, 2016).

This emphasis on EE is reflected in the efforts of numerous organisations and institutions, including the EU, OECD, and the UN, to promote entrepreneurial skills development across Europe through various policies and initiatives. However, significant challenges persist when it comes to the practical implementation of these programmes, securing political consensus, and mobilising civil society to ensure the success of these initiatives (Eurydice, 2016; Lackéus, 2015; Youth Start, 2018; Banha et al., 2022b).

A highlight from the Global Entrepreneurship Monitor (GEM) from 2023 mentions that many school-age children worldwide have limited access to EE and thus that a whole generation is missing out on this. Despite the well-documented

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<sup>1</sup> Appendix 1 offers a clearer understanding of these domains and how this subject is organised. It should also be noted that each school chooses which one of the optional domains it wants to include in its syllabi. In 2021, an official survey that covered 810 schools in Portugal revealed that the “entrepreneurship” domain was the least chosen of its group. More information available here: <https://cidadania.dge.mec.pt/sites/default/files/inline/encontros-regionaiscidadania-e-desenvolvimentosessaoplenaria2021nov-dez2.pdf>.

advantages of fostering entrepreneurial skills, the reality is that only a small proportion of students and teachers have participated in entrepreneurship education programmes (Banha et al., 2022a; GEM, 2023).

International organisations have identified the need for frameworks in EE to guide teachers in implementing activities within this domain (Bacigalupo et al., 2016; Bacigalupo, 2022; European Commission, 2016; Eurydice, 2016; Youth Start, 2018; DGE, 2024). Indeed, the 2016 development of the European framework “EntreComp” (Bacigalupo et al., 2016) aimed to provide a resource for teachers to adopt its content and methodologies. However, it was only in 2024 that Portugal approved and made available its REE to the educational community, intending to contribute to the successful implementation of the “Perfil dos Alunos à Saída da Escolaridade Obrigatória” (DGE, 2024). Against this backdrop, the recent approval of the Portuguese Framework offers a unique opportunity to foreground the importance of disseminating this facilitative document to schools and reflecting on the existing and desired models for entrepreneurship education.

This paper aims to provide a retrospective analysis of the evolution of the “EntreComp” framework as a widely recognised model, especially in countries where it has already been adopted, demonstrating its effectiveness in fostering an entrepreneurial mindset (Morselli & Orzes, 2023; Rațiu et al., 2023; Seikkula-Leino et al., 2021). It also seeks to underline the benefits this tool can provide in implementing entrepreneurship programmes—particularly with regard to equipping teachers with tailored pedagogical materials and content for each educational cycle, enabling them to design activities that develop entrepreneurial skills among children and young people (Bacigalupo et al., 2016).

Finally, as a third perspective, this paper examines the Portuguese Framework and offers contributions for discussion and reflection to make it more inclusive, particularly concerning key elements of the learning chain.

## Literature review

### Impact of entrepreneurship education on the development of entrepreneurial competencies

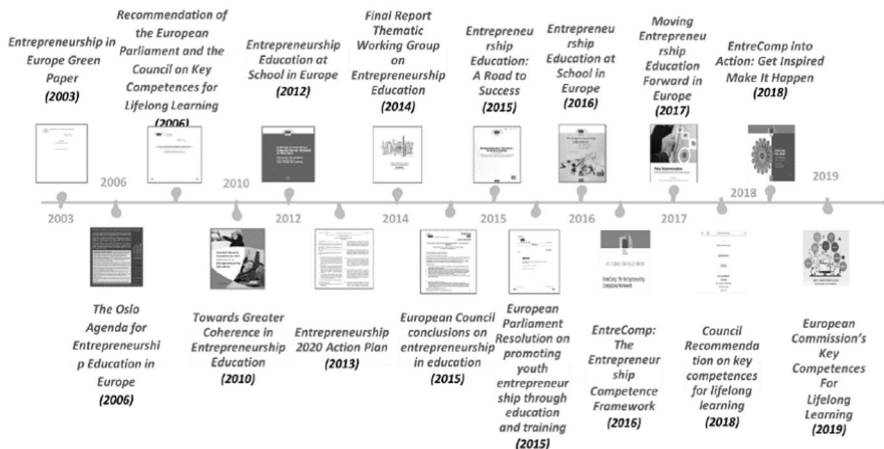
In recent decades, the global economy has undergone significant transformation. It was marked by globalisation, technological innovations, social disruption (such as the pandemic and the effects of AI), and the rise of knowledge-based economies (Cedefop, 2023; DGE, 2024; OECD, 2024). In this context, it has become increasingly important for individuals to acquire skills that enable resilience and adaptability, allowing them to access meaningful employment and fulfil their potential as active citizens (Bacigalupo et al., 2016; Banha et al., 2022a; DGE, 2024). EE addresses this need, playing a vital role in preparing individuals for future challenges (Morselli & Orzes, 2023). Embedded within the broader framework of Citizenship Education, entrepreneurship education is recognised as an essential component for developing students’ entrepreneurial competencies, generating ideas, and

transforming them into social, economic, and cultural value (Banha, 2020; Saúde et al., 2019; DGE, 2024).

It is important to note that the development of entrepreneurial skills is not limited to business creation. Instead, it seeks to foster an entrepreneurial mindset, equipping students with the knowledge and behaviours needed to shape their own futures (Banha, 2016; Maragh, 2024; Moberg et al., 2014). Numerous studies have highlighted the medium- and long-term benefits of developing entrepreneurial competencies during the school years (e.g. Seikkula-Leino, 2011; Loué & Baronet, 2012; Eurydice, 2016; Youth Start, 2018; Tittel & Terzidis, 2020; Reis et al., 2021; Fan et al., 2022; Maragh, 2024). These effects are evident both socially and economically. Socially, they encourage students to engage in new activities that enhance personal development and creativity. Economically, fostering students' entrepreneurial competencies has been shown to increase the number of early-stage businesses, drive innovation, create jobs, and stimulate economic growth (Kalani et al., 2022; Moberg et al., 2014).

There is also growing recognition that entrepreneurial skills and knowledge can be taught (Bacigalupo et al., 2016; Banha et al., 2022a; Boldureanu et al., 2020; Cera et al., 2020; Eurydice, 2016; Rezaei-Zadeh et al., 2014), underscoring the importance of schools in fostering these skills from early education levels (Banha et al., 2022b; Kalani et al., 2022; DGE, 2024). This highlights the need for a school environment that encourages creativity, experimentation, and risk-taking, recognising mistakes as valuable learning opportunities (EC, 2013; Moberg et al., 2014; Youth Start, 2018; Colombelli et al., 2022).

Since 2003, the European Union, the OECD, and other European institutions have been actively promoting entrepreneurial education through various policies and initiatives (Banha, 2020; Kalani et al., 2022; Seikkula-Leino et al., 2021). For instance, the European Commission in 2006, and later in 2018, identified eight key competencies



**Fig. 1** European initiatives and legislation on entrepreneurship education. *Source:* Banha, 2020. Implementing entrepreneurship education programmes: decision-making processes in the Portuguese case. PhD thesis, University of Algarve

essential for individuals to navigate contemporary challenges, including literacy, numeracy, scientific and foreign language skills, as well as transversal competencies like digital literacy, critical thinking, problem-solving, and lifelong learning (European Commission, 2006, 2018). These competencies aim to foster personal development, social inclusion, active citizenship, and employability (Eurydice, 2016; Eurydice, 2017a; European Commission, 2020; Leite et al., 2024) (Fig. 1).

Within this set of competences, entrepreneurship stands out as essential for promoting a creative and innovative culture. This is fundamental for the performance of various human functions (Bacigalupo et al., 2016; Kalani et al., 2022). However, despite various recommendations and the efforts made, the scenario in 2018 was that the lack of entrepreneurship education in the European Union still remained a significant obstacle to stimulating self-employment and entrepreneurship (EC, 2018). There is still a gap in traditional education (especially at the basic, compulsory level), which makes it partially unable to adapt to changing times and support the ultimate goals set by governments and recommended by authorised institutions (JAP Annual Report, 2016; Eurydice, 2017b; Banha et al., 2022b; Kalani et al., 2022; GEM, 2023, Kalani et al. 2022). Indeed, these studies emphasise the need for universities, policymakers, and the business community to continue working together to boost the growth of entrepreneurship education in Europe.

## Entrepreneurship education in Portugal

The European Union's recommendations have significantly influenced the policy cycle for EE in Portugal. The first nationwide initiative concerning EE in Portugal was launched in 2006 through a pilot project that introduced EE in 25 secondary schools. Based on the methodologies and curricula tested during this pilot, the National Entrepreneurship Education Project (PNEE) was launched in 2007–2008, extending the invitation to primary schools and vocational schools for the first time. However, due to financial constraints and the complexities of large-scale implementation, the PNEE<sup>2</sup> was discontinued in 2010.

In parallel with these initiatives, in 2007, the IAPMEI (Agency for Competitiveness and Innovation) launched an action plan for entrepreneurship called the €MPREENDE Initiative, later rebranded as “Portugal Empreendedor” [Entrepreneurial Portugal]. This local strategy aimed to promote entrepreneurship in Portugal's convergence regions. It also supported the national “INOVA! Young Creatives” ideas competition, which ran for four editions, concluding in the 2014–2015 academic year. This competition was part of the National Strategy for Entrepreneurship and Innovation under the +E+I Programme.<sup>3</sup>

In 2016, the government established the “Programa Nacional de Promoção do Sucesso Escolar” [National Programme for the Promotion of School Success],

<sup>2</sup> DOSSIER PNEE National Project ‘Education for Entrepreneurship’, December 2007, p. 9 (Available at: [https://www.dge.mec.pt/sites/default/files/ficheiros/dossier\\_pnee\\_piloto.pdf](https://www.dge.mec.pt/sites/default/files/ficheiros/dossier_pnee_piloto.pdf)).

<sup>3</sup> See: Council of Ministers Resolution no. 54/2011 (Diário da República, 1.ª Série—N.º 243—21 December 2011).

aimed at: providing quality education for all; addressing school failure; and promoting equal opportunities while enhancing the efficiency and quality of public education. Simultaneously, the government (through the Working Group on Citizenship Education) developed the National Strategy for Citizenship Education (ENEC),<sup>4</sup> which incorporated EE as one of the topics to be addressed in the school syllabus. Most recently, in mid-2024, the Portuguese Framework for Entrepreneurship Education (REE) was approved and made available to the educational community (DGE, 2024).<sup>5</sup>

## Indicators and evaluation tools for entrepreneurship

Given that the goal of EE is to equip individuals with the skills necessary to act entrepreneurially, it is crucial to clarify the concept of competence, defined as a combination of knowledge, skills, and attitudes appropriate to the context in which it is applied (European Commission, 2019; Tittel & Terzidis, 2020; Morselli & Orzes, 2023). This definition, often referred to as the holistic K-S-A model (Knowledge, Skills, and Attitudes), encompasses a wide range of activities and processes (Morselli & Gorenc, 2022).

However, due to the varied approaches to entrepreneurship education in the literature, there is some confusion regarding what should be taught and which competences should be developed (Morselli & Gorenc, 2022; Tittel & Terzidis, 2020). A clear definition of these competences is essential for creating a robust foundation for the design and implementation of high-quality programmes, as well as for assisting educators in defining learning outcomes and appropriate methods for monitoring and evaluation (Tittel & Terzidis, 2020).

Moreover, to understand the impact of entrepreneurship education, it is necessary to develop appropriate assessment tools (Fan et al., 2022; Fayolle, 2013; Ferdilan et al., 2021). However, entrepreneurial competences are challenging to codify and assess using traditional methods, highlighting the need for tools capable of measuring students' knowledge, skills, and attitudes (Moberg et al., 2014). In this context, Kirkpatrick's model () stands out as a key reference for evaluating the effectiveness of training programmes, ranging from participants' initial reactions to the achieved outcomes. This model consists of four levels: reactions (first level), which measure participants' feelings about the programme; learning (second level), which evaluates acquired skills; behaviour (third level), which analyses the application of knowledge and competences; and results (final level), which measure the consequences of these behavioural changes. Another notable example is the

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<sup>4</sup> The National Strategy for Citizenship Education (ENEC) includes a set of rights and duties that must be present in the citizenship education of Portuguese children and young people, so that in the future they will be adults with a civic behaviour that favours equality in interpersonal relationships, the integration of difference, respect for human rights and the appreciation of concepts and values of democratic citizenship, within the framework of the education system, the autonomy of schools and the curricular documents in force.

<sup>5</sup> The Citizenship Education Strategy, approved in September 2017, can be consulted at: [https://www.dge.mec.pt/sites/default/files/Projetos\\_Curriculares/Aprendizagens\\_Essenciais/estrategia\\_cidadania\\_original.pdf](https://www.dge.mec.pt/sites/default/files/Projetos_Curriculares/Aprendizagens_Essenciais/estrategia_cidadania_original.pdf)

ASTEE project (Assessment Tools and Indicators for Entrepreneurship Education), designed to provide a common set of European tools for measuring the impact of entrepreneurship education on students' competences across educational levels.<sup>6</sup>

More recently, and in response to the need to define entrepreneurship as a competence and create a reference framework describing its components, the European Entrepreneurship Competence Framework (EntreComp) was published in 2016. Its aim is to provide European citizens with tools to assess and develop entrepreneurial competences effectively (Bacigalupo et al., 2016).

## The European Entrepreneurship Competence Framework (EntreComp)

EntreComp represents a collaborative effort by the Joint Research Centre of the European Commission and the Directorate-General for Employment, Social Affairs, and Inclusion to promote a shared understanding of entrepreneurial requirements. It identifies the key components of entrepreneurship as a competence, describes these components to establish a shared conceptual model, and outlines learning outcomes that suggest what European citizens should know, understand, and be able to do at varying levels of entrepreneurial proficiency (Bacigalupo et al., 2016).

EntreComp has been widely acknowledged as a driver of competence development in entrepreneurship education and is extensively utilised in educational institutions and programmes across the European Union (McCallum et al., 2018; EU, 2020; Seikkula-Leino et al., 2021; Joensuu-Salo et al., 2022; Rațiu et al., 2023).

In Portugal, several initiatives have employed EntreComp to foster entrepreneurial competences across various sectors. For instance, the TE.EN. FARM project developed courses and teaching modules aligned with the framework to integrate entrepreneurship education into vocational and agricultural training schools (EU, 2020). Similarly, the Impact project utilised EntreComp as a guide to create a tool enabling educators to assess young people's entrepreneurial competence acquisition, track their progress, and identify areas for improvement (EU, 2020). Finally, the Youth Start project, implemented in four countries including Portugal, aimed to develop entrepreneurial competences in young people aged 7–19 through experiential and reflective challenges aligned with EntreComp (McCallum et al., 2018). Several countries have adapted the EntreComp framework to suit their specific contexts and needs. The table below highlights examples and projects developed based on the framework (Table 1).

As shown in the previous table, the European framework serves as a key reference for any initiative aiming to enhance the entrepreneurial capacity of European

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<sup>6</sup> The ASTEE tools developed consisted of three questionnaires to assess the entrepreneurial competences of students in the 2nd and 3rd cycles of basic education, secondary education and higher education. The aim of using these self-assessment tools on students was to enable educators to find out whether their teaching is working, as well as to obtain information on the development of each student and the class (Moberg et al., 2014).

**Table 1** Use of the European framework EntreComp, *Source:* Own elaboration

Country	Use of EntreComp
Portugal	Used the reference framework in the TE.EN. FARM (EU, 2020), Impact (EU, 2020) and Youth Start (McCallum et al., 2018) projects)
Germany	<i>TE.EN. FARM</i> Project (EU, 2020)
The Netherlands	<i>TE.EN. FARM</i> and <i>ParENTrepreneurs</i> <sup>11</sup> projects (EU, 2020)
Ukraine	Used EntreComp to develop a curriculum progression model that ensures continuous and structured development of entrepreneurial competences over time. The framework has been integrated into different educational levels, including primary education, secondary education, and vocational training (McCallum et al., 2018)
Italy	i) Participated in the EntreCom 4ALL <sup>12</sup> projects (McCallum et al., 2018); EntreCompEdu <sup>13</sup> , ParENTrepreneurs, Elyme <sup>14</sup> , Edu4Sent <sup>15</sup> , TE.EN. FARM and YouCoope <sup>16</sup> (EU, 2020) ii) Provided a translated and summarised version of the framework for teachers (Morselli & Orzes, 2023)
Slovenia	Youth Start Project (McCallum et al., 2018)
Turkey	Edu4Sent and <i>Future Classroom Lab</i> <sup>17</sup> projects (EU, 2020)
France	<i>Elyme</i> Project (EU, 2020)
Finland	i) Participated in the EntreCompEdu (EU, 2020) and ParENTrepreneurs (EU, 2020) projects ii) Adapted EntreComp to higher and vocational education practices (Seikkula-Leino et al., 2021)
Austria	i) Implemented the <i>Youth Start</i> Project (McCallum et al., 2018) ii) Created its own framework based on EntreComp (Morselli & Orzes, 2023)
Montenegro	i) Provided a translated version of the framework for teachers (McCallum et al., 2018) ii) Applied the framework in international projects (such as BlueSkills), aiming to fully integrate EntreComp into the national curriculum at all educational levels (McCallum et al., 2018)
Greece	i) Provided an adapted and translated version of the framework (McCallum et al., 2018) ii) Implemented the CRADLE <sup>18</sup> and Edu4Sent project (EU, 2020)
Bulgaria	<i>Cradle</i> and TE.EN. FARM projects (EU, 2020)
Denmark	<i>Cradle</i> and TE.EN.FARM projects (EU, 2020)
Poland	<i>Impact</i> and <i>Edu4Sent</i> projects (EU, 2020)
North Macedonia	<i>EntreCompEdu</i> project (EU, 2020)
Luxembourg	i. Participated in the Youth Start project; ii. The Luxembourg Ministry of Education has developed the 'Entrepreneurial Schools' project in order to integrate EntreComp skills into the school curriculum <sup>19</sup> ; iii. It has used the European framework as an evaluation tool, measuring the impact of entrepreneurial education and the level of competence of pupils; iv. Produced a simplified version of EntreComp with only 4 levels of competence <sup>20</sup> , with the aim of aligning this new version with activities carried out in the 'Entrepreneurial Schools' project (McCallum et al., 2018)
Hungary	<i>EntreCom4ALL</i> project (McCallum et al., 2018; EU, 2020)
Spain	<i>EntreCom4ALL</i> (McCallum et al., 2018; EU, 2020); <i>EntreCompEdu</i> , <i>Impact</i> , <i>ParENTrepreneurs</i> , <i>Diagnóstico Empreendedor</i> <sup>19</sup> , <i>YouCoope</i> and <i>Estudiante x Emprendedor</i> <sup>19</sup> projects (EU, 2020)
UK	<i>Impact</i> (EU, 2020), <i>EntreCom4ALL</i> (McCallum et al., 2018, EU, 2020), <i>EntreCompEdu</i> (EU, 2020), <i>ParENTrepreneurs</i> (EU, 2020), and <i>ELYME</i> projects (EU, 2020)

**Table 1** (continued)

Country	Use of EntreComp
Belgium	<i>EntreCompEdu</i> , CRADLE, ParENTrepreneurs, and <i>ELYME</i> projects (EU, 2020)
Romania	<i>Future Classroom Lab</i> project (EU, 2020)

<sup>11</sup>ParENTrepreneurs is an innovative project that, with EntreComp as a reference, seeks to develop tools to support parents and carers in contributing to the development of an entrepreneurial spirit in children (EU, 2020; ParENTrepreneurs, 2024)

<sup>12</sup>The EntreCom4ALL project is an initiative that uses EntreComp as a skills assessment system and offers personalised resources with the aim of developing entrepreneurial skills especially in young people and women entrepreneurs (McCallum et al., 2018; EU, 2020)

<sup>13</sup>The EntreCompEdu project aimed to develop the entrepreneurial skills of educators at different levels of education. To this end, it provided a free online course, a self-assessment tool, and a version of the EntreComp framework adapted for the professional environment of teachers (EU, 2020; Grigg, 2021)

<sup>14</sup>The Elyme project uses the EntreComp framework to develop and assess entrepreneurial skills. The project is primarily aimed at young migrants and refugees living in the EU (EU, 2020)

<sup>15</sup>The Edu4Sent project uses EntreComp to develop educational content so that educators and professionals working in the field of social entrepreneurship can help develop entrepreneurial skills in young migrants and refugees (EU, 2020)

<sup>16</sup>The project uses EntreComp to improve the entrepreneurial skills of educators, with the aim of reducing the high rates of youth unemployment (EU, 2020)

<sup>17</sup>The Future Classroom Lab project focuses on improving digital entrepreneurship skills in young people aged 14 to 17, using EntreComp to design its activities and measure students' progress (EU, 2020)

<sup>18</sup>The CRADLE project (Creating Activity Designed Language Learning Environments for Entrepreneurship Education) drew on seven components of the EntreComp competences framework (creativity, valuing ideas, self-awareness and self-efficacy, working with others, planning and management, dealing with uncertainty and taking initiative) to develop a teaching methodology for primary school educators, with the aim of promoting entrepreneurship and foreign language competences in pupils (EU, 2020)

<sup>19</sup>In this project, each student takes part in entrepreneurial activities for an average of 3 h a week, which are incorporated into normal lessons and extracurricular activities are also provided to complement entrepreneurial education (McCallum et al., 2018)

<sup>20</sup>Creativity; Self-awareness and self-efficacy; Teamwork; Taking the initiative

<sup>21</sup>By using EntreComp as a reference, the Diagnóstico Empreendedor project aims to raise awareness of entrepreneurial competences. To this end, it offers a self-diagnostic tool that helps both entrepreneurs and professionals to identify and strengthen their entrepreneurial competences (EU, 2020)

<sup>22</sup>The Estudiante x Empreendedor project seeks to develop an entrepreneurial attitude in university students through practical workshops and mentoring. It uses EntreComp as a basis for structuring and aligning the competences to be developed (EU, 2020)

citizens (Bacigalupo et al., 2016). However, despite its widespread use in many educational institutions, the EntreComp framework has rarely been employed in entrepreneurship research (Joensuu-Salo et al., 2022; McCallum et al., 2018).

## Entrepreneurship as a competence

Entrepreneurship is defined in the EntreComp framework as a transversal competence that applies to all aspects of life: from personal development to active participation in society, re-entering the labour market as an employee or self-employed individual, and initiating new ventures, whether cultural, social, or

commercial. This definition encompasses various forms of entrepreneurship (intrapreneurship, social entrepreneurship, ecological entrepreneurship, and digital entrepreneurship) and is applicable to individuals, teams, and organisations (Bacigalupo et al., 2016).

### Structure of the EntreComp framework

The EntreComp framework is organised into three competence areas: (1) “Ideas and Opportunities”, (2) “Resources”, and (3) “Into Action”. Each area consists of five sub-competences (Bacigalupo et al., 2016), as illustrated in Fig. 2:

The areas of competence reflect the definition of entrepreneurship as the ability to transform ideas into actions using resources. These resources can be personal (such as self-awareness and self-efficacy), material (such as means of production and financial resources), or immaterial (such as knowledge, skills and



**Fig. 2** Areas and competences of the EntreComp conceptual model. *Source:* EntreComp—The entrepreneurship competence framework (Bacigalupo et al., 2016)

**Table 2** EntreComp conceptual model. Source: EntreComp: The Entrepreneurship Competence Framework (Bacigalupo et al., 2016)

Areas	Competences	Hints	Descriptors
1. Ideas and opportunities	<b>1.1 Spotting opportunities</b>	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>
	<b>1.2 Creativity</b>	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>
	<b>1.3 Vision</b>	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>
	<b>1.4 Valuing ideas</b>	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>
	<b>1.5 Ethical and sustainable thinking</b>	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>

2. Resources	<b>2.1 Self-awareness and self-efficacy</b>	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>
	<b>2.2 Motivation and perseverance</b>	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>
	<b>2.3 Mobilizing resources</b>	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>
	<b>2.4 Financial and economic literacy</b>	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>
	<b>2.5. Mobilizing others</b>	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>
3. Into action	<b>3.1 Taking the initiative</b>	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>
	<b>3.2 Planning and management</b>	Prioritize, organize 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>
	<b>3.3 Coping with uncertainty, ambiguity and risk</b>	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>
	<b>3.4 Working with others</b>	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>
	<b>3.5. Learning through experience</b>	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>

attitudes). The three areas of competence are interconnected and together define entrepreneurship as a competence. The 15 competences are also interconnected and should be seen as parts of a whole (Bacigalupo et al., 2016).

The following table provides an overview of the EntreComp conceptual model, showing how the entrepreneurial competence has been divided into its constituent parts within the framework (Table 2):

### EntreComp progression model

In the EntreComp framework (Bacigalupo et al., 2016), progression in entrepreneurial learning is composed of two main aspects:

1. Developing increasing autonomy and responsibility in transforming ideas into value.
2. Learning to generate value from simple and predictable contexts to complex and constantly changing environments.

The EntreComp Progression Model does not follow a fixed linear sequence to start a venture. Instead, it demonstrates that entrepreneurial competences can be continuously improved to achieve greater impact in value creation.

The EntreComp Progression Model offers a benchmark for the development of proficiency, from value creation with external support to trans-formative value creation, and is made up of four main levels: Basic, Intermediate, Advanced and Expert, each divided into two sub-levels.<sup>7</sup> These levels illustrate the progression in the development of entrepreneurial competences, from initial support to full autonomy and the creation of transformative value (Bacigalupo et al., 2016).

### Learning outcomes

Learning outcomes refer to what a student knows, understands and is able to do upon completion of learning (Cedefop, 2023). In the context of EntreComp, they have been developed as benchmarks for different purposes. They can be used both in the formal education and training sector for curriculum design and in a non-formal learning context, and can be used to inspire the creation of programmes aimed at promoting intrapreneurship in organisations. They can also guide the definition of personalised pedagogies, assessment methods and learning environments that promote effective entrepreneurial learning (Bacigalupo et al., 2016). It should also be noted that the subject of entrepreneurial learning does not only refer to individuals (it also includes groups, teams, non-profit organisations, companies, public bodies, or civil society movements).<sup>8</sup>

<sup>7</sup> As illustrated in Appendix 2.

<sup>8</sup> For a better understanding, the learning outcomes for one of the competences in the EntreComp framework (setting opportunities) see Appendix 3.

## Portuguese Framework for Entrepreneurship Education

In collaboration with various partner organisations, the Directorate-General for Education (DGE) published the Portuguese Framework for Entrepreneurship Education in 2024. The framework aims to support the effective implementation of the Profile of Students at the End of Compulsory Education, as well as to promote the principles, values, and competence areas outlined in this profile (DGE, 2024). It is designed to be applied across the syllabus in various ways—for example, as part of an autonomous subject in the 2nd and 3rd cycles of basic education, or integrated into broader school projects in both primary and secondary education. It can also be employed in pre-school education or adopted by other entities and educational agents with an interest in entrepreneurship education (DGE, 2024).

### Organisation and structure of the framework

The framework is organised by educational levels and cycles, including: pre-school education, the 1st, 2nd, and 3rd cycles of basic education, and secondary education (the Portuguese equivalent to high school). It serves as a guiding document for implementing entrepreneurship as a domain within Citizenship Education, spanning pre-school and compulsory education. The structure is consistent across all educational levels and cycles, with specific proposals for each stage to support the progressive development of Entrepreneurship Education from pre-school to secondary education (DGE, 2024).

Five overarching themes have been identified, each incorporating sub-themes with defined objectives and performance descriptors: Entrepreneurial Competences, Creativity, Entrepreneurial Action, Surrounding Environment, and Communication. These themes draw upon national and international frameworks, evolving concepts, and contemporary issues in Entrepreneurship Education. The performance descriptors for each sub-theme comprise the knowledge, skills, attitudes, values, and behaviours necessary to achieve the stated objectives and learning outcomes. They are tailored to the developmental stages and age groups of children and young people and increase in complexity progressively. This approach ensures alignment with students' prior knowledge, age, and the specific school contexts (DGE, 2024)<sup>9</sup>.

### Contributions for discussion and reflection on the Portuguese Framework for Entrepreneurship Education

Anchored in the Profile of Students at the End of Compulsory Education and foundational literature on Entrepreneurship Education, the Portuguese Framework for Entrepreneurship Education mirrors several key themes, sub-themes, and objectives

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<sup>9</sup> The Portuguese Framework includes two key tables: the first summarises the learning outcomes by theme (Appendix 4), while the second identifies the themes, sub-themes, and objectives for each educational level and cycle (Appendix 5).

from the European EntreComp Framework. This section proposes expanding the scope of the learning objectives, introducing additional concepts into the glossary and bibliography, and reflecting on the benefits of constructing a student progression framework and defining proficiency levels (based on the EntreComp Framework) alongside performance levels associated with the descriptors. Finally, additional considerations are presented to enhance the framework's inclusivity and comprehensiveness.

### **Introduction of additional elements in learning objectives**

A fundamental aspect of the document that is not sufficiently emphasised is its multidisciplinary nature and the integration of various subjects. Entrepreneurship is inherently multidisciplinary (Banha, 2016), and its education has increasingly been incorporated into STEAM areas (Science, Technology, Engineering, Arts, and Mathematics) in recent years (Hylton et al., 2020; Turner & Gianiodis, 2018). However, the framework does not fully explore the potential of integrating Entrepreneurship Education with diverse knowledge areas, learning tools, and pedagogical methodologies (Stenard, 2021). It is therefore recommended that the document systematically highlights the multidisciplinary nature of entrepreneurship, particularly the ability of students to integrate different disciplines to solve problems. This could be embedded into the summary of learning outcomes. Thus: three specific areas are suggested for inclusion in relation to multidisciplinary: 1 Sustainable Development; 2 Digital Competences; 3 Entrepreneurial Ecosystem.

With regard to the first point, the document references objectives established by the United Nations, and it is evident that the framework is imbued with their principles. However, the articulation between these objectives and the tripartite concept of sustainability (economic, social, and environmental dimensions) is not directly integrated into the learning objectives. It would therefore be beneficial for these objectives to be linked to the more practical and project-oriented dimensions of the performance descriptors. Additionally, concerning the second point, it is suggested that the essential competences required to meet the objectives of the digital transition should also be incorporated into the performance descriptors.

The third point, related to the entrepreneurial ecosystem, is similarly absent from the document. Given the significance of this term in the fields of entrepreneurship and society, as well as its reference to the interconnected links within a community, it is deemed important to include it in the glossary, objectives, and performance descriptors.

It is also considered crucial that certain tools, such as risk matrices, SWOT analyses, the Canvas methodology, organisational design, and problem-solving diagrams (e.g. Ishikawa diagrams), among others, receive greater visibility within the framework. These tools, which are strongly supported by academic research, have long been part of the daily practices of entrepreneurs, analysts, consultants, and professionals from a broad range of disciplines (from the humanities to engineering). Entrepreneurship education has significant potential to incorporate the pedagogy of these tools, and more importantly, to facilitate learning based on their design and

application by students. It is therefore suggested that these tools be given explicit mention and visibility in the learning outcomes.

Finally, emphasising the importance of defining and discussing the role of entrepreneurs in society, it is proposed that this topic be explored in greater depth and with more specificity within the framework. Encouraging young people to observe their surroundings and understand the multifaceted contributions of entrepreneurs, as well as their social and civic roles (Eurydice, 2016; Martin & Osberg, 2007; Zahra & Wright, 2015), is a key area that should be strengthened within the framework.

## Glossary entries

Based on the points raised earlier, it is suggested that the following terms be included in the glossary of the framework:

- **Sustainable Development:** Development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Brundtland Report, 1987).
- **Entrepreneurial Ecosystem:** A relatively recent term referring to the conditions under which individuals, businesses, and society come together to generate economic development, innovation, and prosperity (Carvalho, 2016). More specifically, it refers to a set of interconnected actors (existing and potential), organisations (e.g. businesses, venture capital, business angels, and banks), institutions (e.g. universities, public sector entities, and financial bodies), and processes (e.g. business creation rates, the prevalence of highly successful entrepreneurs, and society's entrepreneurial ambitions and progressive mindset) (Mason & Brown, 2014).
- **STEAM:** Science, Technology, Engineering, Art, and Mathematics. STEAM is an educational approach that uses these disciplines as entry points for fostering student inquiry, dialogue, and critical thinking (Bhor & Varghese, 2024). The approach aims to encourage students to take calculated risks, engage in experiential learning, and persist in solving problems (The Institute for Arts Integration and STEAM).
- **Sustainability:** Complement the existing definition in the framework with the three pillars of sustainability outlined in the Brundtland Report: social, economic, and environmental.

## Reference to the progression model proposed by the EntreComp framework

Several scientifically validated academic sources could provide significant utility for establishing benchmarks or referencing best practices. Among these, Fellnhofner's (2019) literature review stands out as a comprehensive and detailed analysis of academic research on entrepreneurship education. Additionally, numerous articles

present case studies and pertinent lessons that could be adapted to the Portuguese educational context.

The development of a student progression framework and the creation of proficiency levels (based on the EntreComp Framework) could provide valuable contributions. Currently, the proposed framework lacks a systematic progression model for learning. Although differences exist between performance indicators across educational levels, there is no student-centred framework designed to guide individual progress systematically over time, from foundational levels to proficiency.

While the framework adjusts its focus based on educational stages (adapting to different age groups and school contexts), the “performance descriptors” are not organised hierarchically in a way that fosters continuity towards proficiency. This results in a degree of modularity in Entrepreneurship Education, allowing ad hoc exposure to the subject. However, such flexibility may be difficult to reconcile with a vision of sustained learning.

The case of Estonia, highlighted in the Eurydice report (2016), offers a noteworthy example. Estonia’s transdisciplinary and progressive learning model integrates school dynamics with local communities, along with the associated pedagogical and methodological implications. The Estonian curriculum demonstrates a clear, structured progression across different educational levels, emphasising the continuous development of students’ civic and entrepreneurial skills.<sup>10</sup>

The appendices of the EntreComp report (from page 22 onwards) provide a valuable reference, describing four proficiency levels subdivided into eight sub-levels, each with criteria mapped to the main areas (or competences). The theoretical robustness of this document suggests that a systematic progression model with proficiency levels could be considered by the Directorate-General for Education (DGE).

### **Establishing performance levels aligned with performance descriptors**

Building on the previous points, it is recommended that the framework include performance levels and evaluation criteria associated with the performance descriptors. The EntreComp framework demonstrates best practice by incorporating objectives and guiding references for defining performance and evaluation levels. In other words, it would be beneficial for the framework under discussion to not only define the pathways for achieving objectives but also establish reference scales for evaluating each educational cycle.

Moreover, given the framework’s focus, it could engage more deeply with the establishment of criteria linked to its objectives and the formulation of corresponding

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<sup>10</sup> In Estonia, in primary school, from the first to the third year, the focus is on cooperation and joint decision-making, through voluntary activities such as cleaning up neighbourhoods and organising community events. From fourth to sixth grade, students are encouraged to develop their own initiatives, learning to solve problems creatively and collaboratively. In lower secondary education, the curriculum explores the workings of the public, private, and non-profit sectors, while in upper secondary education, students are prepared to actively participate in political and economic decision-making at local and national levels, through projects and activities that promote an understanding of political and economic systems (Eurydice, 2016).

performance levels. Currently, the framework does not explicitly address important elements that would help teachers and guardians understand what differentiates inadequate, satisfactory, and excellent performance for a given descriptor.

Ultimately, clarifying and expanding the framework with multiple proficiency levels and related evaluation elements would enhance the ability to assess each student's progress on an individual basis.

## **Conclusion**

### **Generalisable approaches**

When mobilised effectively, EE can serve as a powerful tool for citizen empowerment. Due to its broad scope, it can perform multiple functions, addressing socially sensitive issues as well as topics in management, financial literacy, and digital and scientific literacy. The more developed entrepreneurial competences become, the easier it will be for young people to translate what they have learned—for instance, computational thinking and programming skills under the Digital Transition Plan, or innovative approaches to combating climate change—into real-time applications that generate new ideas, products, knowledge, and value for society.

Currently, we are in a unique contextual moment to transform paradigms across various areas, as the frameworks of citizenship, environmentalism, digital skills, and entrepreneurial competences converge. It would therefore be beneficial for the framework to be strengthened in a way that more directly fosters these types of connections.

### **The Portuguese Framework as a catalyst for new entrepreneurship education programmes**

The framework, grounded in reference documents of recognised conceptual importance, underscores the relevance of entrepreneurial competences in education. However, these competences need to be transferred from the formal domain to the informal, bridging the gap between theory and practice and creating conditions for the dissemination of entrepreneurship education across compulsory education.

By providing a clear and robust structure for the development of entrepreneurial competences, the framework not only enriches education but also inspires educational institutions to develop innovative initiatives. We believe that the conditions are now in place to overcome barriers to the operationalisation of initiatives that contribute to the entrepreneurial competence development of students in compulsory education. This, in turn, can foster a more dynamic entrepreneurial ecosystem and create societal value.

### **Is the framework transferable?**

The Portuguese Entrepreneurship Education Framework holds significant potential for transferability to other educational contexts. It offers a solid foundation that can be adapted to different educational systems and cultural realities,

particularly in Portuguese-speaking countries and in South America. The implementation of the framework in Portuguese-speaking countries (such as Brazil, Angola, Mozambique, Cape Verde, Guinea-Bissau, São Tomé and Príncipe, and Timor-Leste) could be facilitated by the shared language, enabling a more rapid and efficient adaptation of the framework's content.

The adoption and adaptation of the framework for other cultural realities with specific needs and challenges could provide numerous benefits for these countries. It could support the development of entrepreneurial competences in children and young people while promoting innovation and creativity in schools. Furthermore, it has the potential to strengthen local economies by enabling the creation of new business opportunities.

### Future lines of inquiry

The contributions presented here may inspire future initiatives aimed at implementing entrepreneurship education in compulsory education, with an emphasis on the importance of teacher training. However, it is crucial that such implementation be accompanied by a document dedicated to the continuous professional development of teachers. This should go beyond traditional pedagogical courses or supplementary training in teaching practices. Instead, it should prioritise ongoing development and the use of tools that equip educators to prepare new generations for an uncertain and rapidly changing world—one that will increasingly demand entrepreneurial competences.

## Appendix 1

See Table 3

**Table 3** Citizenship education domains. *Source:* <https://cidadania.dge.mec.pt/dominios> (translated by the authors)

Mandatory (throughout the entire compulsory school)	Mandatory in at least two cycles of basic education	Optional (in any year of schooling)
Human rights	Sexuality	Entrepreneurship
Gender equality	Media	Labour market
Interculturality	Institutions and democratic participation	Security, defence, and peace
Sustainable development	Financial literacy and consumer education	Animal wellbeing
Environmental education	Road safety	Voluntary work
Health	Risk	Other (tdb by the school)

## Appendix 2

See Table 4

**Table 4** EntreComp progression model. *Source:* EntreComp: The Entrepreneurship Competence Framework (Bacigalupo et al., 2016)

Foundation		Intermediate		Advanced		Expert	
Relying on support <sup>a</sup> from others		Building independence		Taking responsibility		Driving transformation, innovation and growth	
Under direct supervision.	With reduced support from others, some autonomy and together with my peers.	On my own and together with my peers.	Taking and sharing some responsibilities.	With some guidance and together with others.	Taking responsibility for making decisions and working with others.	Taking responsibility for contributing to complex developments in a specific field.	Contributing substantially to the development of a specific field.
Discover	Explore	Experiment	Dare	Improve	Reinforce	Expand	Transform
Level 1 focuses mainly on discovering your qualities, potential, interests and wishes. It also focuses on recognising different types of problems and needs that can be solved creatively, and on developing individual skills and attitudes.	Level 2 focuses on exploring different approaches to problems, concentrating on diversity and developing social skills and attitudes.	Level 3 focuses on critical thinking and on experimenting with creating value, for instance through practical entrepreneurial experiences.	Level 4 focuses on turning ideas into action in 'real life' and on taking responsibility for this.	Level 5 focuses on improving your skills for turning ideas into action, taking increasing responsibility for creating value, and developing knowledge about entrepreneurship.	Level 6 focuses on working with others, using the knowledge you have to generate value, dealing with increasingly complex challenges.	Level 7 focuses on the competences needed to deal with complex challenges, handling a constantly changing environment where the degree of uncertainty is high.	Level 8 focuses on emerging challenges by developing new knowledge, through research and development and innovation capabilities to achieve excellence and transform the ways things are done.

### Appendix 3

See Table 5

**Table 5** EntreComp learning outcomes. Source: The entrepreneurship competence framework (Bacigalupo et al., 2016)

			Level of proficiency		Foundation	
			Progression		Relying on support from others	
					Under direct supervision.	With reduced support from others, some autonomy and together with my peers.
					Discover	Explore
Area	Competence	Hint	Descriptor	Thread <sup>1</sup>	Level 1	Level 2
Ideas and opportunities	Spotting opportunities	Use your imagination and abilities to identify opportunities for creating value.	Identify and seize opportunities to create value by exploring the social, cultural and economic landscape.	Identify, create and seize opportunities.	I can find opportunities to help others.	I can recognise opportunities to create value in my community and surroundings.
			Identify needs and challenges that need to be met.	I can find different examples of challenges that need solutions.	I can recognise challenges in my community and surroundings that I can contribute to solving.	I can identify opportunities to solve problems in alternative ways.
			Establish new connections and bring together scattered elements of the landscape to create opportunities to create value.	I can find examples of groups who have benefited from a solution to a given problem.	I can identify needs in my community and surroundings that have not been met.	I can explain that different groups may have different needs.
			Focus on challenges.	I can tell the difference between different areas where value can be created (for example, at home, in the community, in the environment, or in the economy or society).	I can recognise the different roles the public, private and third sectors play in my region or country.	I can tell the difference between contexts for creating value (for example, communities and informal networks, existing organisations, the market).
		Uncover needs.				
		Analyse the context.				

**Table 5** (continued)

Intermediate		Advanced		Expert	
Building independence		Taking responsibility		Driving transformation, innovation and growth	
On my own and together with my peers.	Taking and sharing some responsibilities.	With some guidance and together with others.	Taking responsibility for making decisions and working with others.	Taking responsibility for contributing to complex developments in a specific field.	Contributing substantially to the development of a specific field.
Experiment	Dare	Improve	Reinforce	Expand	Transform
Level 3	Level 4	Level 5	Level 6	Level 7	Level 8
I can explain what makes an opportunity to create value.	I can proactively look for opportunities to create value, including out of necessity.	I can describe different analytical approaches to identify entrepreneurial opportunities.	I can use my knowledge and understanding of the context to make opportunities to create value.	I can judge opportunities for creating value and decide whether to follow these up at different levels of the system I am working in (for example, micro, meso or macro).	I can spot and quickly take advantage of an opportunity.
I can redefine the description of a challenge, so that alternative opportunities address it may become apparent.	I can take apart established practices and challenge mainstream thought to create opportunities and look at challenges in different ways.	I can judge the right time to take an opportunity to create value.	I can cluster different opportunities or identify synergies among different opportunities to make the most out of them	I can define opportunities where I can maintain a competitive advantage.	
I can establish which user group, and which needs, I want to tackle through creating value.	I can carry out a needs analysis involving relevant stakeholders.	I can identify challenges related to the contrasting needs and interests of different stakeholders.	I can produce a 'road-map' which matches the needs with the actions needed to deal with them and helps me create value.	I can design projects which aim to anticipate future needs.	
I can identify my personal, social and professional opportunities for creating value, both in existing organisations or by setting up new ventures.	I can identify the boundaries of the system that are relevant to my (or my team's) value-creating activity.	I can analyse an existing value-creation activity by looking at it as a whole and identifying opportunities to develop it further.	I can monitor relevant trends and see how they create threats and new opportunities to create value.	I can promote a culture within my organisation that is open to spotting the weak signals of change, leading to new opportunities for creating value.	

## Appendix 4

Topics	Learning outcomes
Entrepreneurial skills	<p>Students understand the concept and role of entrepreneurial competences as a set of set of knowledge, skills, attitudes and values that enable them to act on opportunities, to generate ideas and turn them into value for others, recognising that the value created can be cultural, social or financial. They also understand that the value created can be of a cultural, social or financial nature. They also realise that these competences are based on creativity, critical thinking, problem-solving, initiative, perseverance, collaborative work, planning and project management</p> <p>Students are able to identify entrepreneurial skills in themselves and others in different contexts, entrepreneurial competences, critically reflecting on their influence on the process of developing a project. In doing so, they are also able to identify strategies that contribute to improving these skills in their daily lives</p> <p>Students show initiative and action, proactivity, curiosity and perseverance to achieve goals. In doing so, they value the ability to motivate others, value empathy and concern for the well-being to which all human beings are entitled, revealing responsible attitudes in the ethical choices they make</p>
Creativity	<p>Students realise that creativity is a prerequisite for the innovation, and that ideas are necessary for entrepreneurial action, and that that can be learnt and developed. They also realise that creativity is a process that leads to problem-solving and the creation of value</p> <p>Students are able to generate ideas, discover and create opportunities that can be transformed into economic, social and cultural value</p> <p>Students are able to act in a creative, problem-solving-orientated way, identifying alternative procedures and solutions in the face of obstacles and challenges</p> <p>Students are able to combine their knowledge, experience and resources in new ways in different contexts. In doing so, they are also able to make decisions weighing up degrees of risk and uncertainty</p> <p>Students recognise themselves as participants in the creative process. In doing so, they value divergent thinking, the ability to make new connections, the ability to generate new ideas, the ability to produce original and useful results</p>
Entrepreneurial action	<p>Students understand that entrepreneurial action involves implementing initiatives to create value. They also understand that carrying out these initiatives includes setting goals, planning and evaluating activities and organising the resources needed to turn ideas into action. They also understand that the action dimension involves co-operative work, networking and the establishment of partnerships</p> <p>Students are able to independently and responsibly set priorities and objectives, plan and organise activities and manage and implement projects and action plans effectively and efficiently. They are also able to critically evaluate their contribution and that of their peers</p> <p>Students are motivated to proactively initiate, participate in and promote value creation processes. In doing so, they value taking on challenges as well as the importance of designing future scenarios, sustaining efforts over time to achieve medium- and long-term goals, showing confidence, persistence and resilience in the face of adversity</p>

Topics	Learning outcomes
Surrounding environment	<p>Students understand that the development of an entrepreneurial project is based on knowledge of the context and culture in a given reality, as well as local, national and global issues and problems</p> <p>Students also understand that economics and finance are an integral part of society, knowing different ways of budgeting, planning, implementing and evaluating financial decisions inherent in value creation initiatives, and different financial instruments and services that contribute to their sustainability</p> <p>Students are able to interact with the community, co-operating with partners and other stakeholders outside the educational institution</p> <p>Students are able to analyse cultural, social or financial contexts as possible scenarios for implementing entrepreneurial, value-creating actions and activities. They are also able to critically reflect on their cultural, social, economic and environmental sustainability in a globalised world influenced by constant and profound transformations</p> <p>Students show an attentive attitude towards the need to anticipate and evaluate the consequences of entrepreneurial action in relation to culture, the community, society, democracy and the common good. In doing so, they assume responsibility and co-responsibility for the choices made in relation to the orientation linked to that same entrepreneurial action</p>
Communication	<p>Students understand the fundamental aspects of communication and recognise the importance of communicating effectively in the phases of organising, planning, developing and implementing value-creating initiatives</p> <p>Students are able to critically reflect on the intentionality of communication and diversify written, verbal and bodily communication in a strategic way, depending on target groups and contexts. They are also able to present the value of their or their team’s ideas and projects to others, in person or remotely, using analogue or digital tools</p> <p>Students recognise themselves as active participants in the communication process, taking individual and team responsibility for choosing the right communication strategies for the entrepreneurial project. In doing so, they value the ability to argue and counter-argue, putting forward their ideas with respect for those of others</p>

Source: Portuguese Framework for Entrepreneurship Education (translation).

## Appendix 5

Topics	Subtopics	Goals
Entrepreneurship skills		<p>Recognise the importance of entrepreneurial skills</p> <p>Develop entrepreneurial skills</p>

Topics	Subtopics	Goals
Creativity	Ideation	Acknowledge the role of creativity in the ideation process
		Analyse the phases of the creative process and the factors that influence it
	Innovation	Recognise the relevance of opportunity
Entrepreneurial action	Decision-making	Recognise that the innovative process results in the realisation of the new ideas generated
		Understand the role of innovation in the entrepreneurial process
	Planning	Recognise the importance of decision-making in transforming ideas into action
Surrounding environment	Development	Assuming risk as an integral part of decision-making
		Assessment
	Context	Set a course of action
Communication	Financial and economic literacy	Develop a project evaluation plan
		Project sustainability
	Ethics	Emphasise the importance of economic and financial literacy for entrepreneurial action
Communication	Types of communication	Ensure the sustainability of the entrepreneurial project
		Communication strategies
		Recognise the importance of different types of communication
		Adopt appropriate communication strategies for the entrepreneurial project

Source: Portuguese Framework for Entrepreneurship Education. Adapted and translated by the authors.

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