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Entrepreneurship Competence: An Overview of Existing Concepts, Policies and Initiatives

Final Report

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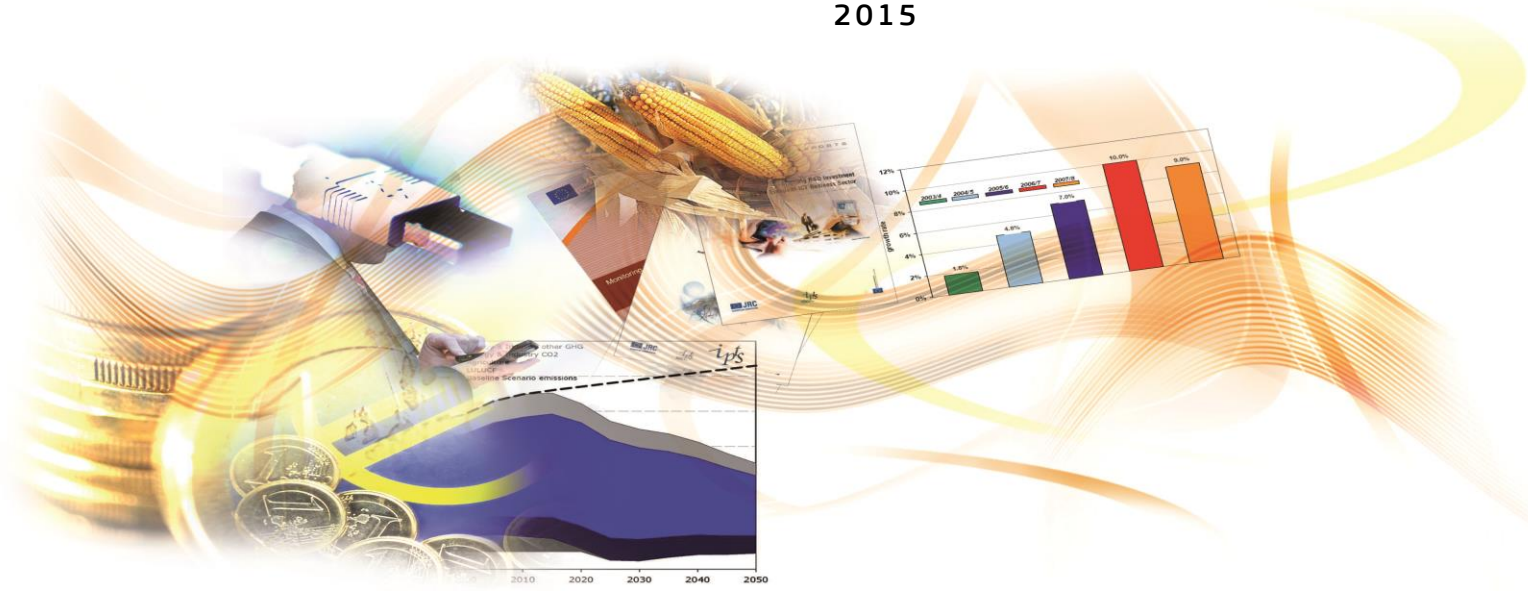

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Abstract

This report presents the state of the art on the topic of entrepreneurship competence identifying and comparing different theoretical and practical approaches from the academic and entrepreneurial world. It draws on an extensive literature review, an inventory of selected initiatives and in-depth case studies. The report looks at different definitions, frameworks, components and other elements of entrepreneurship as a competence, and reflects upon entrepreneurship education, teaching and assessment methods used for entrepreneurial learning. This report is the final output of the JRC-IPTS funded study 'Entrepreneurship Competence: An overview of existing concepts, policies and initiatives (OvEnt)'; it is part of the wider research agenda of JRC-IPTS on 'ICT for Learning and Skills' that aims to provide evidence on how skills and key competences that our digital society needs are acquired, certified and recognised.

Foreword

Encouraging entrepreneurship is seen as a key means of returning Europe to growth and promoting new jobs. As a result, entrepreneurship education is high on the policy agenda and the inculcation of entrepreneurial spirit among European citizens has become a top priority. The promotion of the key competence for lifelong learning '*Sense of Initiative and Entrepreneurship'* is seen as central to this goal. However, there is no clear definition as yet of what skills make individuals enterprising.

JRC-IPTS is conducting the *Entrepreneurship Competence Framework* study on behalf of the Skills and Qualification Unit of *DG Employment, Social Affairs and Inclusion*. This study aims to develop a European competence reference framework for the key competence for lifelong learning '*Sense of Initiative and Entrepreneurship',* which aims to define what is needed to be entrepreneurial in the XXI century.

The present report is the final output of the study **Entrepreneurship Competence: An overview of existing concepts, policies and initiatives (OvEnt**). OvEnt was funded by JRC-IPTS to define the state of play in the current debate around entrepreneurship as a competence, as a building block for the development of the Entrepreneurship Competence Framework. In particular, it combines insights from a literature review, an inventory of selected initiatives and in-depth case studies.

The reader will be guided through a wide range of positions originating from different traditions in the discussion of 'entrepreneurship as a competence'. Theoretical contributions as well as evidence from empirical work, policy and practice are scrutinized in this report to capture the different constituent parts of entrepreneurship as a competence. The reader will be presented with evidence of contrasting conceptualization of what entrepreneurship is, what the distinctive traits of entrepreneurs are, and how entrepreneurship can be taught and learnt. It is argued that entrepreneurship as a competence remains a challenge for research, policy and practice.

This report is part of the work of the JRC-IPTS "ICT for Learning and Skills" team on identifying the skills and competences that our digital economy and society need. This research looks at how these skills and competences are acquired, certified and recognized in order to support European policies in creating a bridge between the worlds of education and work.

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Executive summary

Entrepreneurship is crucial for economic recovery, growth, job creation, inclusion, poverty reduction and also for innovation and competiveness. As such, it has become a policy priority in Europe and the European Union and the Member States are taking measures to incorporate entrepreneurship into different policy fields.

In the field of education, the EU has recognized that "*sense of initiative and entrepreneurship*' is one of the **eight key competences for lifelong learning**, and thus necessary for all members of a knowledge-based society (European Parliament and Council, 2006). The need to promote entrepreneurship education and entrepreneurial learning is therefore high on the European policy agenda and it is explicitly advocated by the Small Business Act for Europe (European Commission, 2008), the Communication on Rethinking Education (European Commission, 2012a) and the Entrepreneurship Action Plan 2020 (European Commission, 2012b). For the past ten years, many actions have been implemented across the Member States to incorporate entrepreneurship as a competence in school, vocational training and higher education curricula, and also to create frameworks and tools to operationalise this transversal skill across educational settings. However, despite the focus on the promotion of entrepreneurship and entrepreneurship competence, there is no consensus on what the distinctive constituents of entrepreneurship as a competence are.

This report aims to inform the development of a European Competence Reference Framework for the key competence *sense of initiative and entrepreneurship,* by providing an overview of existing theoretical and practical approaches to the definition of this competence.

The report synthesises insights from (1) a **literature review**, which looks at definitions and frameworks of entrepreneurship as a competence; (2) an **inventory of existing European initiatives**, which promote entrepreneurship competence at national/regional/local level; and (3) an in-depth analysis of ten **case-studies** (the full report is available at https://ec.europa.eu/jrc/en/entrecomp), which aims to understand how entrepreneurship as a competence is conceptualized, translated into learning objectives and implemented in practice in the field.

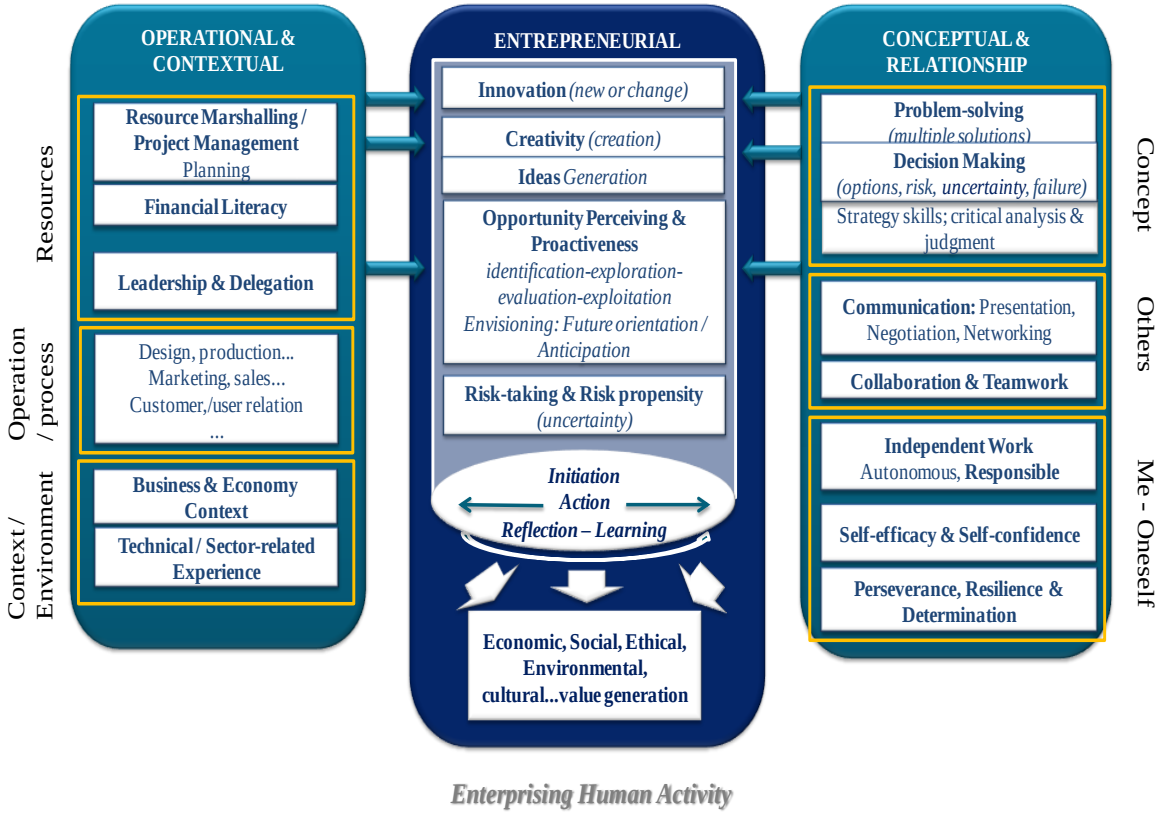
The scope of the research was rather wide. As regards theory, although it primarily focused on the European tradition, it also looked at the Northern American literature. As regards practice, it scrutinized EU-wide implementation actions as well as national and regional / local ones. As for educational levels, the research addressed primary, secondary, tertiary, vocational education and training (VET), as well as higher education. It also investigated practices in the non-formal education sector, looking at workplace, professional development and actions targeted at start-ups. It also covered actions targeted at any age-group (students, adults, business owners, social entrepreneurs…), along with actions designed to benefit entrepreneurship educators. Finally, it covered actions led by the public sector and also initiatives led by the private or third sector. Overall, this research aimed to be comprehensive, trying to capture the wide variety of approaches to entrepreneurship education.

The literature review and case analysis highlight how **the competences associated with an entrepreneurial subject depend very much on how entrepreneurship is defined**.

When adopting a broad perspective on entrepreneurship that goes beyond business ownership, private profit generation and the commercial exploitation of new markets, products or processes, the constituent parts of the entrepreneurship competence transcend the realm of business-related functions, such as *business planning* or *financial management*. When the definition of entrepreneurship expands to encompass any type of value, be it social, cultural, environmental or economic, the spectrum of **knowledge, skills and attitudes** that make up the core of the competence widens and includes constituents such as *creativity, opportunity identification, self-efficacy, self-confidence, communication, leadership, decision making, innovation, responsibility, collaboration, ideas generation, problem-solving, autonomy, negotiation and networking*.

The inventory of the 42 implementation actions collected in the scope of this research has led to the drafting of a long list of 292 competence statements, of which 102 are related to knowledge, 120 to skills and 70 to attitudes. Based on the academic literature review, this long list has been clustered into three main conceptual areas that address: (i) **operational and contextual competences**: i.e. those referring to knowledge and skills *about entrepreneurship* and *for entrepreneurship;* and ii) **entrepreneurial competences**: i.e. those relating to the identification, exploration, evaluation and exploitation of value creation opportunities; and (iii) **conceptual and relationship competences**: i.e. attitudes and action-oriented skills which leverage on both the enterprising subjects and on their network and refer primarily to those aspects of the competence that are developed *through entrepreneurship*. The following figure provides an overview of how the main constituents have been grouped and helps to disentangle the notion of a *sense of initiative and entrepreneurship.*

Entrepreneurship competence constituents- thematic grouping



The cross case analysis has highlighted how the relative weight of each competence constituent varies as the entrepreneurial process unfolds through the transformation of ideas into actions. Furthermore, it has indicated that this relative weight also depends on the intended outcome of the enterprising human action (e.g. company internationalisation by business owners *vs* certification of a mini-company experience for secondary school students).

This report shows why defining what the core constituents of entrepreneurship as a competence are represents a challenge for research, policy and practice and discusses different approaches to the definition of this multifaceted and slippery concept. Furthermore, it highlights the critical dimensions that shape this definition and provides a broad conceptualization of the term in line with the spirit of the 2006 Recommendation of the European Parliament and of the Council on key competences for lifelong learning.

1 Introduction

This report makes up the **final output** of the JTC- IPTS funded study **Entrepreneurship Competence: An overview of existing concepts, policies and initiatives (OvEnt).**

1.1 Entrepreneurship Competence: the study objectives

Fostering entrepreneurship has become a policy priority in Europe[1] and the European Union and the Member States are taking measures to incorporate entrepreneurship into different policy fields. Policy-makers in the educational sector use entrepreneurship education as a means of educating existing and future generations of entrepreneurs in the hopes of creating jobs and economic growth. In many European countries, the incorporation of entrepreneurship as a competence[2] in school and vocational training curricula is on the rise (Eurydice, 2012). In parallel, efforts are being scaled up to create and refine practical tools which encourage the development of transversal skills in the education, training and youth fields.[3]

Against this background, JRC-IPTS commissioned CARSA to carry out a study which would provide a comprehensive overview of existing concepts and frameworks for the key competence "Entrepreneurship". The OvEnt study seeks to establish the state of the art on the topic of entrepreneurship competence by identifying and comparing different theoretical approaches from the academic and non-academic world. It aims to explore general and specific characteristics of existing initiatives which help citizens acquire entrepreneurial skills, knowledge and attitudes in order to create a broad typology. Finally, the in-depth analysis at case study level sheds light on the specific components, arrangements and processes involved in the implementation of initiatives seeking to enhance entrepreneurship competence.

The scope of the project is rather wide. Geographically, the study covers EU-wide initiatives as well as national and regional / local ones. As regards the educational levels and sectors, the study investigates primary, secondary, tertiary, general education and vocational education and training (VET); and education outside of schools (e.g. workplace, professional development, start-up initiatives). Learners from all population groups are covered (students, adults, etc.), as are initiatives targeting entrepreneurship educators. What is more, the initiatives studied are from both the private and the public sector. They are therefore subject to a different understanding of entrepreneurship education, which can have a purely business perspective or it can be more widely defined to include social and ethical aspects.

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1 This is, for example, reflected in: European Commission (2013a). Communication to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Entrepreneurship Action Plan 2020, Reigniting the entrepreneurial spirit in Europe, COM(2012) 795 final. Brussels, 9.1.2013

2 The European Reference Framework of Key Competences for Lifelong Learning Entrepreneurship (European Council and Parliament, 2006) recognized entrepreneurship as one of the key competences necessary for all members of a knowledge-based society.

3 For example, initiated by DG EAC, together with High Level Group on Education and Training, ET 2020 Working Group on Transversal Skills and Thematic Working Group on Entrepreneurship Education.

1.2 Research Methodology

The present study used a comprehensive research methodology which involved primary and secondary data collection methods including face-to-face and telephone interviews and academic and non-academic literature reviews. The study is composed of:

1. a literature review which looks at definitions and frameworks of entrepreneurship as a competence,
2. an inventory of existing European initiatives promoting entrepreneurship competence at national/regional/local level, and
3. 10 in-depth case studies which seek to understand how entrepreneurship as a competence is conceptualized, translated into learning objectives and implemented in practice.

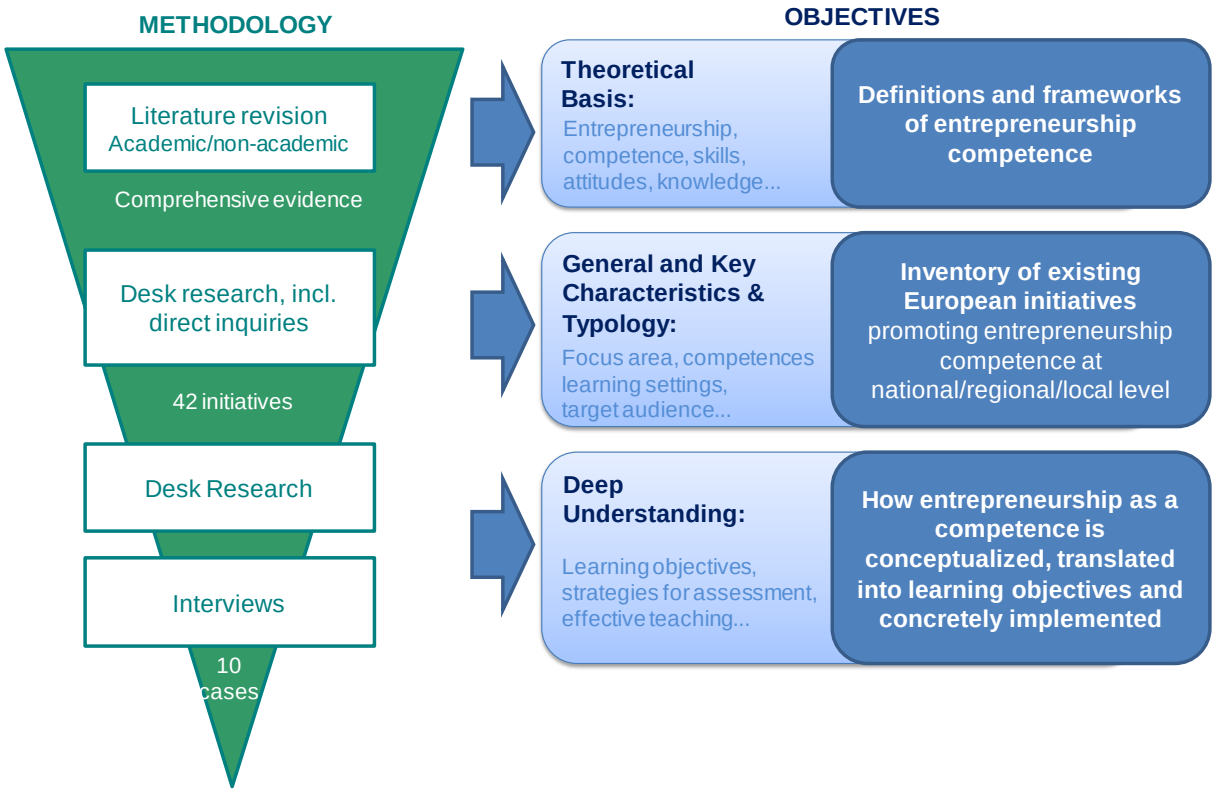


Figure 1: Overview of research methodology

The literature review and preliminary findings from the inventory and case studies were presented and discussed at the Expert Workshop on Entrepreneurship Competence Framework, held in Seville on 24-25 March 2015. The feedback received from the workshop has been integrated into this final report.

1.2.1 Literature Review

The comprehensive literature review provides us with the opportunity to reflect on the current debate in the academic and non-academic literature on the conceptualisations of the 'entrepreneur', entrepreneurship and **entrepreneurship as a competence.** This review also explores the most relevant literature on definitions, frameworks, components and other elements of entrepreneurship and of competence. Though these concepts are widely used, they remain ambiguous and are used differently in different domains such as research, policy and practice. This ambiguity is also reflected in the debate on

entrepreneurship education and training. For the academic literature review, CARSA was supported by an external expert who looked at key academic work on the topic and sources of evidence which could inform the current debate.

1.2.2 OvEnt Inventory

The OvEnt Inventory creates a typology of existing initiatives at national, regional and local level which seek to enhance entrepreneurship competence in Europe. Several international initiatives are also included. The Inventory looks at a variety of different aspects of the initiatives such as learning settings, their target audience, the competences they stimulate, their pedagogical approaches and assessment methods and also the impacts they achieved. The inventory also examines entrepreneurship education initiatives across education levels, target groups and European regions and countries in order to identify patterns. The inventory is mostly based on desk research carried out in multiple languages; however, direct enquiries have also proven indispensable for obtaining information on certain initiatives. The OvEnt Inventory comprises 42 initiatives.

1.2.3 Case studies

The main objective of the OvEnt case studies is to gain a profound understanding of the entrepreneurship competence concept currently translated into learning objectives, curricula, teaching guidelines, and practical courses, through an in-depth examination of study cases. Overall, 10 cases studies were selected based on a set of criteria. The objective was to capture a wide range of initiatives promoting entrepreneurship as a competence maintaining a balance between educational levels, geographical coverage and maturity levels. The case studies included face-to-face and telephone interviews and a multiple review process with the case study owners concerned. A final cross-analysis was undertaken in which each initiative's specific understanding of entrepreneurship as a competence and the delivery mechanism was examined in order to discover patterns across the diverse case study settings.

Table 1: Overview of selected case studies

Name	Geographical scope	Short Description
Case 1: LUT Measurement Tool for Enterprise Education (LUT MTEE)[4] by Lappeenranta University of Technology (LUT)	Finland and European countries; teachers from over 20 countries used the tool in 2014	**LUT Measurement Tool for Enterprise Education™** is the world's first entrepreneurship education self-assessment tool developed for primary, secondary and vocational schools' teachers and principals. The tool is a simple structured, web-based questionnaire allowing teachers to self-evaluate their practice and develop their know-how in entrepreneurship and enterprise education, as well as monitor their learning progress. What is more, it provides systematic feedback as well as useful tips for developing more effective practice and reinforces entrepreneurial teaching. The tool evaluates contents, modes of operation, and methods of teaching. As such, it has also high potential for schools or national level

[4] Lappeenranta University of Technology - Koulutus-ja kehittämiskeskus. Available at: http://developmentcentre.lut.fi/hankesivusto.asp?hid=7&alasivu=53 (Finnish)
Measurement tool for Enterprise Education - Lappeenranta University of Technology (LUT). Available at: https://developmentcentre.lut.fi/muut/enterprise (English)

		authorities to benchmark their effective entrepreneurship education. The tool has been developed by Lappeenranta University of Technology. While it has been implemented firstly at primary education level, it is now expanding across education levels and geographically.
Case 2: The Entrepreneurial Skills Pass (ESP)[5]	European countries and other countries	The **Entrepreneurial Skills Pass (ESP)** is an initiative of Junior Achievement- Young Enterprise Europe (JA-YE Europe)[6], Europe's largest provider of entrepreneurship education programmes. The main idea behind the initiative is to develop a tool to certify entrepreneurship competence levels gained by graduates after a mini-company experience. Thus, the ESP builds on the well-established JA-YE Company programme and further focuses on developing new tools to assess entrepreneurship competences. The ESP consists of three components: (1) JA-YE Company programme, in other words the real experience, (2) ESP self-assessment and (3) ESP exam. The ESP has been piloted in 2013/2014 after which a first year of its implementation followed.
Case 3: Youth Start Initiative	Austria, activities expanding to Europe	**Youth Start** may be seen as a larger initiative comprising several activities and projects implemented in different phases and mutually complementing each other. The Youth Start framework of reference for entrepreneurship competence[7] consists of statements of what learners can do and is used as a planning and design tool addressed principally to educators and school governance in secondary and vocational education institutions. The framework is not tied to a single project but embedded into a series of activities implemented by EESI-Impulszentrum[8] and IFTE[9] which have evolved in entrepreneurship education in Austria during the past 20 years. These activities are: (a) the TRIO Model for Entrepreneurship Education; (b) the Next Generation' Entrepreneurship Challenge Programme; (c) the Certification of Entrepreneurship Schools and (d) Teacher Training. The work on the YouthStart Framework was initiated in 2011/2012, building on the experience with entrepreneurship education in Austria. Since 2014/2015, the YouthStart Framework has been implemented in the syllabus of Austria's New Middleschool (11-14 year old students – upper secondary education).
Case 4: SEECEL Instrument for Entrepreneurial	SEET – South East European countries -	**The Instrument for Entrepreneurial Learning - Key Competence Approach (SEECEL Instrument)** has been developed and managed by the South East European

5 Entrepreneurial skills Pass (ESP). [general website]. Available at: http://entrepreneurialskillspass.eu

6 Junior Achievement - Young Enterprise (JA-YE Europe). [general website]. Available at: http://www.ja-ye.org

7 YouthStart Framework of Reference for Entrepreneurship competences. (2014, Version 15). Impulszentrum für Entrepreneurship Education (eesi) des bmbf & Initiative for Teaching Entrepreneurship (ifte), Vienna 2014. [paper poster].

8 Impulszentrum für Entrepreneurship Education (EESI-Impulszentrum). [general website]. Available at: http://www.eesi-impulszentrum.at

9 Initiative for Teaching Entrepreneurship (IFTE). [general website]. Available at: http://www.ifte.at

Learning - Key Competence Approach - ISCED level 1 (SEECEL Instrument)[10]	Albania, Bosnia and Herzegovina, Croatia, Kosovo[11], The Former Yugoslav Republic of Macedonia, Montenegro, Serbia - and Turkey	Centre for Entrepreneurial Learning (SEECEL), a regional think tank focused on human capital development, particularly lifelong entrepreneurial learning and promotion and implementation of entrepreneurship as a key competence with the final goal to enhance regional competitiveness. The Instrument for Entrepreneurial Learning - Key Competence Approach in ISCED level 1 includes a framework of learning outcomes defined in terms of knowledge, skills and attitudes, and corresponding teaching and assessment methods ('entrepreneurial learning package'). In-service (continuous) teacher training forms an essential part of the instrument providing with concrete Teachers Trainings Modalities while pre-service (initial) teacher training is interestingly addressed by another SEECEL instrument developed for ISCED level 5&6. The primary target groups are teachers and schools (school management) in primary education level, alongside with teacher training authorities and national governmental bodies. The tool has been piloted in 2013/2014 followed by its first year of initial implementation by 32 participating schools. Moreover, the initiation of the instrument in ISCED level 1 followed the successful experience of ISCED level 2.
Case 5: NextLevel programme[12]	Denmark	NextLevel is a programme run by the Foundation for Entrepreneurship – Young Enterprise (FEE-YE)[13] an organisation established in line with the Danish government's overall strategy for entrepreneurship education. The main idea behind the NextLevel initiative is to provide lower secondary education students and teachers with the opportunity to participate in projects where they can apply curricular gained knowledge in an 'outside-school' environment. Therefore, NextLevel creates a link between school and the real world. The programme is very flexible allowing teachers and students develop projects and implement them, while addressing entrepreneurship. The Nextlevel programme was set up in 2011 being implemented for almost 4 years now. The programme is currently subject to a profound review and will be re-launched from the upcoming school year (2015/2016).
Case 6: Junior Entrepreneur	Ireland	The **Junior Entrepreneur Programme (JEP)** is an Irish initiative marketed as an entrepreneurial awareness and skills enhancement programme for primary school

[10] ISCED 1 – SEECEL - South East European Centre for Entrepreneurial Learning (n.d.). Available at: http://www.seecel.hr/isced-1

[11] This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo declaration of independence (http://ec.europa.eu/enlargement/countries/detailed-country-information/kosovo/index_en.htm).

[12] NextLevel - Fonden for Entreprenørskab - Young Enterprise.Available at : http://eng.ffe-ye.dk/programmes/nextlevel/about-nextlevel

[13] Fonden for Entreprenørskab - Young Enterprise / Foundation for Entrepreneurship – Young Enterprise (FEE-YE) [general website]. Available at: http://www.ffe-ye.dk

Programme (JEP)[14]		children. Its primary objective is to trigger children to value enterprise and entrepreneurship and, thereby contribute to raising awareness and understanding of the role entrepreneurs play in the community. The programme is aligned to the national school curriculum and implemented via a 10/12-week company programme allowing children to connect to the wider world. The main target group are primary school children between 8-12 years of age. Interestingly, the programme has been conceived and managed by entrepreneurs. It is delivered via the JEP country partners - local entrepreneurs - who manage the programme at county level ensuring its delivery at no cost for parents or schools.
Case 7: Owners & Entrepreneurs Management Program (OEMP)	International	The **Owners & Entrepreneurs Management Program (OEMP)[15]** is offered by IE Business School[16], an international institution dedicated to educating business students and leaders through programmes with a strong entrepreneurial character. The OEMP is part of 'executive education' providing business leaders and top level management with the competences to bring their company to the next level. The programme has been designed by entrepreneurs for entrepreneurs. Three participant profiles are: the self-made business owner, the opportunity taker and the inherited entrepreneur. The OEMP is an in-class teaching programme consisting of 3 in-class-modules of one week addressing different knowledge, e.g. basic business management, internationalisation and innovation. The additional benefits include the connection to the network of graduates and advisors backed up by a top-class faculty, Instituto Empresa.
Case 8: Enterprise and Entrepreneurship Education at University of Wales Trinity Saint David (UWTSD/IICED) according to the QAA guidance	Geographical scope: the UK (Wales)	**The University of Wales Trinity Saint David (UWTSD)[17]** is a key UK university in entrepreneurial higher and further education having implemented the guidelines for enterprise and entrepreneurship education[18] across multiple education programmes. The International Institute for Creative Entrepreneurial Development (IICED), as part of the UWTSD, is responsible body for the implementation of entrepreneurship education at the University. A curriculum based 'Art & Design' studies and a new extra-curricular activity 'Life Design' are among several examples on which our case study shows how entrepreneurship competences (in particular skills & attitudes) are addressed by innovative and non-traditional teaching and assessment methods. Also, UWTSD/IICED

[14] Junior Entrepreneur Programme (JEP) [general website]. Available at: http://www.juniorentrepreneur.ie

[15] Owners and entrepreneurs Management Programme - Executive Education. IE Business School. Available at: http://www.ie.edu/execed/oemp?_adptlocale=en_US

[16] Instituto Empresa (IE) – Business School http://www.ie.edu/business-school

[17] University of Wales Trinity Saint Davis (UWTSD) [general website]. Available at: http://www.uwtsd.ac.uk

[18] The Quality Assurance Agency for Higher Education (QAA) (2012). Enterprise and entrepreneurship education: Guidance for UK higher education providers. September 2012. ISBN 978 1 84979 692 7

		developed the first of its kind teacher training programme - the Postgraduate Certificate in Education (PGCE) & Post Compulsory Education & Training (PCET) -, where teachers but also professionals may learn how to teach entrepreneurially.
Case 9: Programme SIMULIMPRESA [19]	Geographical scope: Italy (link to the international network EUROPEN-PEN)	**SIMULIMPRESA** is the Italian implementation of the Practice Enterprise model - also called practice firm or virtual enterprise - developed within the European Practice Enterprise Network (EUROPEN-PEN[20]). It has been implemented since 1994 by the Italian Central Office – at the Institute of Don Calabria Ferrara - in diverse education settings from secondary schools VET, Universities to adult learning targeting people from 11 till 60 years old. From a real office, each Practice firm simulates a real world enterprise while financial and business operations are simulated online. SIMULIMPRESA's main goal is to prepare trainees for the world of work by enhancing the competences related to the enterprise function (following department and work placement) as well as those behavioural and transversal ones (e.g. autonomy, responsibility). The programme includes an important train the trainer element.
Case 10: TRANSITION incubation programme[21]	Geographical scope: European Countries (7 countries, including 6 scaling centres)	The **Transnational Network for Social Innovation Incubation** - **TRANSITION** - is a 2,5 year on-going project born in response to the EU call for more social innovation.[22] It brings together established partners within the fields of social innovation and innovation-based incubation. The project focuses on development of effective scaling up model for social innovations using Social Innovation Journey[23] concept. It consists of large-scale events called "spark sessions" followed by selection of social innovations to which an intensive incubation programme is delivered by 6 scaling centres established in 6 countries. The exact delivery of the TRANSITION scaling up model varies from centre to centre. In general, it is framed by two components: thematic workshops and – obligatory – one-to-one mentoring or coaching. Additionally, the project aims at shared learning among participating organisations and developing a methodology for evaluating impacts of social innovation support programmes.

19 SIMULIMPRESA [general website]. Available at: http://www.simulimpresa.com

20 EUROPEN-PEN International [general website]. Available at: http://www.europen.info

21 TRANSITION project [project website]. Available at: http://transitionproject.eu

22 The EU effort related to the social innovation and the Innovation Union Flagship Initiative, commitment 27-B; and more precisely, call for proposals No FP7-CDRP-2013-INCUBATORS

23 Meroni, A., Fassi D. & Simeone G. (2013). 'Design for social innovation as a form of designing activism. An action format'. [conference paper]. Social Frontiers: The Next Edge of Social Innovation Research. Published online by NESTA in scribd.com. December 2013.

1.3 Structure of the report

In the following chapters we report the combined findings of the different OvEnt study phases in order to set the basis for a concept of entrepreneurship as a competence.

The present Chapter 1 introduced the topic and research methodology.

In Chapter 2, we scrutinize the existing concepts and frameworks which address entrepreneurship as a competence in academic research, policy and practice. We start from a definition of an entrepreneur and entrepreneurship, followed by an introduction to the different types of entrepreneurship. We also briefly present the competence versus competency discourse and then look into the different components and constituent parts of each.

In Chapter 3, we tackle different perspectives of education on entrepreneurship, clarifying terminology and examining the possible progression paths for entrepreneurship competences.

In Chapter 4, we open the debate on different approaches to teaching and learning, and also assessment.

Chapter 5 offers our conclusions. This is followed by a section on References and a Glossary.

The report is complemented by an Annex with OvEnt Inventory Executive Summary and an Annex with a summary for each case study, including additional insight obtained on the key players involved in entrepreneurship education (the full in-depth case studies report is available at https://ec.europa.eu/jrc/en/entrecomp).

2 Entrepreneurship Competence Frameworks in the academic and non-academic world

Undoubtedly, entrepreneurship has a long history in academic research, policy and practice - as an economic, organisational and individual phenomenon. Entrepreneurship, defined as "*sense of initiative and entrepreneurship*', is recognized by the European Union as one of the eight key competences for lifelong learning. It is thus necessary for all members of a knowledge-based society (European Parliament and Council, 2006). As such, efforts to develop the Competence Reference Framework for Entrepreneurship are currently being made at European level to help operationalise this key competence in practice.

The key to developing a universal operationalization framework lies in combining insights from both the academic and the entrepreneurial world.

2.1 Types and Definitions of Entrepreneurship

Originally, entrepreneurship has been described as an economic phenomenon, and its conceptualisation is strongly dependent on the economic aspects of entrepreneurship. Many recent studies associate entrepreneurship and entrepreneurial activity with economic growth through innovation (Acs & Adreutsch, 1988), job creation (Birch, 1979; Blanchflower, 2000; Parker, 2009) or with increases in productivity (van Praag, 2007), either through re-organisation of the productive activity or by capitalising on knowledge and technology transfer activities (Acs et al, 2009; Grimaldi et al, 2011; Terjesen & Wang, 2013, Acs et al., 2014; Plummer & Acs, 2014). There also is little doubt that the concepts of entrepreneurship and entrepreneurial activities have spilled over from the original economic domain.

In this chapter, we intend to portray researchers' efforts to systematise a body of contributions from different traditions. For this reason, the research relied on a multi-disciplinary approach that focused on theoretical contributions, evidence from empirical work, and policy and practices.

2.2 Entrepreneurship: Types and Definitions

The OvEnt study focused on reviewing the various concepts of 'entrepreneurship as a 'competence'. Thus, the starting point was to investigate what entrepreneurship means and how it is determined, in terms of the entrepreneur's characteristics. Definitions of entrepreneur and entrepreneurship vary according to context, discipline and method of enquiry. The multi-disciplinarity of the topic ranges from economics, to social science and management, amongst others.

The following short review is intended to be indicative rather than comprehensive. A large number of academic studies looks at each of the entrepreneurship dimensions presented here. Consequently, and bearing in mind the multi-disciplinary character of these studies, it will not be possible to address each dimension in greater detail. Thus, the objective of this section is to introduce the concepts of entrepreneur and entrepreneurship and to focus the discourse that will follow from these definitions.

2.2.1 Entrepreneur and Entrepreneurship

The literature tends to agree that wealth creation end economic growth are based on the entrepreneur and entrepreneurial activity. The figure of the entrepreneur, however, has been the subject of constant debate, especially in relation to the various types of entrepreneurial objectives.

The word 'entrepreneur' originates from the French and means someone who 'undertakes' a venture or an enterprise. In the 18th century, the mercantilist Richard Cantillon defined entrepreneurs as risk-takers since their activities consisted of buying goods at a certain price and selling them in the future for an unknown price. The difference between the two prices was therefore the entrepreneur's profit and the price of the risk taken in the transaction. Fast-forwarding to 19th century France, J. B. Say described an entrepreneur as an individual who "shifts economic resources out of an area of lower and into an area of higher productivity and greater yield"[24].

Later, in the 20th century, the Austrian economist Joseph Schumpeter viewed entrepreneurs as agents of change responsible for the 'creative destruction' that happens as a consequence of entrepreneurial activity, thus introducing the element of innovation (Schumpeter, 1934).

The relationship between innovation and entrepreneurship has been widely discussed in research. Baumol (1993) distinguishes between two main archetypes of entrepreneurs: 1) those who create, organise and operate new firms even if there is nothing innovative in their ventures and 2) those who base their entrepreneurial activities on innovative ideas: i.e. they transform innovative ideas into economically viable ventures. The characteristics of the innovative entrepreneur, according to Baumol (1993) include: the use of imagination, boldness, ingenuity, leadership, persistence and determination. These characteristics have been taken up by Metcalfe (2004) when comparing the Schumpeterian entrepreneur and the idea of entrepreneurship advanced by Kirzner (1978). In fact, Metcalfe (2004), by highlighting entrepreneurship as a creative activity and entrepreneurs as imaginative, bold, ingenious, exerting leadership, persistent and determined, fosters the idea that entrepreneurs are the essential engine of a capitalist economy since they are active in the creative destruction process, exploring, devising and exploiting the application of new knowledge or the recombination of existing knowledge for the production of new goods, services, processes etc.

The entrepreneur, according to Kirtzner, is also the agent at the core of the market process, though his activities are mostly exploitative. He identifies and exploits market opportunities arising from the uneven distribution of information in the market economy. Entrepreneurs, in his view, re-equilibrate the market rather than disrupt established economic practices through the introduction of new ones, as in the Schumpeterian tradition. In other words, Metcalfe (2004) posited that ultimately for Kirtzer the entrepreneur is an opportunist who serves the economic purpose of re-equilibrating the market by exploiting failures to disseminate knowledge and information appropriately. Accordingly, the entrepreneur is non-innovative. For Schumpeter, however, entrepreneurs are innovative agents (agents of change) who through their actions introduce new value propositions into the economy, and are therefore disruptive.

[24] As cited in Dees (1998) p.2 or Drucker (1985) p. 21.

The perception, discovery or even creation of 'opportunity' emerged as an important aspect of entrepreneurship. The element of opportunity, also present in the Schumpeterian tradition, has been widely examined in research. It is seen as one of various constituents of entrepreneurship along with exploration, creation, application of new knowledge and recombination of existing knowledge, rather than the only determinant of entrepreneurial behaviour (Buchanan & Vanberg, 1991; Shane and Venkataraman, 2000). Nonetheless, the idea of the opportunistic entrepreneur has taken hold in the research agenda. For instance, Stevenson and Jarillo (1990) define opportunity as a *future situation deemed desirable and feasible*. Thus, entrepreneurship is seen as a process by which individuals pursue opportunities and, in line with this, the importance of resourcefulness is emphasized.

In addition, creativity has also been a focus in entrepreneurship themes. The creative nature of entrepreneurial activity emerges in Schumpeter's (1934) concept of 'new combination' and 'creative destruction'. Buchanan and Vanberge (1991) point to the creative process of the market where creativity generates novelty and they emphasize the creativity of human choice in general terms. Digging deeper into the link between creativity and entrepreneurship, Fillis and Rentschler (2010) re-propose that this link is indeed direct and not confined to a linear sequence according to which entrepreneurship is the final act of the creative process. In practice, the creative process is an integral part of entrepreneurial activity, and creativity, together with other characteristics of the entrepreneur such as personal curiosity and drive, is integral to the entrepreneur.

According to the entrepreneurial orientation (EO), a research stream which received a certain amount of theoretical and empirical attention, entrepreneurship is determined by five dimensions: *'risk taking'*, *'innovativeness',* and *'proactiveness'* together with *'autonomy'* and '*competitive aggressiveness'* (Lumpkin & Dess, 1996; Rauch et al, 2009). The entrepreneur's risk-taking role is associated with uncertainty and bold actions. Innovativeness is associated with creativity and experimentation, and proactiveness relates to opportunity seeking, forward thinking and anticipating.

Though the following table does not represent a comprehensive review of the literature, it provides an overview of the themes addressed by economists and scholars who influenced the debate on entrepreneurship or otherwise encouraged its definition.

Table 2: Brief review of entrepreneur and entrepreneurship-related themes

Themes	***Examples of publications***
Innovation and change; new combinations and/or new ways of doing things	Schumpeter (1934); Lumpkin and Dess (1996); Baumol (1993), Drucker (1985)
Arbitrage role	Baumol (1993), Kirzner (1973)
Opportunities	Kirzner (1973) - *entrepreneur opportunits rather than innovator*; Stevenson and Jarillo (1990) - *future situations* Schumpeter (1934); Drucker (1985); Buchanan and Vanberg (1991) - *market or business opportunities*
discover, evaluate, and exploit	Kirzner (1973); Shane and Venkataraman (2000)
create	Buchanan and Vanberg (1991)
Creativity	Joas (1996) *(creativity of a human action in general)*; Fillis and Rentschler (2010)

Uncertainty and Risk	Knight (1921, 1942); Drucker (1985) Lumpkin and Dess (1996); Pinchot (1985)
Creation of organizations	Gartner (1988); Pinchot (1985) *(entrepreneurship vs intrapreneurship)*

The work of OECD (Ahmad & Hoffman, 2007; Ahmad & Seymour, 2008), which has led to the OECD-Eurostat Entrepreneurship Indicators Programme (EIP)[25]. Identifies similar themes determining the entrepreneur and entrepreneurship, and finally proposes a formal definition of entrepreneurship which serves the purposes of the OvEnt study:

> ***Entrepreneurs*** *- those persons (business owners) who seek to generate value, through the creation or expansion of economic activity, by identifying and exploiting new products, processes or markets.*
>
> ***Entrepreneurial activity*** *- enterprising human action in pursuit of the generation of value, through the creation or expansion of economic activity, by identifying and exploiting new products, processes or markets.*
>
> ***Entrepreneurship*** *- the phenomenon associated with entrepreneurial activity*

Source: Ahmad and Hoffman (2007), p. 4

Reducing the business-related terminology, this OECD definition sees entrepreneurship as a phenomenon associated with entrepreneurial (human) activity, which is then characterized by value generation, creation or expansion, and identification and exploitation of opportunities. Related work under the OECD umbrella indicates three major themes of entrepreneurial activity (Ahmad & Seymour, 2008, p. 9-10):

- **Enterprising Human Activity** characterized by identifying and acting upon, action and creation regardless of intentions and attitudes,
- **Leveraging Creativity** (resources), **Innovation** (capabilities) and Identifying **Opportunities** which generate value,
- **Creation of Value** (be it economic, cultural or social).

Entrepreneurial activity is seen here as part of the wider environment – commercial, but also **natural, social and cultural.** This view opens the door to interpretations other than those based on business/economic value creation. In addition, technology and new business models (Ahmad & Seymour, 2008, p. 15) may be added, which have a certain influence on entrepreneurship and how it is organized. Unlike the above definition of the entrepreneur (business owner), entrepreneurial activity may happen within an organisation (intrapreneurship), and thus is not related to the ownership of resources or stake in the company.

In summary, the following figure shows the main dimensions on which the final formal OECD definition is based. 'Innovative capabilities' are used in parallel when looking at the 'resource' side and the 'opportunity' side.

The OECD definition suggests that *"any entrepreneurship indicators should refer to the value created by entrepreneurial activity, the changes in resources, capabilities and*

[25] The OECD-Eurostat Entrepreneurship Indicators Programme (EIP). Avalaible at: http://www.oecd.org/std/business-stats/theentrepreneurshipindicatorsprogrammeeipbackgroundinformation.htm

opportunities confronting an entrepreneur, and the business and wider environments that will impact activity" (Ahmad & Seymour, 2008, p. 14).

More recently, another perspective highlights the presence of two main types of value creation - routine and exploratory (a typology based on O'Reilly & Tushman, 2013). Routine value creation derives mostly from operational competence linked to day-to-day repetitive activities which deal with process optimisation and incremental improvements. Exploratory value creation, on the other hand, refers mostly to new ways of doing things, innovation, new value propositions, continuous learning and methods development; this second mode of value creation is entrepreneurial *tout court* (Lackéus, 2015).

An additional remark may be introduced by considering the dynamic capabilities perspective. Tether et al (2005) point out that the dynamics of innovation are both a cause and an effect of the change in required skills: an effect, in the sense that the introduction of new technologies requires both the entrepreneurs and the labour force to have new skill-sets; and a cause, because particular skills and knowledge are required to introduce new and innovative ideas.

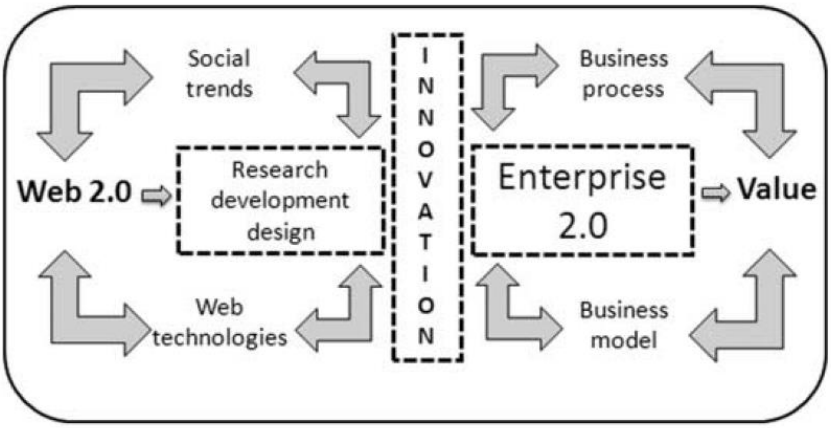
The authors mention 'soft skills' as sources of innovation in services and creativity (termed 'radical creativity' in their work) and openness to new ideas as the engine of entrepreneurial activity and of innovation. Another important factor in innovation is the capacity of the 'agents of change' to learn. Based on this perspective, a general framework of dynamic capabilities was developed.

Source Tether et al. (2005, p 92)

Figure 2: A Penrosian Model of "Resources" and the Growth of Knowledge in the Firm

The entrepreneur's dilemma of coping with the fast changing nature of innovation and its increased pace is closely connected to the previous points. These have put the entrepreneur in a position where the continuous level of investment necessary to generate, internalise and translate knowledge into a continuous stream of new products and services is no longer sustainable. Therefore, alternative strategies for tapping into a wider-than-the-personal pool of knowledge, ideas and, generally, brain power have become indispensable. In management literature, open innovation strategies, outsourcing (Howells, et al., 2008; 2012) or offshoring (Lewin et al., 2009), collaborations and networks (Tether 2002) are explored as avenues for continuing innovation (Gagliardi, 2013). The author highlights the fact that, in an increasingly connected society, entrepreneurial ventures are not undertaken

in isolation and that progressively, more networking skills are a necessary characteristic of entrepreneurial activity. In this scenario, the role of catalyst has been assigned to newer connecting technologies - Web 2.0.



Source: Gagliardi (2013, 894)

Figure 3: Added value creation in the Enterprise 2.0

As the debate on ICT develops to include digital competences (Cachia & Ferrari, 2010; Ferrari, 2013), entrepreneurs need to master networking avenues in order to "*operate in a system of relations that integrates internal capabilities with resources that are scattered outside the boundaries of the firm*" (Gagliardi, 2013, p. 894). The study points out that adopting networking and collaborative tools increases entrepreneurs' chances to innovate. However, there are still many barriers to adopting digital technologies for networking and collaboration, amongst these, lack of digital competences.

2.2.2 Types of entrepreneurship

The importance of entrepreneurship for the economy and society is reflected by an even stronger push for entrepreneurship-related objectives across diverse fields and sectors. These should address a variety of challenges such as competitiveness, economic growth, unemployment and also inclusion and inequality, or sustainability, resource efficiency and other environmental issues. Academics, policy makers and businesses - driven by their own motivations – are paying increasing attention to entrepreneurship and how this may be used to unlock Europe's full potential.

Thus, different types of entrepreneurship may be fostered according with the policy priority – inclusion, sustainability etc. Other characteristics may also become relevant according to whether the concept is applied to a sector of economic activity (digital entrepreneurship, eco-entrepreneurship) or to other dimensions (women entrepreneurs, intrapreneurship). As such, certain particularities may influence a set of competences.

In this section, we briefly present an overview of the types of entrepreneurship and their meanings in terms of 'creative resources, innovative capabilities and perceiving opportunities which create value for the economy and society', in reference to the OECD definition.

It should be noted that related terms are sometimes used interchangeably and sometimes with a different meaning. This section does not aim to present the differences in how these

terms are used, but rather outlines the key aspects relevant for the OvEnt study and the future entrepreneurship competence framework.

Intrapreneurship

While some argue that entrepreneurship is clearly connected to the creation of organisations (e.g. Gartner, 1988), others argue that entrepreneurship is bound to "*individuals who - either on their own or inside organizations - pursue opportunities without regard to the resources they currently control*" (Stevenson & Jarillo, 1990, p.23). The OECD definition recognises the entrepreneurial activity of individuals when they start and grow a business venture, and also when they already operate within an organisation. In this case, a person can demonstrate entrepreneurship without being the business owner and without having a stake in the company (Ahmad and Hoffman, 2007, p. 4). Different terms are sometimes applied to refer to this particular phenomenon: e.g. corporate entrepreneurship, internal entrepreneurship, or intrapreneurship, which has also been high on the research agenda.

Intrapreneurship is generally defined as an emerging behaviour which involves intentions and actions that depart from 'customary ways of doing business' (Antoncic & Hisrich, 2001; 2003). This category plays an important role in the innovativeness and competitiveness of established and large organisations (Pinchot, 1985; Zahra, 1991). For instance, Pinchot (1985) emphasises the need for 'ideas generators' and 'initiators' within a large organisation and suggests that innovation does not happen without a dedicated and passionate small group of individuals – intrapreneurs (Pinchot, 1985, p. 6).

Social Entrepreneurship and social innovation

Social entrepreneurship is an emerging type of entrepreneurship which targets social/societal value creation. Hence, social entrepreneurship may be seen as a phenomenon which combines two inseparable elements - economic and community/social – be they only different levels of the same action.

In fact, two major strands of social entrepreneurship are debated (e.g. Phillips & Tracey, 2007; Defourny & Nyssens, 2010[26]). One considers social entrepreneurship regardless of the creation of a social venture and source of financing and is supported by philanthropists, government or similar. The second focuses only on social entrepreneurship which generates income while pursuing social outcomes, and highlights the capacity of a social enterprise to be both, "*commercially viable and socially constructive*" (Phillips & Tracey, 2007, p. 265).

The term 'social entrepreneur' was coined by William Drayton, the founder of Ashoka[27] (in USA). Ashoka sees the social entrepreneur as "*an individual who conceives, and relentlessly pursues, a new idea designed to solve societal problems on a very wide scale by changing the systems that undergird the problems*" (Leviner et al., 2007). As such, the Ashoka definition incorporates two key aspects – impact on a wide societal scale (or social impact) and a systemic change.

[26] Defourny and Nyssens (2010) base their work on an approach presented by Dees and Anderson (2006).

[27] Ashoka is a not-for-profit organisations founded in 1980 by Bill Drayton, a global network of social entrepreneurs with nearly 3.000 Ashoka fellows in 70 countries. Ashoka provides financing, professional support services and connections to a network across the business and social sectors. Ashoka – Innovators for the Public. Available at: https://www.ashoka.org

Ashoka draws on the widely cited definition proffered by Greg Dees who combines discipline and accountability with the notion of value creation, innovation in terms of agent of change, pursuit of opportunity, and resourcefulness[28] (see also Table 2).

"Social entrepreneurs play the role of change agents in the social sector, by:

- *Adopting a mission to create and sustain social value (not just private value),*
- *Recognizing and relentlessly pursuing new opportunities to serve that mission,*
- *Engaging in a process of continuous innovation, adaptation, and learning,*
- *Acting boldly without being limited by resources currently in hand, and*
- *Exhibiting a heightened sense of accountability to the constituencies served and for the outcomes created."*

Source: Dees (1998), p. 4.

Dees (1998) underlined the entrepreneur's explicit and central social mission, which affects how he/she perceives and assesses opportunities. For social entrepreneurs, this social orientation of their mission outweighs potential financial gains. Dees (1998) points out that the social value created by the entrepreneur, is more difficult to grasp by applying market standards than the economic value: *"... it is much harder to determine whether a social entrepreneur is creating sufficient social value to justify the resources used in creating that value." (*Dees, 1998, p.3-4).

The two main geographical areas – i.e. Europe and the USA – have different approaches to social entrepreneurship. The four main schools are summarized in Table 3. In the USA, the social innovation school focuses on individual social innovators (e.g. Ashoka approach) while the social enterprise school draws attention instead to the organization level. In Europe, however, social entrepreneurship is seen from an organizational perspective. In Europe, the first social enterprises had evolved following an impulse from Italian 'social cooperatives', and social entrepreneurship in Europe somehow took a separate trajectory to the one in the US continent (Deffourney & Nyssens, 2010). EMES European Research Network[29] established in 1996, developed a definition based on two sets of criteria – economic and social - each comprising 4 indicators. These enterprises must be launched by a group of people, the people affected by the activity must participate in the decision-making, profits should have limited distribution, and they must explicitly aim to benefit the community (social criteria)(Defourny & Nyssens, 2012).

[28] Thus, combining the key themes of the following economists: Jean-Baptiste Say, Joseph Schumpeter, Peter Drucker and Heathfield Harman Stevenson (respectively).

[29] ESEM website available at: http://emes.net

Table 3: Four schools of social entrepreneurship

	American approach		European approach	
Distinctions	Social Innovation School	Social Enterprise School	EMES	UK
Observation unit	Person	Organization	Organization	Organization
Link between services and mission	Direct	Direct/Indirect	Direct	Direct/Indirect
Legal structure	No constrains	Non profit	Some constrains	No constrains
Innovation	Perquisite	Not underlined	Not underlined	Not underlined
Profit distribution	No constrains	Constrains	Limited constrains	Limited constrains
Source of income	Not underlined	Perquisite	Not underlined	Important
Governance	Not underlined	Not underlined	Multiple stake-holder involvement underlined	Multiple stakeholders involvement recom-mended

Source: Orhei (2011), the figure was adapted by Orhei (2011) from Hoogendoorn Penning, & Thurk (2010)

The OECD approach (2010) may serve to summarize the following key dimensions of the different social entrepreneurship approaches:

- individual versus collective phenomenon,
- a social value only versus an economic value,
- not-for-profit sector only versus profit sector and public sector,
- incremental versus radical social impact,
- local versus global phenomenon.

It should be noted, that the scope of social entrepreneurship in terms of the above aspects, and especially value creation versus profit-making, is irrelevant for the purposes of the OvEnt study. In this study, we consider entrepreneurship from a wider perspective – regardless of profit, organisation structure, single entrepreneur or an enterprise –, where innovation represents an important dimension. From our perspective, as entrepreneurship and innovation are inseparable, the following impact-based conceptualization of social innovation appears to be relevant. According to the European Commission (2013b, p. 6-7), social innovation responds to:

- Social demands that are traditionally not addressed by the market or existing institutions and are directed towards vulnerable groups in society.
- Societal challenges concerning society as a whole through the integration of the social, the economic and the environmental.
- Systemic change, which is the most ambitious and to an extent encompasses the above two points, is achieved through a process of organisational development and changes in relations between institutions and stakeholders.

Based on this wide concept, social innovation may address economic, social and also environmental value creation. In this respect, social entrepreneurship may overlap with what we will discuss in the following section – eco-entrepreneurship.

Eco-entrepreneurship and eco-innovation

Given the increasing concern about environmental issues, an entrepreneurial approach has been brought into play. Terms like green businesses, ecological enterprises, sustainable entrepreneurship or eco-innovation (more general and cross-sectoral) appear increasingly on the policy and research agenda. The scope of these terms may vary according to the reasons for the study or policy objective.

Generally speaking, eco-entrepreneurship may be found in the discourse of ecological economics, entrepreneurial behaviour and in an increasing number of research streams connected to innovation, growth (green growth), employment (green jobs) etc.

Without going into greater detail on these topics, in the table below we have highlighted the characteristics and dimensions of eco-entrepreneurship.

Table 4: Different approaches to eco-entrepreneurship

Isaak (2005)	An ecopreneur is a person who seeks to transform a sector of the economy towards sustainability by starting a green business in that sector, with green processes and a life-long commitment to sustainability in everything that is said and done.
Volery (2002)	There are two types of ecopreneurs: 1) "environment-conscious entrepreneurs", are individuals who develop any kind of innovation (product, service, process) that either reduces resource use and impacts or improves cost efficiencies while moving towards a zero waste target. 2) "green entrepreneurs", are those who are aware of environmental issues and whose business venture is in the environmental marketplace. These entrepreneurs pursue environmental-centred opportunities with good profit prospects
Anderson (1998)	Both entrepreneurship and environmentalism are based on a perception of value. The attitudes which inform environmental concern create areas of value that can be exploited entrepreneurially. "Environmental Entrepreneurs" not only recognize this opportunity, but construct real organisations to capture and fix change in society

Source: OECD (2011), p. 23. http://dx.doi.org/10.1787/9789264097711-4-en

Furthermore, Shaper (2012) distinguishes between eco-entrepreneurs for whom altruistic goals are more important than financial gains (or equally as important) and 'accidental eco-entrepreneurs' who operate in an environmentally-friendly manner without any specific intention to do so.

Nonetheless, economic and environmental values stand side by side and in the economic/environmentally-centric definition of entrepreneurial activities, we can find motivating factors for eco-entrepreneurs to start up a business. These are: green values, earning a living, passion for the environment, auto affirmation and independence (being their own boss), and exploiting a gap in the market (Kirkwood & Walton, 2010).

Along the same lines, Schaper (2012) discusses three key factor areas. Firstly, characteristics of eco-entrepreneurial activity generally encompass those related to a business venture – risk, uncertainty, and possibility of failure, combined with a need to identify opportunities, research them, harness resources to turn the idea into a reality, execute business development and oversee growth. Secondly, this kind of commercial activity should have a positive effect on environment and be seen as a move to a more sustainable future. A third set of factors refers to the individual's intentions, beliefs and drive, associated with personal values and aspirations. Shaper (2012) distinguishes between eco-entrepreneurs for whom altruistic goals are more important than the financial

gains (or equally as important), and 'accidental eco-entrepreneurs' who operate in an environmentally friendly manner without specifically intending to do so.

Digital entrepreneurship and ICT entrepreneurship

The digital technologies boom facilitated the creation of new entrepreneurial avenues. In the first instance, digital entrepreneurship was associated with entrepreneurs in the IT sector of the economy. The definition, however, extended to the use of digital technologies when doing business, in production or other business operations, across different sectors.

The term digital entrepreneurship entered the policy agenda as a means of reviving traditional sectors, boosting new emerging ones and promoting newer work-related forms of organisations.

Recently, the EC Digital Entrepreneurship Monitor[30] adopted the following definition:

"Digital entrepreneurship embraces all new ventures and the transformation of existing businesses that drive economic and/or social value by creating and using novel digital technologies. Digital enterprises are characterised by a high intensity of utilisation of novel digital technologies (particularly social, big data, mobile and cloud solutions) to improve business operations, invent new business models, sharpen business intelligence, and engage with customers and stakeholders. They create the jobs and growth opportunities of the future."

This definition embraces economic or social value created by using novel digital technologies in new businesses or by introducing them into existing ones. The novelty and innovation is driven by technology. The OECD definition discussed earlier may also provide a basis for defining digital entrepreneurship as a phenomenon associated with ICT-enabled or otherwise ICT-driven or related entrepreneurial activity.

The extent to which one needs to acquire knowledge, skills and attitudes related to ICT may significantly vary since these competences are certainly not prerequisites of becoming a digital entrepreneur.

Inclusive entrepreneurship

'Inclusive entrepreneurship' refers to the provision of equal opportunities for all citizens to take the path of entrepreneurship, in other words to start up and operate a business (OECD/ the European Commission[31]). This approach complements the social inclusion policy agenda, addressing barriers to business creation and self-employment faced by people who are disadvantaged or under-represented in entrepreneurship activities. These groups include young people, older people, the disabled, women, ethnic minorities, the unemployed and others.

This definition of inclusive entrepreneurship reflects the belief that entrepreneurial activity is for everyone regardless their personal qualities and conditions.

From inverse perspective, entrepreneurship and entrepreneurial skills are considered core components when "*building socially inclusive and highly participatory economies in an increasingly global and competitive world*" (World Economic Forum (WEF), 2009, p.156).

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[30] Digital Entrepreneurship Monitor website: https://ec.europa.eu/growth/tools-databases/dem/monitor/project-description

[31] Inclusive Entrepreneurship in Europe is an initiative of OECD and the European Commission (DG Employment and Social Affairs). For more information, see the website: http://www.oecd.org/cfe/leed/inclusive-entrepreneurship.htm

Female entrepreneurship

Inclusive entrepreneurship aims to encourage women to start businesses, in order to address the statistical imbalance in the numbers of men and women entrepreneurs. In fact, female entrepreneurship is high up on policy makers' agendas since the gender gap – or the under-representation of women in the business sector - is considered a waste of potential resources. Encouraging women to go into business would be a winning strategy for bridging the gender gap and fostering economic growth (see for example the Small Business Act for Europe, European Commission, 2008).

For instance, OECD statistics show that women are less likely than men to be self-employed, in the process of starting a business (i.e. nascent entrepreneur), to be running a business, or to be the owner of one (OECD/the European commission, 2014).

Generally, the same barriers to starting and running a business apply to female entrepreneurs; however, certain barriers seem to affect them more. The OECD/European Commission (2014, p. 39) point to the following possible reasons for this:

- women's self-perception of the desirability and feasibility of undertaking an activity of this kind,
- lack of financial capital[32],
- women have difficulties in reconciling self-employment with family commitments.

Welter et al. (2014) recognise that contextual factors for male and female entrepreneurs differ in several areas and identify persistent institutional barriers for women in business. These include policies from welfare to education, access to finance and labour market policies. Also, traditional/normative views on the position of women in society constitute a barrier for women entrepreneurs.

There may be research and examples from practice that look at how the personal characteristics of a woman differ from a man. However, this is beyond the scope of the current study. We suggest instead that these features be considered when implementing a framework for entrepreneurship competences which targets women specifically. This also applies for other under-represented groups.

Generally, it is argued that women may be better suited to other types of entrepreneurship (e.g. social) than the traditional ones. While research attempts to prove the difference between men and women scientifically, it is still difficult to support these arguments with empirical evidence and to refrain from returning to gender stereotypes.

[32] Which is a fairly general barrier, although it can be argued that women find getting finance more difficult than men.

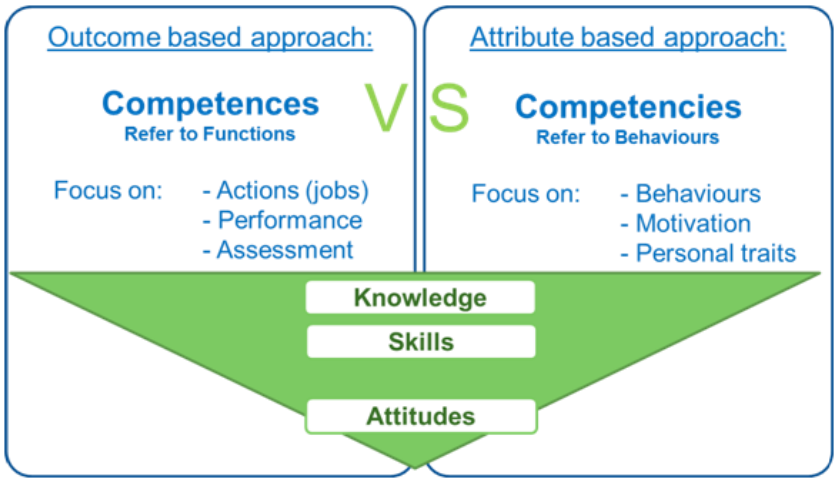
2.3 Entrepreneurship as a competence from the academic perspective

Defining entrepreneurial competences proved to be particularly challenging because an agreed structure or common understanding of the topic does not emerge clearly from the literature.

Entrepreneurial competences and competencies are generally seen as important factors for business growth. The policy discourse around competences and competencies is, however, very fragmented (Chandler & Jansen, 1992; Baron & Markman, 2000; Winterton, 2002; Lazear, 2004; Mitchelmore & Rowley 2010; Marram et al., 2014). Even more fragmented is the research around entrepreneurship education that derives from this conceptualisation (Johannisson, 1991; Henry et al., 2005; Lee & Wong, 2007; Ojala & Heikkila, 2011; Fairlie & Holleran, 2012; O'Connor, 2013; Rideout & Gray, 2013; Marram et al., 2014).

Nonetheless, the concepts of competency and competence seem to be the basis of a common and multidisciplinary definition of entrepreneurship competences. '*Competency*' refers to the individual's behavioural characteristics, motivations and personal traits whilst '*competence*' refers to tangible and reckonable outcomes such as actions and performances that can be eventually assessed against standard measures.

In the course of this study, we have identified and classified the conceptualisations of competence and competency and mapped these concepts on the Knowledge-Skill-Attitude framework (European Parliament & Council, 2006). According to this reference, *Knowledge and Skills* are common to both definitions of competence and competency. '*Attitude*', whilst directly related to the domain of competency, is increasingly becoming a cross-cutting issue common to the two domains.



Source: elaboration of: Winterton (2002); Le Deist and Winterton (2005); Mitchelmore & Rowley (2010) and Lester (2014)

Figure 4: Characteristics and attributes of competency and competence

The EU policy debate on competences has tended to lean towards an outcome-based approach although the cross-cutting issue of 'attitude' is taken into consideration as one of the main defining constituents. The European Parliament and Council (2006) published the Key Competence Framework. Therein "competences" are defined as a set or combination of skills, knowledge and attitudes. This approach has been widely adopted in the European Commission policy debate. A similar version of the definition of competence set out in the European Parliament and Council (2006) has been adopted by the European Qualification

Framework – EQF - (European Parliament, 2008). The EQF defines competence as the 'proven ability to use knowledge, skills and personal, social and /or methodological abilities in work or study situations and in professional and personal development' (European Parliament and Council, 2008, p. 4).

In the following paragraphs, we will use the term 'entrepreneurial competences' when referring to competences and competencies concerning entrepreneurship. We will use the appropriate terminology in the cases where it is required.

Entrepreneurial competences in research

Entrepreneurship research and entrepreneurship education has invested heavily in exploring, identifying, and understanding the relevant entrepreneurial skill-set which would make a successful entrepreneur. Supported by empirical research, academic literature is currently looking at the relations between successful entrepreneurial activity and personal characteristics, economic and business environment, education and human capital formation within the system of innovation where successful entrepreneurs operate.

How to build a functional model of entrepreneurial competences has been the central topic of the academic debate on this subject. The current literature addresses work expectations, input measures related to knowledge and skills, personal attributes and personal characteristics of the entrepreneur. Cheetham and Chivers (1996; 1998) have introduced a more holistic classification of professional competences which is more useful to our understanding of entrepreneurial competences, as it includes competences and competencies in a more articulate manner. They identified a set of interrelated competences consisting of:

1) **cognitive competences**: the knowledge-base of the entrepreneur, in other words, his/her set of work-related knowledge and ability to put it to use;
2) **functional competences**: a standardised description of the tasks that someone working on a job should be able to perform and eventually should be able to demonstrate;
3) **personal competencies**: the characteristics of an individual that enable him/her to produce superior performance. This definition includes both the knowledge and the skills of individuals, as well as their psychological traits and personal drives;
4) **meta-competencies**, is a set of soft skills and other individual characteristics that tend to be associated with superior performance in adversity. These, along with technical competences and personal attributes related to the competencies we have seen so far, include flexibility, tolerance for ambiguity and the ability to learn and 'judgement and intuition', creativity and analytical and problem solving capacities.

Informed by research conducted in the US, the UK and mainland Europe (Austria, France and Germany), Le Deist and Winterton (2005) take the main competence approach a step further by integrating the behavioural approach and the functional approach in a two-dimensional matrix. *"[K]knowledge (and understanding) is captured by cognitive competence, skills are captured by functional competence and 'competencies' (behavioural and attitudinal) are captured by social competence"* Le Deist and Winterton (2005. P. 39). In later work, Winterton et al. (2006) have described further describe the elements of such matrix, where meta-competences are considered to be a part of personal competences.

	occupational	*personal*
conceptual	cognitive competence (knowledge)	meta-competence (facilitating learning)
operational	functional competence (skills)	social competence (attitudes and behaviours)

Source: Winterton et al. (2006)

Figure 5: Typology of Competence

A comprehensive framework of competencies was developed by Mitchelmore and Rowley (2010; 2013). In an attempt to review competencies of successful entrepreneurs in the literature, the authors collected a range of evidence from 1) personal background and experience to 2) socio-economic factors, 3) management skills, 4) personal profiles and qualities, 5) behavioural characteristics and 6) modes of interaction and communication. They used this to paint the portrait of a successful entrepreneur. These characteristics were further disaggregated into their constituent parts and, after cluster analysis the authors achieved the framework shown in the next table:

Table 5: The Entrepreneur Competence framework

Factor	Item
Conceptual and relationship competencies	Interpersonal skills
	Oral communication skills
	Relationship building
	Networking
	Integrity
	Self-confidence
	Motivating self
	Political competence
	Being active
	Desire to succeed
	Perseverance
Business and management competencies	Budgeting skills
	Business operational skills
	Developing management systems
	Formulating and implementing strategies for exploiting opportunities
	Business plan preparation and writing
	Development of operational systems
	Planning business activities
	Managing finance
Entrepreneurial competencies	Idea generation
	Innovation skills
	Visioning
	Envisioning opportunities
	Product innovation
	Creativity
	Willingness to take risks
	Scan environments for opportunities
	Risk taking
Human relations competencies	Employee development
	Managing employee performance
	Human relation management skills
	Employee relations
	Hiring skills
	Leadership skills
	Motivate others
	Management style
	Management skills

Source: Mitchelmore and Rowley (2013), p.136

Nonetheless, the debate continues, despite general acceptance of a set of characteristics that define the skill-set of an entrepreneur. What has not been agreed upon is the extent to which knowledge, skills and personal traits contribute to the success of the enterprise. Definitive insights from the literature are hard to come by due to methodological hurdles, time constraints and the lack of the resources needed to conduct appropriate cohort studies. Despite this, however, the policy debate about the key characteristics associated with entrepreneurial activity is progressing. It is, in fact, from policy and practice that a host of frameworks are being operationalised and ways to apply them in practice are being tested.

2.4 Entrepreneurship competence dimensions: components and elements

A review of the relevant evidence from academic research, policy and practice reveals that the following four key factors appear to shape the concept of entrepreneurship competences:

- Components in terms of *knowledge, skills and attitudes* (K-S-A framework), as defined by the European Parliament and the Council (2006);
- Individual elements clustered within larger themes and categorized under even larger groups;
- The process side of entrepreneurship, reflecting the different phases of entrepreneurial activity from intention, to ideas development, to implementation, and exploitation, thus, turning ideas into actions, value generation and activity expansion;
- The learning progress.

In the following sections we detail each of these factors. The learning process is further explained in Chapter 3.

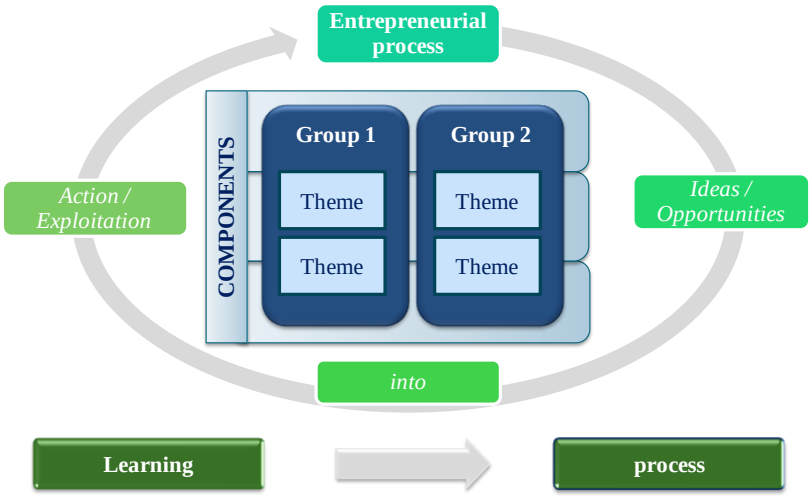


Figure 6: Entrepreneurship competence: components and constituent parts

2.4.1 Components of entrepreneurship competence

The OvEnt study draws on the European Reference Framework - Key Competences for Lifelong Learning, which identifies eight key competences[33] for all members of a knowledge-based society and defines them in terms of **knowledge, skills and attitudes** (K-S-A; European Parliament and Council, 2006).

For the competence '*Sense of initiative and entrepreneurship'*, the framework defines the necessary *knowledge* as relating to the identification of suitable opportunities, economic / business context and understanding of the particular challenges that face the employer. Meanwhile, relevant *skills* refer to proactive project management, effective representation and negotiation skills and the ability to assess personal strengths and weaknesses. Ultimately, individuals with an *entrepreneurial attitude* take the initiative and are pro-active in both their personal and social lives and at work, and have the determination to meet their objectives.

Secondly, the European Qualification Framework (EQF) is trying to make qualifications more homogeneous across borders (European Parliament and Council, 2008). The EQF is based on learning outcomes[34] rather than on the duration of the studies, and describes knowledge, skills and competences (as reference level descriptors[35]) against eight reference levels. Here, *Knowledge* is described as theoretical and factual. *Skills* are described as the ability to apply knowledge theoretically and practically and therefore c*ognitive skills* are those that involve the use of logical, intuitive and creative thinking. *Practical skills* involve manual dexterity and the use of methods, materials, tools and instruments. *Competences* are described as the ability to use knowledge and skills in given situations, taking r*esponsibility* and acting in *autonomy.*

The two frameworks are interlinked and interdependent. They both define "competence" as having 3 components, but the terminology differs.

Several initiatives are based on the K-S-A component framework of the European Parliament and Council (2006) (Van Lakerveld & De Zoote, 2013; Fayolle, 2013; Moberg, K. et al. 2014; Lackéus, 2015; and SEECEL, 2011a, b, 2012; 2014) while others take a different approach. For instance, the UK Quality Assurance Agency for Higher Education (QAA, 2012) framework defines learning outcomes in terms of *behaviours, skills and attributes*. Though the knowledge component has not been disregarded, it is not included mainly because the purpose of the guidance document is to assist the higher education institutions in integrating those components that are less easily grasped in the curriculum.

A mixed approach is taken by Rasmussen & Nybye (2013) who group entrepreneurship into four main categories – *creativity, action, attitude and outward orientation* – two of which correspond to our understanding of 'component'. 'Attitude' is understood as personal and subjective resources with which students meet challenges and tasks, 'Environment' is knowledge about and understanding of the world, locally as well as globally and the ability to analyse a context socially, culturally and economically. The 'knowledge' component

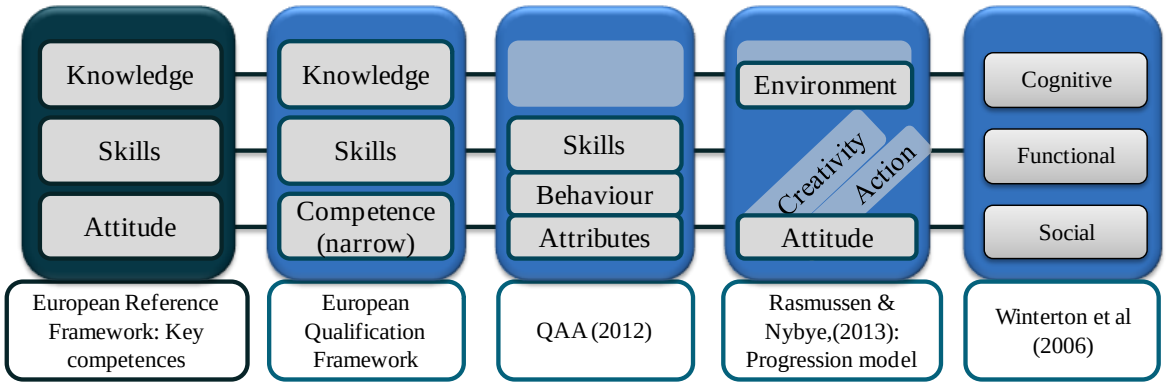
[33] More precisely these are 1) Communication in the mother tongue; 2) Communication in a foreign language; 3) Mathematical competence and basic competences in science and technology; 4) Digital competence; 5) Learning to learn; 6) Social and civic competence; 7) Sense of initiative and entrepreneurship; 8) Cultural awareness and expression.

[34] What the learner knows, what the learner understands and what the learner is able to do, regardless of the system under which a particular qualification was awarded.

[35] Descriptors defining levels in the EQF can be found at http://ec.europa.eu/ploteus/en/content/descriptors-page

enables the spotting of the opportunities that are in the social, cultural and economic contexts. 'Creativity' and 'Action' comprise elements related to mainly skills and partly to attitude.

The four examples are briefly summarized in Figure 7, complemented by the approach from academic evidence.



Van Lakerveld and De Zoote (2013); Fayolle (2013); Moberg et al. (2014); SEECEL (2011a,b,2012,2014)

Figure 7: Competence components terminology

In general, a synthesis of the conceptualisation and operationalisation of entrepreneurship as a competence appears to rest on *the components* that can be mapped on the K-S-A framework.

The final OvEnt Inventory containing 42 relevant initiatives revealed a total of 102 key competences related to knowledge, 120 to skills and 70 to attitudes[36]. Scanning through the long list of competences classified within the K-S-A framework by the research team, two streams appeared:

- First, a group of entrepreneurship competences which mirror diverse enterprise functions, processes and procedures relating mostly to *'Knowledge'* and *'Skills'*
- Second, competences in the components *'Skills'* and *'Attitudes'* which mostly display a transversal character and elements related to personal traits and behaviour.

Analysing the OvEnt Inventory and the case studies, a pattern emerges with respect to the type of initiative and education level. It seems that initiatives targeting lower educational levels give more weight to *'Skills'* and '*Attitudes'* applied to diverse areas including culture, community, and sports. Several initiatives[37] deliberately focus on these two components and their main goal is to complement curricular or knowledge gained by other means with hands-on experience – typically in lower education levels or education for people with disabilities/unemployed. Meanwhile, selected initiatives at a more 'advanced' education level, targeting executives, business owners and start-ups, are more focused on specific '*Knowledge',* and then '*Skills'*, though *'Attitude'* is hardly evident. The reasoning behind this is that, typically, participants already have a certain level of entrepreneurial attitude when they enter executive or incubation programmes. Building on their initial entrepreneurial

[36] The long list of competences is a result of data collection and classification by the research team. It is acknowledged that such classification which is based on scanning publically available information rather than in-depth analysis is very challenging. The categorization, thus, should be considered indicative rather than absolute.

[37] E.g. Case study 5: NextLevel; Case study 9: SIMULIMPRESA

activity, they seek to obtain advanced knowledge and skills and apply these in their respective companies or 'to-be' companies.

2.4.2 Elements of entrepreneurship competence

At EU policy level, the Education and Training 2020 Working Groups (ET 2020 WGs[38]) established by the European Commission, and in particular the Thematic Working Group on Entrepreneurship Education[39] and Working group on Transversal Skills[40], initiated the definition of the European Competence Framework (CRF) for entrepreneurship (originated from European Council and Parliament, 2006).

During a meeting in March 2014[41], the ET 2020 WG discussed several constituent parts of entrepreneurship as a competence - *creativity, teamwork, problem-solving*, *resource management, risk-taking, and opportunity identification*, and also stressed the importance of *self-efficacy* and *self-confidence*. To provide some early examples for curriculum design, a set of learning outcomes was developed for three constituent elements: *financial literacy*, *creativity,* and *risk management and opportunity identification* (ET 2020 Thematic Working Group on Entrepreneurship Education, 2014, Annex 1, p. 61-66). The three constituent parts of entrepreneurship are defined as follows:

> *Financial literacy:* this refers to the business/economic facets of entrepreneurship, and also to skills and attitudes that help individuals throughout life.
>
> *Creativity:* this refers to an individual's ability to use imagination, exploring multiple solutions and determining innovative responses to problems.
>
> *Risk and opportunity:* this refers to spotting opportunities and managing risk as cognitive and behavioural traits, typically associated with being an entrepreneurial person.

Source: ET 2020 Thematic Working Group on Entrepreneurship Education (2014), p. 38

To a large extent, the evidence and initiatives reviewed in the OvEnt study confirm the elements identified by the ET2020 Working group(s), but also reveal that attitudes and skills associated with entrepreneurship as a competence are *communication, leadership, decision making, innovation, responsibility, collaboration, ideas generation, problem-solving, work independently or autonomy, negotiation and networking*.

[38] For more information, see: http://ec.europa.eu/education/policy/strategic-framework/expert-groups_en.htm

[39] Group Details - Commission Expert Group (2011). Register of Expert Groups and Other Similar Entities. 19.12.2014 [last update]. Available at: http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=2676

[40] Group Details - Commission Expert Group (2014). Register of Expert Groups and Other Similar Entities. 04.05.2015 [last update]. Available at: http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=3002

[41] ET 2020 Working Group on Transversal skills (2014). Minutes of the meetings & working group agenda. Available at: http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=3002m

Source: based on OvEnt inventory

Figure 8: OvEnt Inventory key entrepreneurship elements

In greater detail, the following table presents a software-based count of the keywords, with additional cleaning carried out by the research team. Comparing the table with the entrepreneurship definition described in Section 2.1, one can see that all the dimensions are represented.

Table 6: OvEnt Inventory entrepreneurship competence - keyword count

Themes	Count	Themes	Count	Themes	Count
*Financial related**	89	Decision-making/Decision/Decisive	19	Perseverence	9
Management/Marshalling	55	Responsibility/self-responsible	18	Motivation/motivated	8
Creativity/Creative	51	Initiative/Initiation/Initiating	18	Environmental/ecological	6
Planning/Plan	39	Collaboration/Cooperation	18	career/job/occupation	6
Social/socially/societal/society	34	Ideas	17	Uncertainty	6
Team/Teamwork	33	Strategy/Strategic	17	Persuasive/Persuade	5
Communicate/Communication	31	Custemer/User/Client/Consumer	16	Ethical	4
Marketing	27	Problem-solving/Problem/Solve/Solution	16	Organisational/Organising	4
Self-efficacy / self-(belief, confidence, esteem, awareness)	23	Product/Produce/Production	15		
Leading/Leadership	22	Independent/Autonomy…	15		
Risk/Risk-taking	22	Presenting/Presentation/Pitching	15		
Innovation/Innovating/Innovative	22	Value(-creation)	13		
Opportunity	21	Sales	13		
		Goal/future(-oriented)	12		
		Negotiation	11		
		Networking	10		

Source: based on OvEnt Inventory containing 42 initiatives.

Note: the competences have been identified through desk research, categorized under the K-S-A framework and analysed using a software tool. Further, the research team manually grouped words mainly based on the language meaning. Two larger groups have been created: (*) financial related terms have been grouped. Terms such as 'finance', 'financial', 'financing' counted for 49 out of 89. Other terms are e.g. 'accounting', 'budget', 'capital', 'banking', 'calculate', 'expenses', 'money'. 'Self-efficacy', on its own, counts for 2 occurrences; it has been, however, grouped with other terms, where (self)-confidence dominated with 14 occurrences.

Financial-related elements seem to score highest in the word count. These are integrated into initiatives from primary education onwards. Some initiatives[42] even emphasise that financial literacy[43] is an important element of entrepreneurship competences from an early age[44].

Besides the usual association of entrepreneurship with terms such as business and economy, **ethics, environment, society and social issues** are also clearly noticeable in Table 6. It shall be noted that many initiatives that do not explicitly mention competences related to the social, ethical, environmental and cultural dimension, though thy address them through their choice of selected projects (learning-by-doing approach).

Table 6 does not include digital competence. However elements of digital competence are often embedded in the learning objectives and learning outcome statements (e.g. use modern technologies when working together)[45]; or are otherwise implied by the learning method adopted requiring students to use digital tools to simulate enterprise's operations (doing business with other simulated enterprises), or simply to present and market a product/idea.

Interconnected and multifaceted elements

Many of the constituent elements are interconnected and are clustered according to different criteria. Chell and Athayde (2009) explain that *'imagination and creativity'* is essential when developing an idea. *'Self-efficacy'* is crucial to those who recognise and exploit opportunities, as is *'energy'* which makes them take the innovation forward and *'risk-propensity'* which helps them to navigate in an uncertain environment of innovation and entrepreneurship. *'Leadership'* brings in the interpersonal aspects of communicating visions, convincing others, leading, gaining support and, more importantly for the innovation process, banishing rivals.

Rasmussen & Nybye (2013) identify four broader areas, among which creativity is defined as "the ability to discover and create ideas and opportunities and combine knowledge, experience and personal resources from different areas in new ways". Creativity therefore embraces three elements: *ideas and opportunities, applied knowledge and solutions*. Another area '*Action'* is understood as the "ability and desire to implement value-creating initiatives including the ability to implement these in co-operation" and comprises four elements*: initiation, value-creation, communication and cooperation.*

Moreover, some initiatives express what a person should be able to do or learn, intentionally combining several elements in one statement. For instance, the initiatives indicate '*creative problem-solving'* (Youth Start, v15); '*taking action while considering risks factors'*, *'decision making in the environment of risks*', '*problem solving (as creative and innovative approaches)* (QAA, 2012)', *'ability to solve problems and to make decisions together with others*' (SEECEL, 2014).

Structuring the constituent elements of entrepreneurship into coherent groups has proven to be challenging, since despite commonalities and repetitive terms, the there is no consensus on broad competence areas.

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[42] See Case study 2 – ESP; Case study 4 – SEECEL.

[43] Financial literacy may be formulated as *'dealing with pocket money'* or *'understanding of a suitable financial model and different financial sources'*

[44] Idem.

[45] Youth Start, v15.

Larger entrepreneurship competence groups and themes

Different academic approaches to conceptualizing entrepreneurship competences have been presented in the previous chapter: holistic taxonomy (Cheetham & Chivers, 1996; 1998), modern multi-dimensional version of the holistic taxonomy (Le Deist & Winterton, 2005; Winterton et al., 2006), and evidence-based taxonomy (Mitchelmore & Rowley, 2010; 2013). In addition, different facets seem to be employed to conceptualize entrepreneurship competences within the non-academic evidence reviewed and selected initiatives. For better clarity, the following presents an attempt to summarize the terminology and corresponding scope, and to position the OvEnt study.

Entrepreneurial competences (1)	**Wider entrepreneur competence framework.** Work expectations, input measures related to knowledge and skills, personal attributes and personal characteristics of the entrepreneur; originated from professional competences, e.g. Cheetham and Chivers, (1996, 1998); they are usually linked to SME managers, e.g. Winterton et al. (2006) or are derived by analysing the characteristics of nascent and existing entrepreneurs (business owners) when performing their role, e.g. Mitchelmore and Rowley (2013).
Entrepreneurial competences (1b)	A sub-set of competences related to entrepreneurs who do not play a 'managerial' role, e.g. Mitchelmore and Rowley (2010; 2013); *Note: this sub-set partly corresponds to meta-competences, Winterton et al. (2006)*
Operational, Occupational, Functional, Business, Human Relations, Management…	**Related to the function of an organisation (department), task, operation, workplace or similar**. They may be seen as a sub-set of a larger competence framework (1): Occupational, operational, functional competence / competencies (Le Deist & Winterton, 2005/Winterton et al, 2006; Cheetham & Chivers, 1996); business, management, human relations (Mitchelmore & Rowley, 2013); operational competencies (Lackéus, 2015 based on O'Reilly and Tushman, 2013)
Personal, conceptual, relationship	**Related to the person' s ability to conceptualize, and his/her behaviour and interaction with others**: Personal (Cheetham and Chivers, 1996, 1998); Social (Le Deist & Winterton, 2005/Winterton et al, 2006); conceptual and relationship (Mitchelmore & Rowley, 2013)
Entrepreneurial competences (2)	**Addressing all 'citizen'**. This approach tends to focus on transversal competences; e.g. in terms of initiative, innovative, creative, resourceful, searching for opportunities etc. e.g. ET 2020 WGs approach, Chell and Athayde (2009), Rasmussen & Nybye (2013). *Note: to some extent, the competences coincide with the above mentioned sub-set (1b) and personal/conceptual/relationship competences.*
Entrepreneurship (as a) **competence**	The OvEnt study aims to contribute to the universal Entrepreneurship Competence Framework for all citizens, applicable to any life situation, not only business and work-related and to any sector of activity under any circumstances.

Academic research with the first narrow and traditional perspective provided the evidence base to describe the characteristics of actual existing entrepreneurs. A second approach taken by the European Commission and its working groups widened the traditional perspective and associated 'entrepreneurship' not only with existing or nascent enterprises but also with being a competence useful for everyone.

In a similar fashion, when analysing the inventory and case studies, two competence areas have been synthesised – a narrow one closely tied to the business world which saw entrepreneurship in a more traditional way, and a wider one linked to entrepreneurial mindset and behaviour in any life situation. Usually, both areas are addressed in the selected initiatives, albeit to varying degrees. The presence of both areas seems logical because the connection with real world entrepreneur/enterprise is crucial for initiatives which address entrepreneurship competences. This is especially true for the general education level as compared to the executive and growth programmes and incubation programmes. For instance, the two areas are evident in simulation practice firms or mini-company types of initiatives.

Case study 9: SIMULIMPRESA: one group of competences is determined by simulated enterprise functions, in terms of department and work place, while another group is more behavioural and transversal.

Case study 12 Entrepreneurship Module eligible for Certification (CEM): based on 7 work processes - mirroring enterprise processes and procedures - each elaborated in competences and professional knowledge and skills.

Figure **9** summarises the insights gained in the OvEnt study through literature review, inventory and case studies. It displays the most frequently occurring entrepreneurship elements and clusters them into three main groups. This categorization results from an exercise carried out by the research team during the study's literature review phase which was partly inspired by Mitchelmore and Rowley (2010; 2013). To group terms related to business in one area - among which 'knowledge' dominates, and to group those elements related to personal behaviour and interaction in another area seems to be a rational way to proceed. The same tendency has been observed during the Entrepreneurship Competence Framework Expert workshop when categorizing statements.

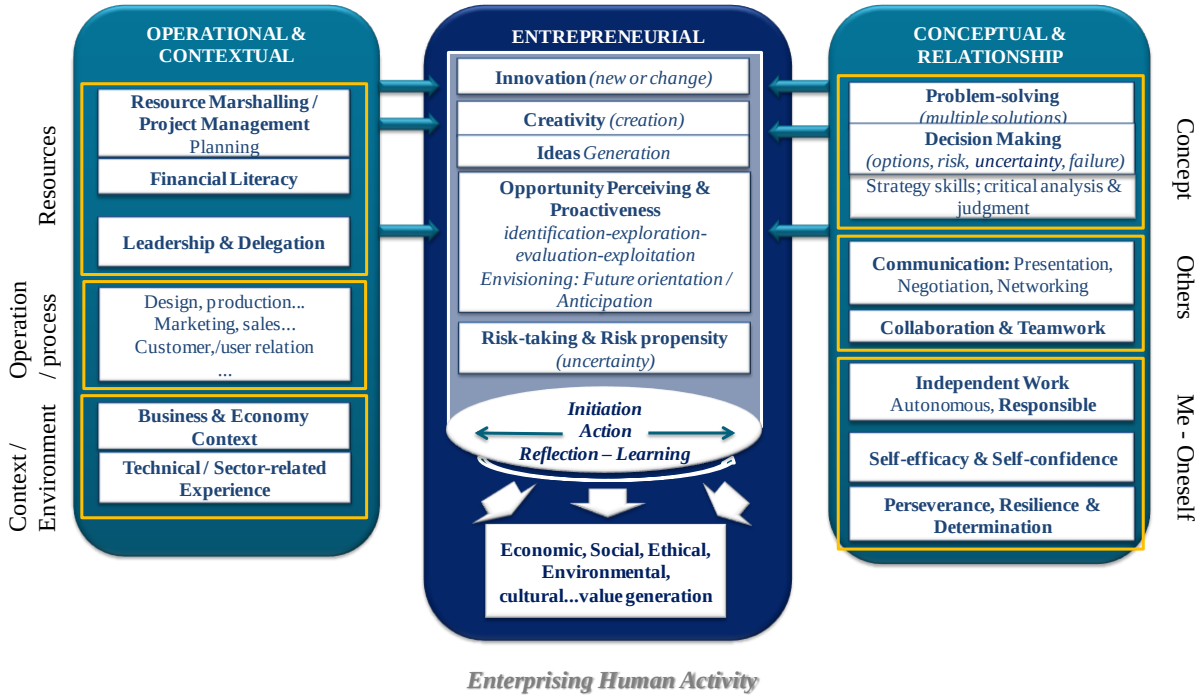


Figure 9: Entrepreneurship Competences within larger themes and groups

On the left of Figure 9, under operational and contextual heading, three larger theme areas appear: *resources*, *operations and processes*, and *context and environment* (in terms of surrounding). On the right, the personal, conceptual and relationship elements are grouped. These include abilities to *conceptualize,* interact with *others,* along with independence and self-perception (*'me and my-self'*). Competences representing 'entrepreneurial group' may be understood as an optimal interface which enables the ideal combination and use of both sides of the framework. In other words, entrepreneurial competences draw on the resources, operations and context, and effectively use the capabilities and personal traits.

Looking back to the OECD definition and Chapter 2.1, the aspects of creative resources, innovative capabilities and opportunities that create value, together with risk elements are clearly identifiable in Figure 9, while uncertainty, handling failure and learning from it are embedded into decision-making, risk taking and problem-solving.

A thin line can be seen between **creativity, idea generation and problem-solving**. For instance, Chell and Athayde (2009) identify 'Creativity' as a larger competence area which includes imagination, connecting ideas, tackling and solving problems, curiosity. This is in line with the ET 2020 WG approach. Rasmussen & Nybey (2013) see creativity as being composed of ideas and opportunities, applied knowledge, and solutions (the latter are closely linked to problem-solving).

As regards the innovation aspect of entrepreneurship, the OvEnt study sees the two as inseparable.

The entrepreneurial orientation (EO) research stream (e.g. Lumpkin & Dess, 1996) has also been useful to refine the categorization. According to EO, entrepreneurship is determined by *innovativeness* (a predisposition for creative activity and experimentation), *risk-taking* (determined by actions in an unknown and uncertain environment), and *proactiveness*, (opportunity-seeking, forward-looking, and even acting in anticipation) (Rauch, et al., 2009).

Opportunity may be further defined as a cognitive process, which is unique (subjective) to the entrepreneur (Lumpkin & Dess, 1996; Shane and Venkataraman, 2000) who perceives it in an environment based on his/her experience and knowledge – thus, context. Decision making and strategic skills are common to many of the selected initiatives. EO refers to the strategy-making process as a basis for **entrepreneurial decision** and **action** (Lumpkin & Dess, 1996 cited in Rauch et al, 2009).

Besides being embedded in risk-taking, uncertainty also seems to play a role in decision-making. Elements such as *attitude to failure, or handling uncertainty or ambiguity* are in some cases implied as part of the decision-making process (QAA, 2012). In other cases, these elements are clearly emphasised (Rasmussen & Nybye, 2013; Moberg et al., 2014.). Failure, uncertainty and ambiguity are keywords that come up often in the different initiatives, and more frequently in the most recent ones.

Looking more closely at the initiatives, **change** is an important aspect relating to entrepreneurship. '*Innovation'* is associated with something new, thus changing. The rapidly and constantly changing environment forces businesses to seek new *opportunities.* Bringing about change, which can be discussed in terms of "creating" opportunities, may be a vital advantage for an entrepreneur. Change may also be accompanied by *uncertainty, risk and failure*. Thus, for entrepreneurs as individuals, it is important they handle changes and the related stress, and balance it with resilience.

Mitchelmore and Rowley (2013) identified communication, networking, decision making, problem-solving and other interpersonal skills as characteristics of the entrepreneur. Other initiatives in the OvEnt Inventory also identify elements of team work and working independently as part of entrepreneurship as a competence. The **recognition of strengths and abilities of others** is not so visible in Figure 9, but it is explicitly addressed by two initiatives. This seems to play a crucial role in two of selected case studies[46], both related to the primary education level. Returning to the social entrepreneurship definition presented earlier, these aspects are especially emphasized.

Whereas following Mitchelmore and Rowley (2013) **leadership** pertains to the area of operational/contextual competences, referring to the human resources cluster, according to Chell and Athayde (2009) it would rather be part of the key entrepreneurial competences being tightly coupled with innovation competence. In many of the initiatives in the OvEnt Inventory, however leadership is more connected to commitment and ability to lead and make others to commit, relating the 'me and others' theme of the conceptual/relationship group. Thus, in Figure 9, leadership could be transversal to the three clusters.

Categorizing the individual elements under the K-S-A framework

Many initiatives do not draw a clear line between knowledge, skills and attitudes; hence some categorisation of competences has been undertaken by the research team for the purposes of the OvEnt study and is primarily based on Lackéus (2015).

[46] Case study 6 – JEP; Case study 4 – SEECEL.

Table 7: Entrepreneurial competences within K-S-A framework

	Main theme	Sub themes	Primary source	Interpretation used in this report
Cognitive competencies	Knowledge	Mental models	(Kraiger et al., 1993)	Knowledge about how to get things done without resources, Risk and probability models.
		Declarative knowledge	(Kraiger et al., 1993)	Basics of entrepreneurship, value creation, idea generation, opportunities, accounting, finance, technology, marketing, risk, etc.
		Self-insight	(Kraiger et al., 1993)	Knowledge of personal fit with being an entrepreneur / being entrepreneurial.
	Skills	Marketing skills	(Fisher et al., 2008)	Conducting market research, Assessing the marketplace, Marketing products and services, Persuasion, Getting people excited about your ideas, Dealing with customers, Communicating a vision.
		Resource skills	(Fisher et al., 2008)	Creating a business plan, Creating a financial plan, Obtaining financing, Securing access to resources
		Opportunity skills	(Fisher et al., 2008)	Recognizing and acting on business opportunities and other kinds of opportunities, Product / service / concept development skills
		Interpersonal skills	(Fisher et al., 2008)	Leadership, Motivating others, Managing people, Listening, Resolving conflict, Socializing
		Learning skills	(Fisher et al., 2008)	Active learning, Adapting to new situations, coping with uncertainty
		Strategic skills	(Fisher et al., 2008)	Setting priorities (goal setting) and focusing on goals, Defining a vision, Developing a strategy, Identifying strategic partners
Non-cognitive competencies	Attitudes	Entrepreneurial passion	(Fisher et al., 2008)	"I want". Need for achievement.
		Self-efficacy	(Fisher et al., 2008)	"I can". Belief in one's ability to perform certain tasks successfully.
		Entrepreneurial identity	(Krueger, 2005, Krueger, 2007)	"I am / I value". Deep beliefs, Role identity, Values.
		Proactiveness	(Sánchez, 2011, Murnieks, 2007)	"I do". Action-oriented, Initiator, Proactive.
		Uncertainty / ambiguity tolerance	(Sánchez, 2011, Murnieks, 2007)	"I dare". Comfortable with uncertainty and ambiguity, Adaptable, Open to surprises.
		Innovativeness	(Krueger, 2005, Murnieks, 2007)	"I create". Novel thoughts / actions, Unpredictable, Radical change, Innovative, Visionary, Creative, Rule breaker.
		Perseverance	(Markman et al., 2005, Cotton, 1991)	"I overcome". Ability to overcome adverse circumstances.

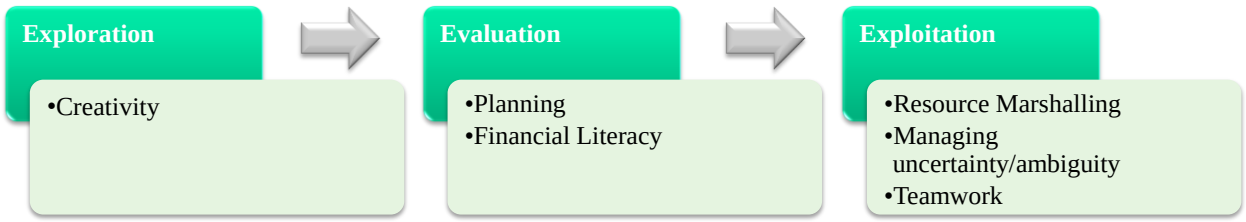
Source: Lackéus (2015)

2.4.3 Processes related to entrepreneurship – turning ideas into actions

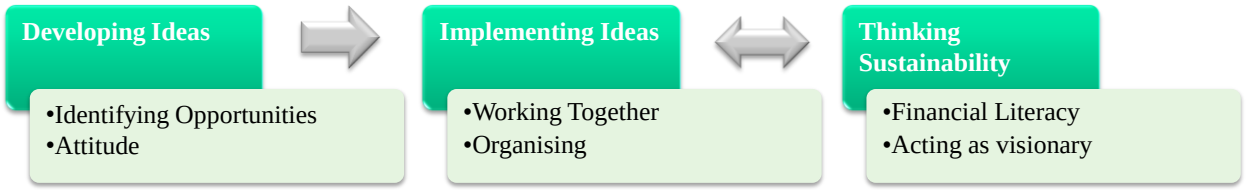
Existing initiatives attempt to conceptualize entrepreneurship as the ability of 'turning ideas into actions'. This dimension is also supported by academic research (see Chapter 2.1.1). In

Figure **9**, the 'entrepreneurial process' of turning ideas into actions is mainly addressed under 'opportunities' and additionally portrayed in a circle indicating Initiation – Action and Reflection – Learning. We would also claim that action is carried out under the operational part (resources, operations, context) and is supported by 'conceptual and relationship' as an enabling group of competences, e.g. by decision making, problem-solving, communication, collaboration and personal drive, though it also requires creativity and innovation. The action, thus, may form a separate thematic area of entrepreneurship but also, it seems to be embraced by action verbs within the competence descriptors.

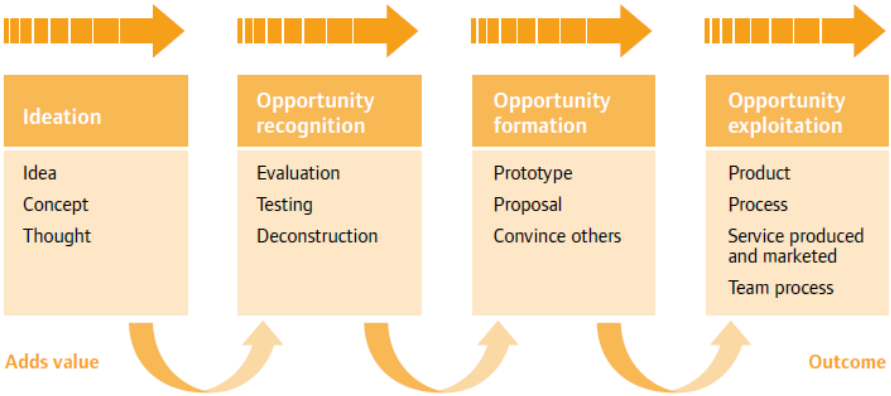
In their framework of five components[47], Moberg, K. et al. (2014) categorize six 'Entrepreneurial skills' – Creativity, Planning, Financial Literacy, Resource Marshalling, Managing uncertainty/ambiguity and Teamwork - under three action-related headings - Exploration, Evaluation and Exploitation.



A different approach was taken by the initiators[48] of the Youth Start Framework of Reference for Entrepreneurship Competences (Youth Start, v15) which consists of three areas each comprising two themes: 1) Developing Ideas (identifying opportunities, attitudes), 2) Implementing Ideas (working together, organising) and 3) Thinking Sustainability (financial literacy and acting as visionary).



The Youth Innovation Skills Measurement Tool (Chell & Athayde, 2009), identifies innovation generic skills which may be applied in the social, environmental or economic context, or to technology innovation. It also provides young people with the possibility of discovering where their personal interests lie. According to Chell and Athayde (2009, p.3) "*the skills underpin innovative behaviour and form a set of attributes clearly linked to the innovation process*"



Source: Chell and Athayde (2009), p. 13

Figure 10: How ideas are developed into innovations (Chell & Athayde, 2009)

From a bottom up approach, initiatives in practice design activities (courses, programmes) mirror a company life-cycle and incorporate a model entrepreneurial process. This is clearly visible within the mini-company programmes, which are managed according to the

[47] 1) Skills, 2) Knowledge, 3) Mindset, 4) Connectedness to education, and 5) Connectedness to future career.
[48] The framework was developed by the Entrepreneurship Education for School- based Innovation (EESI).

following stages: 1. Motivation and Ideas (brainstorming), 2. Organising, 3. Shaping and establishing, 4. Action, 5. Competing and closing (JA-YE Europe, 2013).

Based on these examples, one can argue that certain competences are more typical of certain entrepreneurial process phases. In a very simplistic way, the following presents combined insights. It should, however, be noted that many entrepreneurial competences and especially those linked to attitudes seem to be applicable to all phases from initiation to action and exploitation.

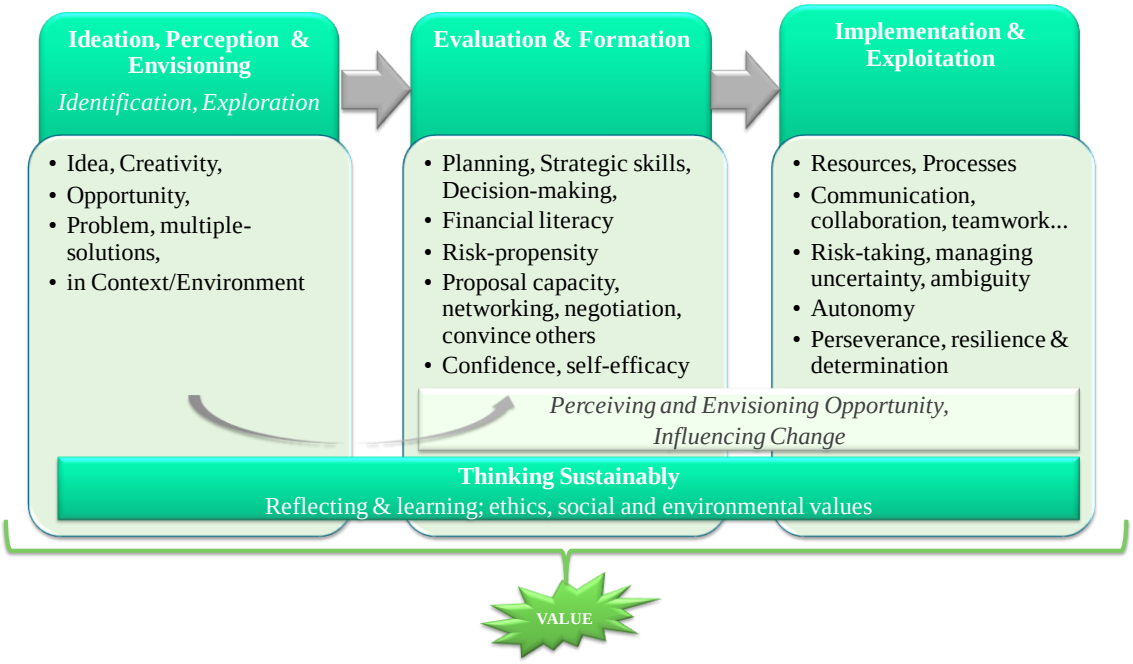


Figure 11: Entrepreneurship competences within process stages

2.4.4 Set of competences relevant for different types of entrepreneurship

Different types of entrepreneurship do not seem to demand different sets of competences. However, certain specificities should be considered and may require a tailoring of the competence set. The goal of this chapter is to shed light on the possible particularities by providing non-exhaustive examples from social entrepreneurship and female entrepreneurship.

Competences for intrapreneurship

Pinchot (1985) argues that, in large organisations, the lack of flexibility and rigid planning systems do not allow intrapreneurs to act fast enough to keep up with the changing environment. Intrapreneurs need an in-house sponsor who can help them push the ideas through the company's structure and planning system. On the other hand, intrapreneurs have access to secured investments from the organisation. As a result, they do not have to secure their own financing as entrepreneurs do. They do need, however, to be equally convincing when turning ideas into actions.

Competences for social entrepreneurship

Regarding social entrepreneurship, Orhei (2011) reviews existing literature and combines the *multi-dimensional model* for entrepreneurship competences (*Le Deist & Winterton,*

2005; Cheetham & Chivers, 1996; 1998) with seven criteria presented in the Charter of Principles of the Social Economy and the outcomes of social entrepreneurship stated in Austin, et al. (2006).

Table 8: The dimensions and the description of output elements of the multidimensional competence construct for social entrepreneurship

Dimensions/Output	Innovative activity (change consciously taken)	Social activity (aimed other people)	Value creating activity (perceived extra value)
Cognitive (knowledge)	Knowledge of current state and desired state	Knowledge about self and the environment	Knowledge current value (self or elements in the environment)
Functional (skills)	Skills to make decisions and implement change, improvising on the spot	Communication and interpersonal skills	Skills regarding decision making/ action taking
Personal (attitude)	Curiosity to explore new options	Focus on (helping) other people	Curiosity to explore new actions
Meta competence (motive)	Help others		

Source: Orhei (2011)

Orhei (2011) highlights how social entrepreneurship relies to a great extent on re-directing the use of traditional competencies and competences to achieving the objectives of social entrepreneurship. Likewise the initiatives identified in the resent study that address social entrepreneurship (for profit) indicates that the competence-set relevant for traditional entrepreneurs and innovators does not necessarily need to be replaced. What changes is the wider perspective that expands the generation or expansion of economic value with the generation social value.

From academic evidence and practice, the specific aspects of social entrepreneurship transposable to the competence framework relate to the social dimensions in overall thinking, and the complexity of the social outcome. For instance, the social aspect impacts how opportunities are perceived (Dees, 1998). Social value generation outweighs, or is equally important to, the financial/economic one (Ashoka; Dees, 1998; Phillips & Tracey, 2007). The importance to sustain the social value over time is emphasized by Dees (1998), suggesting that perseverance, motivation, relentlessness, resourcefulness and determination appear to be important personal traits for social entrepreneurs, and also accountability - another key element (Dees, 1998; Ashoka). Further, social entrepreneurship relies much on creativity, as the competence required to generate ideas that solve social/societal problems.

Moreover, the management of and communication with users and community seem to be rather important (EMES; Dees, 1998). Entrepreneurs are more involved in social entrepreneurial activities than they are in traditional entrepreneurship. Social entrepreneurship also seems to require increased ability to work with others and convince others (Ashoka). Both arguments are supported by insights from OvEnt's Case Study 10 (TRANSITION project).

At a more organisational level, financial and business models may differ from traditional ones, especially if social entrepreneurship is associated with a specific social enterprise structure or non-profit sector.

Gender sensitive entrepreneurship competences

Gender differences with regard to entrepreneurship have been discussed only since the 1970s and there is, as yet, little evidence of the differences between male and female entrepreneurs (Maxfield, 2007; Stevenson, 1986). The origins of female-sensitive competences may result from personal background (personality, attitude, social role, and self-image) but also from acquired experience and personal motivations.

The GEM Women's Report (2012) looks at the difference between men and women's *opportunity perceptions* – i.e. how they perceive opportunities for entrepreneurship in the environment as a factor which affects starting a venture. Other factors relate to *self-perception*, in terms of *confidence in capabilities and fear of failure*. In all three factors, the female adult population scores rather poorly: in other words, adult females perceive fewer opportunities in the environment, they have less confidence in their capabilities and they fear failure more. Their self-perception is also identified as a barrier to women entrepreneurs by the OECD/the European Commission (2014).

Maxfield (2007) points out that the literature identifies risk aversion as a central cognitive factor.[49] The tendency of female entrepreneurs to struggle with risk and uncertainty was confirmed by the women entrepreneurs growth programme and included in the OvEnt Inventory, along with 'delegation skills'

The fact that women may lack self-efficacy recurs in the literature on specific competences for female entrepreneurs (Maxfield, 2007). A study carried out by Wilson et al. (2007) found that men interested in pursuing a business career or enrolled in a MBA programme showed higher levels of self-efficacy than women.

Another specific area where women, for diverse reasons, may lag behind men is access to finance (Alesina et al, 2013), and their level of financial literacy (e.g. OECD, 2013).

Hence, from our brief review, the themes which are relevant for competence framework and are specific to the women entrepreneurs are: *risk-aversion, financial skills, communication and self-confidence (self-efficacy)*.

On another note, differences between male and female entrepreneurs' competences and competencies are addressed by Mitchelmore and Rowley (2013). Cluster analysis confirmed that successful women entrepreneurs, whilst sharing the need for entrepreneurial competences similar to their male counterparts, consider those competencies relating to the '*personal and relationship*' sphere more relevant for their activities. These refer directly to the soft skills identified under the category 'meta-competences' proposed by Cheetham and Chivers (1996; 1998) and '*human relations*' skills, which include a mix of competences in personnel hiring, management and development, management skills and competencies such as leadership skills, team motivation and management style (see also Table 5).

Digital entrepreneurship sensitive competences

To identify differences in the competence set related to digital entrepreneurship is a very challenging tasks since the digital entrepreneurship definition is very wide – not only does it comprise web and mobile-based activities but also digitalization in more traditional sectors. What can be said is that the extent to which one needs to acquire knowledge, skills and

[49] However, Maxfield also notes that few tangible conclusions can be drawn from the interrelationship between gender, risk and entrepreneurship with national culture playing an important role in shaping risk-aversion

attitudes related to ICT may vary significantly because these competences are certainly not prerequisites of becoming a digital entrepreneur.

The changing environment of technology leads us to make another assumption. Entrepreneurs who undertake digitally-related activities certainly need to be fast moving and able to orient themselves well in a changing environment.

Furthermore, on a more general note, using digital technologies in entrepreneurial activities is closely linked to the discussion on collaboration, networking and Web 2.0, and Enterprise 2.0 (Figure 3). In cases where communication with users and partners is based on digital technologies, digital competences become an important part of entrepreneurship competences. On the other hand, when digital entrepreneurship is based on digitalizing traditional sectors, the competence-set may hardly change – it is the attitude to technology that changes. However, this last point is only based on the research team's opinion and experience in the digital entrepreneurship area.

3 Enterprise, Entrepreneurship or Entrepreneurial Education

Moving from entrepreneurship as a competence to entrepreneurship education, teaching and training, a host of issues emerge.

3.1 Different Perspectives of Education on Entrepreneurship

First and foremost, *can entrepreneurship be taught?* Here, there is no clear empirical evidence to support this issue, which remains the subject of very heated academic debate. One argument is that entrepreneurs cannot be manufactured, but only recognised (Adcroft et al., 2004, p. 527). Kirby (2004), however, is more positive and explains that these traits and attributes, however personal, can be developed using non-traditional pedagogic methods. Professor Robert Metcalfe refers to the fact that, in modern society, the role of education in shaping entrepreneurs is underestimated. According to him, the stereotype of the college drop-out who becomes the 'ultimate' entrepreneur is misleading, since well over 90% of successful technology company founders are college graduates and about half of these hold post-graduate degrees (Metcalfe, 2013; and Wadhwa et al., 2009).

More moderate approaches to the issue predominate. These assume that entrepreneurship is composed of teachable and non-teachable elements (Shepherd & Douglas, 1997; Rae & Carswell, 2001). Effective entrepreneurship education therefore consists of recognising these elements, identifying the best way(s) of teaching the teachable elements, and matching students' needs and teaching techniques. Jack and Anderson (1998) argue that teaching entrepreneurship is both 'science and art': a 'science' since start-up functional skills can be taught and 'art' since aspects relating to the creative process of entrepreneurship do not seem to be teachable. In synthesis, whether entrepreneurship can be taught or not, seems to depend on the specific meaning of *'entrepreneurship'*. In other words, when entrepreneurship involves the evaluation and identification of opportunity, there seems to be consensus that it can be taught, but when entrepreneurship is taken to mean the 'creation' of opportunities, then it might not be (Dana, 2001; Sacks & Gaglio, 2005, Henry et al., 2005a,b; O'Connor, 2013)

This said, not even the question '*what is entrepreneurship education?*' is subject to complete agreement. The terms 'enterprise education', 'entrepreneurship education' and 'entrepreneurial education' seem to be used with different meanings or interchangeably. The same applies to 'small business education' and 'SME management'.

From the academic perspective, small business and enterprise education and SME management education refer to the advancement of personal enterprising attributes and attitudes in order to prepare the individual for self-employment (or for setting up and running a small business). Entrepreneurship education, on the other hand, is concerned with the development of functional management skills and abilities and seeks to train individuals in starting, managing and developing a business. In this traditional perspective, the education is focused on business creation.

Table 9: Differences between SME training and entrepreneurship training

Characteristics	Small business training	Entrepreneurship competence-based education
Focus	Business training	Educational
Target Group	Potential and actual SME owner-manager	Student
Competency focus	Business competences	Life/work competencies – transferable skills
Aim of the course	To help set up and improve business	To promote enterprise awareness, entrepreneurial behaviours and competency development

Source: Adapted from Caird (1990)

In practice, however, the initiatives selected for the OvEnt project aim to achieve a variety of impacts ranging from personal development, further education, employability/employment to business creation and growth.

Different perspectives of entrepreneurship education relate to enterprise development stages, education levels, pedagogical approaches or competences (and content) taught. The need to classify entrepreneurship education according to its generic characteristics, to which interpretation of the concept of 'enterprise' they refer, or what teaching methods are involved in these courses, is important to understanding the objective of entrepreneurship education, Caird (1990).

Whilst the debate has progressed greatly since the 1990s, several taxonomies have been introduced and tested in the literature. Up until now, these have referred either to teaching/learning appropriate to entrepreneurial stages: pre start-up, start-up, commitment and survival (for example: Omrane & Fayolle, 2011), or to the taxonomy based on learning about entrepreneurship, for entrepreneurship and through entrepreneurship (for example, Williams Middleton & Donnellon, 2014).

The following categorization, introduced by Jamieson (1984) is fairly universal:

1) Education *about* enterprise: educating students on the aspects of setting up and managing a business.
2) Education *for* enterprise: training aspiring entrepreneurs using content focused on the practical skills necessary to start and manage a small business.
3) Education *in / through* enterprise: targeted at managers and concerns management development and growth training.

Johannisson (1991), endorsing action-based learning, proposed an empirically-based framework for entrepreneurship education with three major cornerstones. The first refers to how entrepreneurs relate to the **environment**. Here, acting entrepreneurially means having a defined objective and the determination to pursue it. Entrepreneurs, therefore need to be able to 'enact the environment', meaning that their personal attributes, attitudes, knowledge and skills serve them as compass for distinguishing what is important from what is not. Of course, **self-confidence**, the second cornerstone, is necessary entrepreneurs to assert their control over the environment and express their creativity and innovativeness. As well as self-confidence and context awareness, entrepreneurs need a support. The third cornerstone is the entrepreneur's personal **network**, which extends from

the family out to the social sphere, business partners, customers and suppliers. It takes skill and time to build up and maintain, but, once in place, it is relatively durable and provides the entrepreneur with many resources that their venture needs.

Based on these cornerstones and the different influence they have on the entrepreneur's behaviour and performance, Johannisson identifies five important learning objectives (Table 10).

Table 10: Entrepreneurial competence: a taxonomic approach

	Competences	
Level of learning	*The individual*	*The context*
KNOW-WHY (attitudes, values, motives)	Self-confidence, achievement motivation, perseverance, risk acceptance;	Entrepreneurial spirit, availability of mentors and role models;
KNOW-HOW (skills)	Vocational skills;	Complex occupational and business structures;
KNOW-WHO (social skills)	Networking capability;	Production and social networks;
KNOW-WHEN (insight)	Experience and intuition,	Industrial traditions;
KNOW-WHAT (knowledge)	Encyclopedic knowledge, institutional facts;	information networks, vocational training and a varied cultural life;

Source: Johannisson (1991, p. 71)

Over the last few decades, the classification of entrepreneurship education and training and the related debate have evolved from a rather narrow perspective, focusing on business management and new firms creation, to a broader perspective in which entrepreneurial behaviour is sought. This is seen as a function of increased uncertainty and stakeholders' and policy makers' need to make an impact on the social and economic conditions of a region/nation (Gibb, 2002).

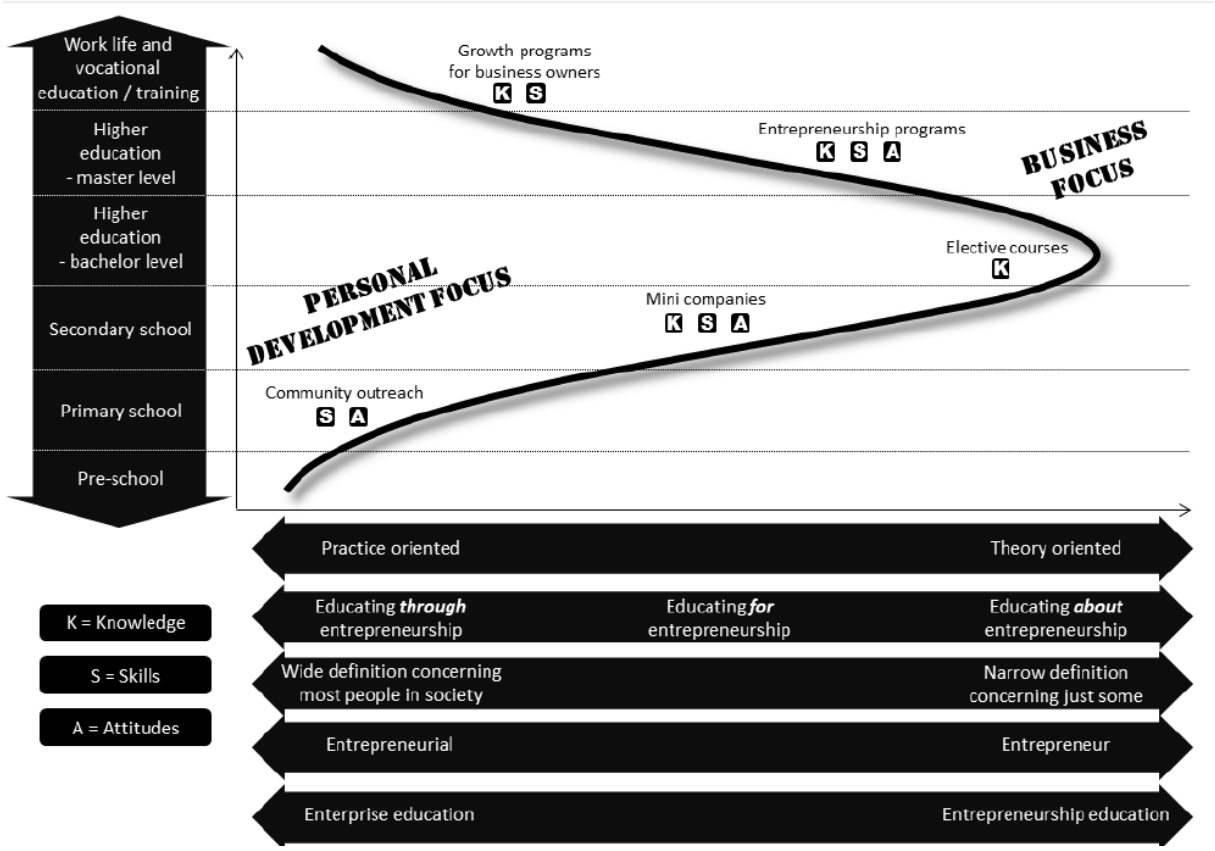
The Quality Assurance Agency (2012,) makes a distinction between *enterprise and entrepreneurship education* - both being necessary for entrepreneurial effectiveness.

> **Enterprise education** is seen as the *"process of equipping students (or graduates) with an enhanced capacity to generate ideas and the skills to make them happen"*
>
> **Entrepreneurship education** "*equips students with the additional knowledge, attributes and capabilities required to apply these abilities in the context of setting up a new venture or business"*
>
> QAA, 2012, p.2

According to the QAA (2012, p. 9) enterprise education enhances careers education and student employability. Entrepreneurship is also a way of widening graduates' career options to include freelancing, portfolio careers, and running a part-time business.

Enterprise or entrepreneurship education may be used to mean different things or they can be grouped under one term – entrepreneurship education – which can cause confusion. Lackéus (2015) suggests using the term *'entrepreneurial education'* instead, when talking about both *enterprise and entrepreneurship education.* We approach the terminology issue by embracing *entrepreneurship* from a wide perspective, and use this single term to refer to education through, for and about enterprise and entrepreneurship, entrepreneurial learning or learning to become an entrepreneur. To avoid confusion, where necessary, we use the term 'entrepreneurship education' in a *narrow* sense to refer to education for business and setting up a venture. In addition, 'entrepreneurial learning' can also be used in terms of lifelong learning.

The links between different terminologies, components of entrepreneurship competences and the type of education programmes are drawn up by Lackéus (2015) – Figure 12. This framework is significantly supported by our empirical research and insights obtained from the case studies.



Source: Lackéus (2015), p.8

Figure 12: Overview of terms and definitions currently used in entrepreneurship/entrepreneurial education.

The above figure seems to be universally applicable, and is generally in line with the OvEnt study findings and the research team's experience when scanning existing initiatives in Europe. Based on the OvEnt study's experience, however, the most common entrepreneurship programmes at tertiary education level focus more on knowledge and skills than on attitude. The Massive Open Online Courses (MOOCs), encountered in the course of the empirical research, also tend to focus more on knowledge and skills.

The OvEnt inventory and case studies were not selected as a representative sample but to obtain interesting insights into different examples of entrepreneurial learning. Our research reveals that there is a tendency among more recent initiatives to focus on encouraging curricular-based learning for enterprise education. Some initiatives acknowledge the need to go beyond traditional entrepreneurship education with a narrow focus, and empower entrepreneurial individuals, rather than training future entrepreneurs and business owners. For instance, a programme in Ireland is implementing mini-company programmes, project-based initiatives and general key entrepreneurship competence frameworks for school curricula at primary school level as well as more advanced education levels.

At University level, entrepreneurship education - in its wider sense – has recently attracted increasing attention as a cross-curricular phenomenon (QAA, 2012)[50] and has been integrated across traditionally knowledge-intensive education programmes (SEECEL, 2011b). Usually non-business education programmes are exposed to the non-traditional way of teaching/learning while business faculties seem to have been left behind in this initial stage[51]. Interestingly, also new extra-curricular activities emerge[52]. The above mentioned insight adds a new layer to the figure above enlarging the parabolic curve down to the primary education level and thickening the curve at University level.

A three-stage theoretical foundation to entrepreneurship from an educational viewpoint has been developed by Josef Aff and Johannes Lindner (Aff & Lindner, 2005) - the so-called TRIO Model. The TRIO Model is the theoretical basis of the earlier mentioned Youth Start initiative (v15). The Model is based on an empirical experiment[53] carried out by the 'Federal Austrian Commercial Academy (BHAK)'[54] at secondary schools for business (so called "Handelsakademie"[55]). The model views entrepreneurship education primarily as a means to empower youth by fostering **independence** and **self-responsibility** towards a society of citizens and foster equal opportunities (Lindner, 2012a). As such, the Model goes beyond enterprise foundation, tackling the personal development and socialisation process dimension including social responsibility and citizenship.

The 3 phases are:

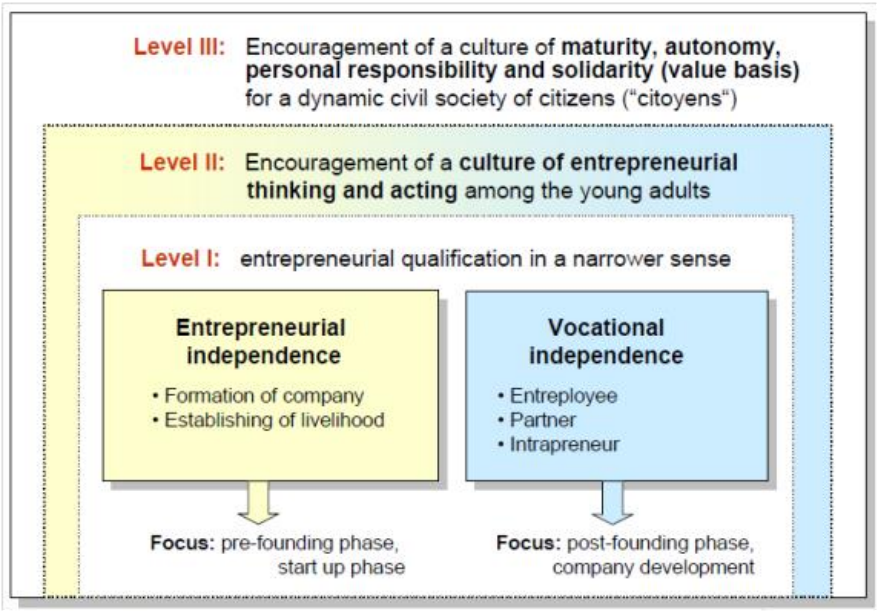
- **Level 1: Entrepreneurial Core Education** is concerned with establishing a basic understanding of entrepreneurial learning and become familiarised with developing ideas and putting them into practice, e.g. through business plan competitions in order to gain a taste of entrepreneurial activity. The Core education is directed to foster entrepreneurial autonomy foundation of enterprises/start-ups as well as professional autonomy (Partner, intrapreneur);
- **Level 2: Entrepreneurial Culture** deepens the core education through more advanced activities in the field of entrepreneurship. These activities seek to consolidate/encourage an entrepreneurial culture contextualising entrepreneurial ways of thinking within society. The idea is also to expand and test entrepreneurial

[50] See Case study 8: Entreprise and Entrepreneurship Education atUWTSD.
[51] E.g. LUT MTEE (Case study 1) firstly focused on primary and secondary education; then ithe tool has been extended to the University level non-business faculties. On the same page, SEECEL ISCED level 5&6 instruments (shortly mentioned under Case study 4) targets non-business disciplines.
[52] Life Design in UWTSD (part of Case study 8). Information available at: http://lifedesign.uwtsd.ac.uk
[53] Idem.
[54] In German: 'Bundeshandelsakademie und Bundeshandelsschule' Wien. Available at: http://www.bhakwien11.at
[55] In Austria these are referred to as Berufsbildende Mittlere Schulen (BMS) and Berufsbildende Höhere Schulen (BHS).

competence through different forms of entrepreneurial activity (e.g. creativity, taking risks, risk awareness, determination, team building);

- **Level 3: Entrepreneurial Civic Education**: Encouragement of a culture that promotes maturity, autonomy, personal responsibility and solidarity (value basis). The ultimate goal is to create a sustainable and dynamic civil society of citizens ("citoyens").

According to the model, it is necessary to obtain a basis of entrepreneurial experience and understanding before an entrepreneurial culture and mindset can emerge. The model advocates for an early incorporation of entrepreneurship education across the educational curriculum.



Source: Lindner (2012a).

Figure 13: TRIO Model

This model may already provide some indication to the progress in which entrepreneurship education from narrow to wide perspective may be implemented. In the same time, it gives ground to learning outcome development.

3.2 Entrepreneurship Competences in Progress: when to learn what

Whilst academic research debates whether entrepreneurship can be taught or not, initiatives across different education levels are dealing with entrepreneurial learning in practice.

On the one hand, frameworks and models inspired by practice are attempting to conceptualize progress at one education level (QAA, 2012) while others are taking a more holistic approach to education (TRIO model), which encourages 'self-learning'. On the other hand, certain patterns are being recognised at different education levels on the basis of the empirical findings from the OvEnt Inventory and case studies, and non-academic evidence.

The approach proposed by QAA (2012) is to offer students a path to follow during their higher education. This path takes them from understanding what enterprise means for the *'entrepreneurial mindset'* and *'entrepreneurial capabilities'* to *"entrepreneurship*

effectiveness". The final step is characterised by independent self-direction, progress towards individual goals and generating business and career options. Students also progress from fearing failure to learning from it, and instead of being dependent they learn to be self-reliant and resilient. (Figure 16),

The path from awareness to effectiveness in the learning process is evident in the mini-company programmes implemented in primary schools[56] and also in the case representing incubation programmes[57]. Undoubtedly, self-directed learning has yet to be fully discovered in curriculum-based education, though it has always been a prerequisite in incubation programmes.

As regards educational level, entrepreneurship education already has a place in primary level. "*Certainly, the earlier and more widespread the exposure to entrepreneurship and innovation, the more likely students will become entrepreneurial, in one form or another, at some stage in their lives."* (WEF, 2009, p. 10).

The difference, as discussed earlier, is more noticeable in terms of K-S-A components. Initiatives targeting lower educational levels appear to emphasize Skills and Attitudes applied to diverse areas such as culture, community, and sports. Meanwhile, executives, business owners and incubation programmes are more focused on specific knowledge than general skills. The fact that the attitude component is missing is most likely because participants already have a fair level of knowledge when they enter the programme. Building on their initial entrepreneurial activity, these learners seek to obtain advanced knowledge and skills and apply these in their respective companies or 'to-be' companies.

Interestingly, the initiatives selected by OvEnt integrate *financial and economic literacy* across all education levels. The terminology varies from very general 'dealing with pocket money' to highly advanced financial and business terms; however, some initiatives highlight the importance of developing this element from an early age[58]. Likewise, *ambiguity, uncertainty and ability to learn from failure* are explicitly dealt with in the OvEnt case studies and also appear in the OvEnt inventory from lower secondary to tertiary education[59].

Looking at the particularities, *self-awareness and recognition of skills of others* are two strong themes at lower education level[60].

Aspects of '*social responsibility'* – ethics, social and environmental concerns and similar - can be found in many of the initiatives analysed. However, these aspects are incorporated in different ways in lower education than they are in higher education and other education levels.

Probably justified by its more generic educational approach, social responsibility is integrated across learning outcomes in initiatives selected which operate at lower education levels[61]. In other words, 'social responsibility' is indeed an inseparable part of being entrepreneurial. In advanced courses (entrepreneurship masters programmes or growth programmes) these aspects are not clearly recognisable. Social and aspects other than economic value generation are covered in specific programmes which address

[56] See case study 6: Junior Entrepreneur Programme.
[57] See case study 10: TRANSITION.
[58] See case study 2 – ESP; Case study 4 – SEECEL.
[59] See case study 5 – NextLevel; Case study 8 – UWTSD.
[60] See case study 6 – Junior Entrepreneur Programme.
[61] See case study 4: SEECEL, case study 3: Youth Start, case study 3: NextLevel.

different types of entrepreneurship (social entrepreneurship courses, social incubation programmes etc.).

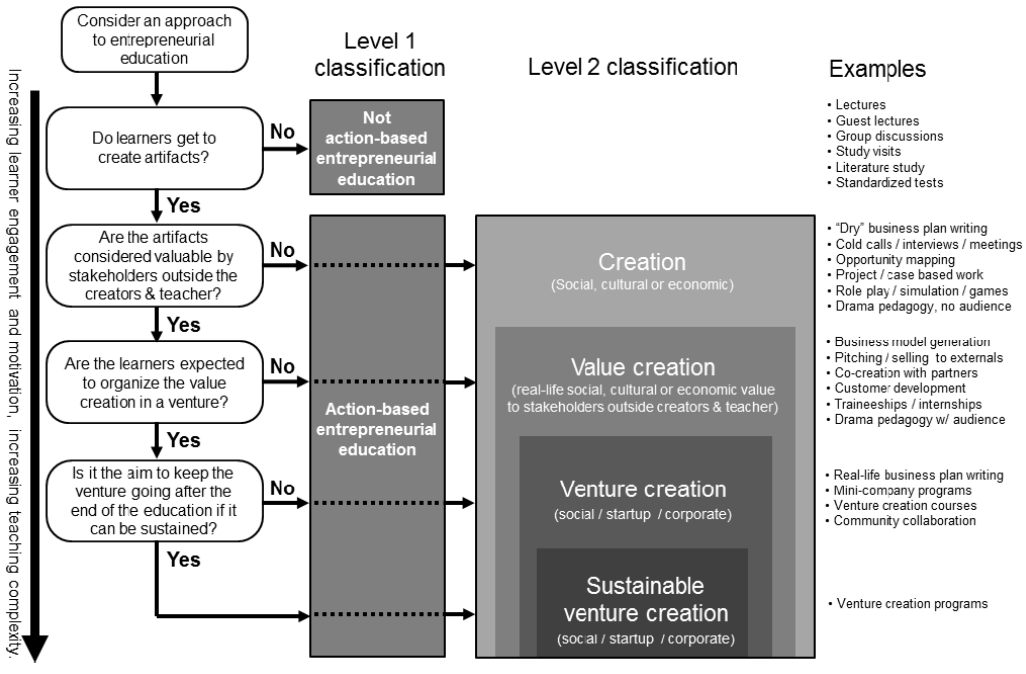
An additional observation emerged in the case of a specific incubation programme for social innovations[62]. This programme focuses entirely on social entrepreneurship and the social aspect is a pre-requisite for start-ups entering it. The programme advances the knowledge and skills specific to social value, thus tackling the social perspective along with the economic one. From this initiative, we see that traditional incubation learns from social innovation incubation and vice versa.

In general, the key difference between education levels lies in the way they describe competences - in other words, in the terminology used. It comes as no surprise that, a general understanding of concepts, linking entrepreneurship with its immediate environment, is learned in lower education levels, whereas the advanced and more specific competences are targeted later.

Only a few of the initiatives clearly distinguished between different progress levels. An interesting example in this regard is the YouthStart Framework, where progress in entrepreneurship competence is expressed by can-do statements representing the European Common Framework for Foreign Language (ECFFL) levels (A1-C2).

Another progression model developed by Rasmusen & Nybye (2013) suggests four competences areas which need to be present in any education level. The descriptors of each area progress from assisted by a teacher to self-learning, autonomy in action; from knowledge to professionalism, or from experimentation to finding alternative solutions.

Combining different action-based learning tools, Lackéus (2015) introduced a four level classification, which had - interestingly - 'value creation' at its core.



Source: Lackéus (2015)

Figure 14: Classification of action-based entrepreneurship education based on the value creation

[62] Case study 10: TRANSITION.

4 Learning of Entrepreneurship Competences

The OvEnt study examined how entrepreneurial learning objectives and outcomes are defined, which pedagogical approaches seem more appropriate to address entrepreneurship competences, and also the strategies used to assess entrepreneurship competences.

4.1 Learning outcomes and practical curricula set-up

Entrepreneurship competences may be translated into learning outcomes/objectives[63], defined as statements describing what a learner should know, understand and/or be able to do upon completion of the learning process. According to the findings from the OvEnt research, learning outcomes are often an integral part of formal institutional education programmes, particularly in curricular courses. Generally, disparities persist between entrepreneurship education initiatives, not only with regard to how the learning objectives/outcomes are formulated but also to how they were set up and what stakeholders and tools were involved in that process.

Learning outcomes of curricula-based initiatives in formal education are closely linked to national curricula. Further guidance and frameworks help to integrate entrepreneurship aspects across curricular or extra-curricular activities. They may be part of the quality assurance system (QAA, 2012), their development and implementation may be supported by relevant national authorities (SEECEL, 2011a, b; 2012; 2014) or they may have a less formal character (e.g. JA-YE Europe[64]).

The formulation of learning outcome statements are typically characterised by action verbs, as demonstrated by the SEECEL Framework (SEECEL, 2011a,b, 2012, 2014) which uses a revised version of Blooms' Taxonomy[65] (see below).

Table 11: Blooms Taxonomy – Cognitive Domain

Cognitive Domain	Action verbs
Knowledge	List, define, tell, describe, identify, show, label, collect, examine, tabulate, quote, name, outline, recognise, state
Comprehension	Summarise, describe, interpret, contrast, predict, associate, distinguish, estimate, differentiate, discuss, extend
Application	Apply, demonstrate, calculate, complete, illustrate, show, solve, examine, modify, relate, change, classify, compute
Analysis	Analyse, separate, order, explain, connect, classify, infer, arrange, divide, compare, contrast, select, distinguish
Synthesis	Combine, integrate, modify, rearrange, substitute, plan, create, design, compose, formulate, prepare, compile
Evaluation	Assess, decide, rank, grade, test, measure, recommend, convince, select, judge, explain, support, conclude, compare, appraise, evaluate, justify, interpret, critique

Source: SEECEL (2011), p. 31

[63] Learning outcomes and learning objectives are not used as synonyms. While the former describes the outcomes of a learning process, the latter refers to the goals set up describing what the learner is supposed to know through the learning process.

[64] Junior Achievement - Young Enterprise (JA-YE Europe). [general website]. Available at: http://www.ja-ye.org

[65] SEECEL (2011a). The taxonomy originates from: Bloom et al. (1956). The Taxonomy of Educational Objectives, The Classification of Educational Goals, Handbook I: Cognitive Domain.

In the OvEnt Inventory and particularly in the case studies, we have observed that other theoretical underpinnings are used when shaping the learning outcomes/objectives. For instance, in the case of the YouthStart Framework of Reference for Entrepreneurship competences (Youth Start, v15), can-do statements are underpinned by the TRIO Model, which defines three stages of entrepreneurship with elements of the socialisation process (see Figure 13). Meanwhile, other initiatives inspired by enterprise operations define learning objectives per work place[66].

Besides theory, the process of defining learning objectives or outcomes involves experts and different stakeholders. Defining learning outcomes without relevant consultations seems to be particularly challenging. This process involves collaboration between education experts, business representatives and sometimes even alumni.

The Continuous Conceptual Review Model in at UWTSD

The '**Continuous Conceptual Review'** model developed and used in UWTSD assimilates the views of past students into the course development, teaching, learning and assessment. Based on a procedural model, it collects alumni feedback and tests it along several parameters before it is incorporated. In 2006, this Review was selected as an International best practice by the Internationalizing Entrepreneurship Educating and Training Conference Committee in Brazil.

Partnering of entrepreneurs with academics to design Junior Entrepreneurship Programme

The **Junior Entrepreneurship Programme** (JEP)[67] is an entrepreneur-led initiative, conceived and managed by entrepreneurs. However, the development of the JEP curriculum and teacher training is supported by an academic partner (a nationally-recognised centre of excellence in terms of curricular design and innovation) who plays an advisory role.

Learning outcomes are typical of curricular-based and institutional learning. Interestingly, in the case of incubation programmes, the learning objectives are defined at individual level: innovators describe what they want to learn and achieve in their application for the programme.

Other contemporary approaches appear to experiment by applying different individual designs to set up learning objectives. One example is 'Life Design'[68], a new extra-curricular programme launched by UWTSD in 2015. Here, students define their learning objectives and reflect on them continuously. This approach uses a self-directed approach, typical of an extra-curricular activity, though in a more systemic way.

4.2 Pedagogical approach to teaching and learning

Learning may happen formally or informally at schools of any education level or at the workplace where learners deal with the events of everyday life. Unquestionably, education institutions play a crucial role in learners' experiences, and especially in the experiences of

[66] E.g. Case study 9: SIMULIMPRESA.
[67] E.g. Case Study 6: Junior Entrepreneur Programme.
[68] Life Design in UWTSD (part of Case study 8). More information available at: http://lifedesign.uwtsd.ac.uk

young learners. We focused our research on pedagogical approaches to institutional entrepreneurship education.

Although the existing evidence and selected initiatives mainly focus in practice on curricular activities and formal learning, the importance of extra-curricular activities, non-formal and informal learning, which enrich the learning experience, has also been acknowledged (ET2020 Working Group, 2014; World Economic Forum, 2009; QAA, 2012). The incorporation of informal and non-formal elements has been observed in actual practice (mentoring schemes, peer review, blended learning, MOOCs).

Overall, given the characteristics of entrepreneurship education in the wider sense - the centrality of the participant, the practical nature of the topic and the types of skills involved - the most appropriate approach seems to be that of action learning. Action learning relies on an education framework which involves learning from direct experience and hands-on project work so that participants can acquire competences consistent with those of successful entrepreneurs. This approach is endorsed by academia (Caird, 1990; Johannisson, 1991; Thorpe & Dyson, 1988) and has gathered considerable consensus among entrepreneurship education specialists (WEF, 2009; Ruskovaara et al., 2011).

The knowledge component is clearly not a challenge to entrepreneurship education. It is instead argued that traditional teaching methods such as lectures and information processing are not well-suited to teaching entrepreneurial and conceptual competences. There is consensus on this in most of the non-academic evidence reviewed, which emphasises: *student-centred, self-directed, personalized, interactive, cooperative, flexible, project based, including challenge or problem-based, discovery and reflective learning* (Ruskovaara, 2014; World Economic Forum, 2009; QAA, 2012; SEECEL, 2011a; ET 2020 Working Group). This is largely supported by insights gained from the OvEnt Inventory and case studies.

Overall, the most common pedagogical approaches in the initiatives selected by the OvEnt study are learning-by-doing and collaborative learning. Interestingly, self-reflective methods seem to be gaining ground across education levels. These methods are particularity evident in executive, growth and incubation programmes. However, competitive learning has been found to be a complementary learning experience. The extent to which competitions shape entrepreneurial learning varies from initiative to initiative. In secondary and primary education, competitive elements are being increasingly introduced to give learners the opportunity to validate their ideas and experience the entrepreneurial/start-up environment. However, the owners of the Junior Entrepreneur Programme in Ireland (Case Study 6) pointed out that competitive learning in primary schools should be used with caution, since it may create an unpleasant environment for learners and teachers alike. The potentially negative effects of competitive elements should, therefore, be taken into account when setting up teaching and learning methods, particularly at lower education levels.

Experience with competitive learning from the Junior Entrepreneur Programme

Initially, the JEP programme was based on a competition with one winner. During the pilot phase, the feedback showed this competitive environment had negative effects, creating unhappiness among teachers and pupils. As a result, this approach has been changed to the current model, where the most important aspect is to engage the class in the process and complete all steps of the programme.

Learning-by-doing represents a large group of different pedagogical methods which are generally acknowledged in entrepreneurial learning. These methods evolved from project-based learning, to many other types of learning: e.g. challenge-based, activity-based, problem-based, inquiry-based, etc. Overall, the methods are characterised by an active student-centred approach and cooperation along with a certain connection to the real world.

Debate in policy and practice, including OvEnt case studies, is concerned with appropriate teaching methods, especially those that would address competences such as creativity, problem-solving, recognising multiple solutions, perceiving opportunities, handling and managing risks, learning from failure, and other skills and attitudes related to entrepreneurship. Teaching methods used by Finnish and European teachers (Ruskovaara, 2014; Ruskovaara et al., 2011; GHK, 2011; Cachia & Ferrari, 2010) suggest that pedagogies that address these competences should be adopted in institutional settings where they are only occasionally employed at the moment[69].

The **effectuation approach** represents another concept in practical and hands-on pedagogy, which involves teaching "through" enterprise. In her work, Professor Saras Sarasvathy[70] introduced effectual reasoning as a process undertaken by 'expert entrepreneurs' when thinking entrepreneurially, as compared to causal reasoning. Unlike causal reasoning which starts with a specific goal, effectual reasoning begins with a set of means: the goals appear during the process of interacting with people and the surroundings. Sarasvathy (2008) then argues that "the best entrepreneurs are capable of both and use both modes well." When employing effectuation reasoning, the entrepreneur starts with three categories of means: (1) *Who they are* – their traits, tastes and abilities; (2) *What they know* – their education, training, expertise, and experience; and, (3) *Whom they know* – their social and professional networks. As such, planning is overweighted by execution; plans are developed, revised and recasted through action. Strategic partnerships and leveraging contingencies dominate competitive analysis, exploitation and prediction.

Penaluna et al. (2010) bring an insight to this discussion from neuroscience/cognitive neurology. Techniques involving creative thinking require students to make a connection and engage in **divergent thinking** (Penaluna et al., 2015)[71]. The integration of convergence and divergence thinking into teaching methods seems to encourage learners to generate creative ideas and explore ideas in many different ways. Here innovation is prioritised over the implementation ('do as instructed'). The brain validates changes in behaviours when these have been embedded into newer and stable neurological

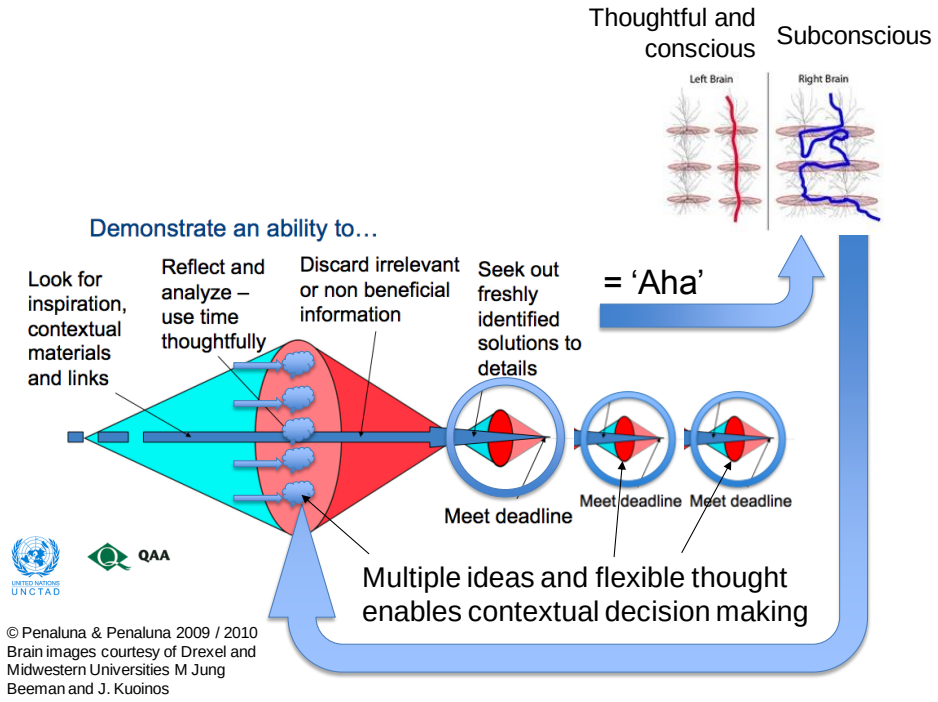
[69] Case study 1 – LUT Measurement Tool for Entreprise Education.

[70] More information about the effectuation approach and effectual principles, as well as Prof. Sarasvathy's work can be found at: http://www.effectuation.org

[71] Case study 8: Entreprise and Entrepreneurship Education at UWTSD.

connections. Consequently, competences such as problem solving can be fostered through integrating strategic thinking exercises into teaching and learning activities.

Penaluna et al (2015) discuss the role of emotions, uncertainty and intuitions for creative entrepreneurial development. Teaching methods should introduce forms of uncertainty that require students to adjust and engage in creative thinking in order to overcome unpredictable challenges and handle multiple solutions. Setting moving and multiple deadlines, for example, would be a way of addressing 'Premature Articulation' – one of the barriers to creative or 'divergent' thinking. In 'Premature Articulation', a single obvious solution is proposed before all options have been considered and explored. Changes to the initial scenarios may be introduced in order to simulate the real world environment. The following figure shows the learning process, including the footprint of connectivity in the right-brain - creativity and unconscious - and left-brain - logical and conscious.



Source: Penaluna (2014, July 9)

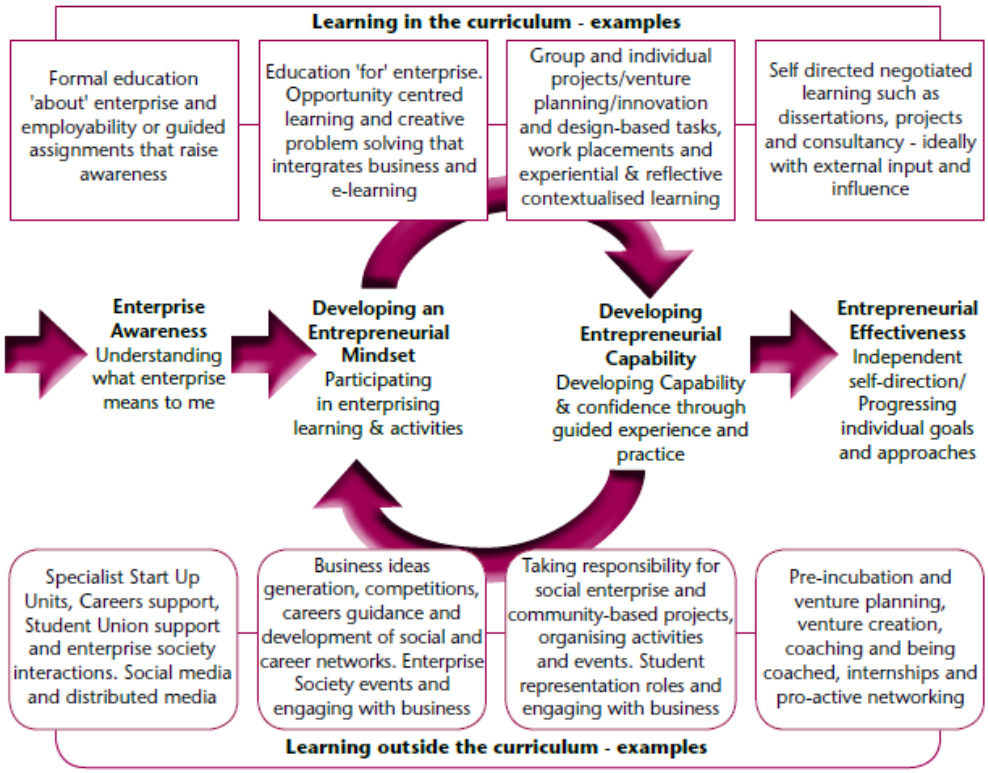
Figure 15: Evolved model for QAA / UN Incorporating divergent production

To the debate above, some pedagogical approaches have been put forward by the initiatives selected by OvEnt; some new ones have been developed and tested. For instance, **curiosity-based learning** is suggested as a way of enhancing creativity, especially idea generation. This technique is often applied in combination with ICT means to facilitate students' instinct to carry out research and discover. **Challenge-based Learning (CBL)** encourages learners to solve small and large real-world problems often involving stakeholders from the community. **Co-operative Open Learning (COOL)**[72] focuses on the promotion of self-organised learning strategies and the development of personal qualifications for improving social skills.

[72] Cool Impulszentrum: COOL [general website]. Available at: http://www.cooltrainers.at

As already discussed, the QAA (2012, p. 25) suggests the progress learning path (Figure 16) with a shift in focus from enterprise awareness to entrepreneurship effectiveness. This is characterized by:

- from case studies to emerging solutions (from a study on past cases to predicting future trends and business scenarios);
- from abstract problems to innovation and creative thinking;
- from passive learning to active learning;
- from objective analysis to subjective experience;
- from text-heavy communication to multimedia communication;
- from neutrality to personal perspectives;
- from formal activities to authentic activities.



Source: QAA (2012), p 12

Figure 16: Developing entrepreneurial effectiveness according to the QAA (2012)

Student-centred teaching is emphasized side by side with self-directed learning, while the teacher's approach to the learner is more individual than group oriented. These are typical features in traditional incubation programmes and programmes for executives, which use an individual approach, with self-learning becoming an important part of pedagogies in early education.

At a greater level of detail, there is no clear-cut evidence as to which methods are more effective for which competences. Indeed, research at theory, policy and practice level agree that student-centred and active learning is crucial and a large variety of teaching and assessment methods is likely to be more appropriate in order to address the wide array of entrepreneurship competences.

Judging by the initiatives selected by OvEnt, **project work** and **peer review** represents key methods of entrepreneurial education. In fact, **'peer mentoring'** or **'buddy-systems'**, a learning form based on peer-to-peer support typically given by more experienced peers to less experienced ones, appear to be a popular emerging learning model in secondary schools; however, the role of students and trainers remains important. 'Advanced' learners – business owners, post-graduate students etc. - often resort to informal learning methods such as **mentoring** and **networking**. Interestingly, mentoring no longer appears to be a unique to higher or other education levels only. In relation to upper secondary schools, mentoring schemes appear as an important part of mini-company programmes. This may suggest that getting inspired by traditional business- and innovation-oriented initiatives is useful and functional across educational levels. In fact, OvEnt discovered that initiatives largely employ traditional support tools such as market research, business plans and business canvas models. What is specific to primary schools is the transformation of the business-related terminology into one that is more general and child-friendly.

Business plans and pitching activities translated into primary schools – example from Junior Entrepreneur Programme

For instance, in Junior Entrepreneur Programme, the children develop ideas which they jointly select and present to a 'Dragon Panel'. This panel, which includes a minimum of one local entrepreneur, judges the ideas and helps the children to choose one on which they work for the rest of the programme – a 'Big Idea'.

On another note, it has been reported that traditional innovation support tools and methods are equally applicable to other types of innovation – as we learnt from an OvEnt case study focusing on social innovation, e.g. revised Canvas model for social innovators[73] as compared to the traditional one[74]. Lackéus (2015) points out the procedural quality of the Social Business Model Canvas, which provides students with practical steps to consider when planning their value creation ventures.

Given the different approaches to entrepreneurship education (applied, hands-on, active), its connection to the outside world plays an important role in entrepreneurial teaching. Discussions, debates and case studies are easy ways of **connecting effectively with the real word** in the classroom. Ruskovaara et al. (2011) note on this point that a considerable number of frequently employed methods take place in classrooms, whereas only a few take place outside. On the other hand, concepts like effectuation reasoning poses constraints of the institutional environment –in the classroom mostly causal reasoning is employed. Some suggest that rather outside classroom activities may provide the favourable settings for effectuation reasoning (Rasmussen & Nybye, 2013).

Face-to-face learning appears to remain the most important way of fostering entrepreneurial competences. However, the use of information and communication technologies to reinforce the face-to-face experience is often highlighted. Indeed, almost half the initiatives examined by the OvEnt study included mixed learning of this kind. This is most valid at higher education level (blended learning, flipped classrooms etc.), but it can also be beneficial at upper secondary level, where ICT complements learning through

[73] The social business canvas model – the accelerator (n.d.). Available at: http://www.growingsocialventures.org/course-content/social-business-model-canvas

[74] Osterwalder, A. & Pigneur, Y. (2009). Business Model Generation. Self-published. ISBN: 978-2-8399-0580-0

eMentoring or eLearning. In addition, ICT can provide solutions in cases where distance does not allow continuous face-to-face interaction (e.g. incubation services at international level).

The way ICT is incorporated can vary considerably, as depicted in Figure 17.

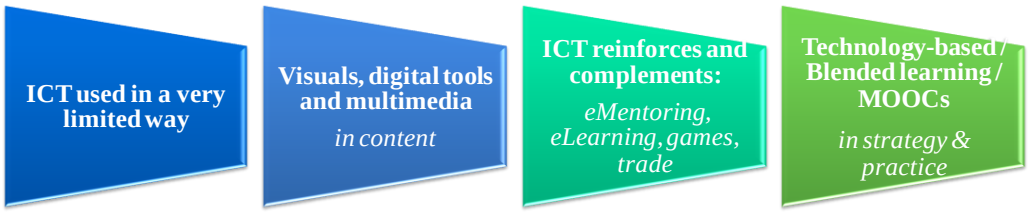


Figure 17: Use of ICT in teaching-learning

Besides digital multimedia in teaching content, technologies enrich learning experiences as a teaching tool, for instance, in form of eMentoring or eLearning platforms, games or simulations. In the examined tertiary level case study, ICT is firmly anchored in the teaching strategy using flipped classrooms, video pitches, but also by having a concrete strategy for blended learning in place. The following figure presents stages in which technology is uptaken in the pedagogical approach of examined initiatives.

This chapter has shown that the pedagogical landscape in entrepreneurship education is rather complex. Broadly speaking, one can distinguish between more conventional pedagogical approaches typically centred on learning-by-doing and collaborative learning and multidisciplinary approaches, which address aspects in entrepreneurial learning related to the component skills and attitudes. While conventional pedagogies predominate, more specific approaches, which incorporate neuroscientific insights into teaching, are increasingly popular.

4.3 Strategies to assess entrepreneurship competences

The assessment of entrepreneurial competences is commonly reported to be a major challenge. Traditionally summative methods (written and multiple choices tests) do not seem to fully serve the purpose when it comes to validating a wide set of competences which tackle skills and attitudes (QAA, 2012) – for example, creativity, innovation, problem solving or handling ambiguity, uncertainty, risk taking or developing a more positive attitude to failure. The OvEnt case study analysis validates these findings.

It has been observed that assessment strategies are tackled by initiatives once entrepreneurial learning outcomes and teaching methods are firmly established. In other words, they become a priority for initiatives to scale up.

Findings from the OvEnt study's own empirical research suggest that a variety of summative and formative assessment methods is likely to be appropriate, given the width and the specific nature of the competences related to entrepreneurship. Traditional methods such as exams and business plan development addressing knowledge and skills learnt remain valuable (QAA, 2012). However, self-assessment appears to be a favourable option when it comes to entrepreneurial learning. Creativity tests, verbal tests, interviews, focus groups and participatory observations may also be useful (Moberg et al., 2014).

While Cachia and Ferrari, (2010) claim that formal tests remain the main form of assessment (76%) in primary and secondary schools, the initiatives selected by OvEnt[75] find formative methods beneficial for assessing entrepreneurial learning. This may be due to difficulties in assessing entrepreneurship as a competence all at once at the end of the learning process, especially with regard to personal, behavioural and attitudinal aspects. Moreover, the pedagogical focus on student-centred and self-directed learning appears to be reflected in this. From evidence encountered in literature and reviewed initiatives, we observed that certain teaching and learning forms worked relatively well as a means of encouraging entrepreneurship competences and that these are also useful for assessing them. These include task assignment/project work, self-reflection, peer review, external review.

From the OvEnt Case studies and the OvEnt Inventory, we learnt that project work and self-evaluation are the assessment methods used most widely, followed by presentations and pitches. Alongside peer-evaluation, events and competitions, presentations and pitches appear to be most commonly used as complementary methods. Moreover, external reviews and the assessment of applications, project ideas or business plans are also employed on a regular basis. It is interesting that traditional start-up methods (pitches, competitions, events, business or idea plan) are - to some extent and often in an adapted way - applied across all education levels. For instance, a primary school level initiative uses less business-like terminology when asking children to describe and present their 'Big idea' to the 'Dragon panel'[76]. There is no evidence to identify which assessment method is more appropriate for which competences. Based on the case study cross-analysis, our conclusions are portrayed in the following general diagram.

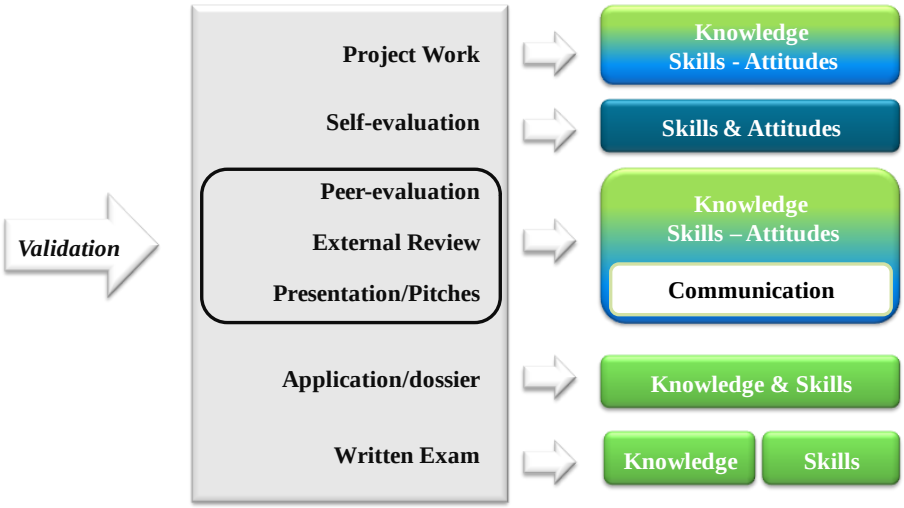


Figure 18: Assessment Methods

Skills and Attitudes components of entrepreneurship seem to be mainly addressed by self-assessment techniques, peer and external evaluation, and by presentations and pitches. The latter strongly focuses on communication-related elements. Peer and external reviews, including presentations and events have a strong validation character, and are thus important for both assessment and teaching.

[75] It should be noted that the case studies selection prioritized those initiatives which addressed in partiucar the entrepreneurial, conceptual and relationship groups of competences. In other words, initiatives which showed a higher degree of comprehensiveness in relation to the entrepreneurship competences.

[76] Case study 6: Junior Entrepreneur Programme (JEP).

On the same topic, the SEECEL Instrument for Entrepreneurial Learning – Key Competence Approach in ISCED level 1[77] suggests a set of assessment methods for each competence component: *for 'Knowledge'* - short text report, presentation and project/group work; for *'Skills'* - practical assessment, field work, presentation, project work and self/peer reflection; and *for 'Attitudes'* - practical assessment, field work, presentation and discussion, project / group work, self/peer reflection and event (fair, exhibition).

The 'Enterprise Skills Pass' initiative has also raised awareness of the need for an assessment strategy suitable for entrepreneurship competences. The initiative has developed two tools to assess the learning experience gained from the mini-company programme: a self-assessment tool and a written exam both provided via an online platform. The following figure shows the type of themes assessed.

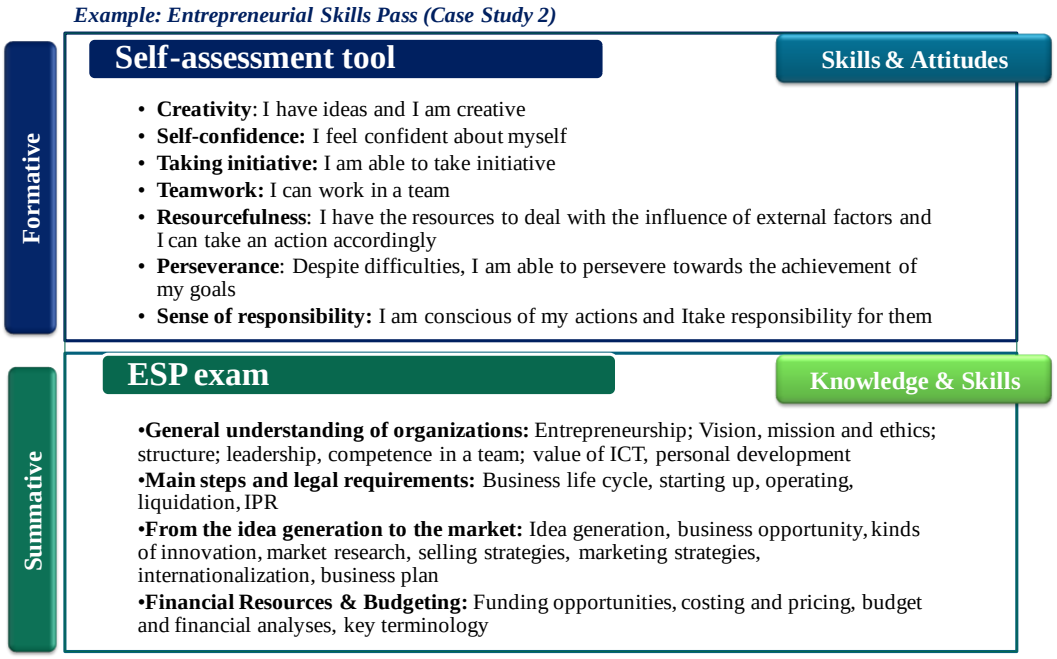


Figure 19: Assessment strategy – ESP case study

The self-assessment tool targets secondary students involved in the entrepreneurial experience who are asked to reflect on their own progress in acquiring practically-oriented **skills and attitudes** - *creativity, self-confidence, taking initiative, teamwork, resourcefulness, perseverance, taking responsibility*. The final exam, instead, aims to assess, validate and certify students' theoretical and factual **knowledge** and also their **cognitive and practical skills** in the most important basic business issues and concepts.

An interesting dichotomy appears between fixed, consistent and predicted learning outcomes where students' performance can be measured using a traditional approach, and entrepreneurship competences, e.g. creativity, flexibility and adaptability, are characterised by novel, surprising aspects and unpredictability (Penaluna, et al., 2014a). It was suggested[78] that traditional, less well-aligned, teaching and assessment methods may not work when developing future-proof skill sets. This is further reflected in the innovation

[77] Case study 4: SEECEL Instrument for Entrepreneurial Learning – Key Competence Approach.

[78] Presented at the HEA enhancement event by Professor Andy Penaluna, director of IICED UWTSD; HEA enhancement event keynote asks "are we future-proofing learning and teaching?" (2014, December 4). [News online available at: https://www.heacademy.ac.uk/about/news/10246]

versus implementation approach to learning and assessment, where according to the former students shall deliver output that are new, original and surprising and according to the latter approach they rather 'do as asked'. In this respect, the divergent production (divergent thinking) discussed in the previous chapter raises several challenges to traditional institutional assessment strategies. Penaluna et al. (2014b, p. 387-389) describe the seven steps of the learning process, introducing progress feedback to encourage alternative solutions and the scenario change to avoid premature articulation. In this example, the following assessment strategy is suggested: the final solution and final presentation should be given up to 50% of the final mark (with external input where possible) and the other 50% should be awarded for communication strategies, recognition of shortfalls (glorious failures), number of premises elicited from scenario, number of solutions (evidenced prototypes) and diversity of solutions (as evidenced in a matrix and presentation).

As such, these techniques take into account the number and diversity of solutions to a challenge rather than a single one. Furthermore, the task assignment leads the student through an ambiguous situation where the initial information provided is incomplete or intentionally changed during the process. Even when a student fails the assignment, the feedback from peers and other reviewers, followed by reflection on the project work and the final project failure, ensures a 'successful learning path' for that student.

In addition, insights from neuroscience and cognitive learning may be used to improve our understanding of what can be taught or assessed and what is the most efficient way of doing this. Penaluna, A. et al. (2012; 2010) suggest that some aspects of education can be enhanced only through experience and, unlike semantic approaches - enabling the recollection of interconnected notions and concepts - experiential learning can be tested only in the situational and contextual environment. For instance, the brain function of the amygdala, may limit learning in situations that stress the student. Students may feel less stressed in future situations if they practice pitching and presentations frequently during their studies and build their resilience over time (Penaluna et al., 2010, p. 16). As also discussed by Penaluna et al. (2010) "*many creative neural connections are made subconsciously*" (p.16). This implies that self-reflection and self-assessment may not always be the best suited technique to reinforce learning.

We have briefly outlined the key aspects of what appears to be an appropriate assessment strategy for entrepreneurial learning. It should be noted that, when talking about suitable teaching and assessment methods for entrepreneurial learning, support from national and institutional structures in allowing innovative teaching and assessment approaches is crucial. This, together with an integrated approach to pre-service teacher training (initial teacher training) and in-service (continuous) may facilitate the introduction of new practices that could not otherwise be implemented (QAA, 2012; SEECEL, 2011b). As also emphasized by Penaluna et al. (2014b, p.379), the tendency to centralize and standardize a curriculum and test system addresses neither individual student's needs nor the learning environment.

5 OvEnt Conclusions

The OvEnt study, and this final report, seek to establish a state of the art on the topic of entrepreneurship competence, contributing to the development of a European Competence Reference Framework for Entrepreneurship (European Parliament and Council, 2006). Defining and conceptualizing entrepreneurship as a competence - as we have seen - is a challenging task. Originally an economic phenomenon, its conceptualisation has been strongly dependent on the economic aspects of entrepreneurship. The concepts of entrepreneurship and entrepreneurial activities have, however, developed beyond the original economic domain.

For this reason, the research relied on a multidisciplinary approach focussing on theoretical contributions, evidence from empirical work, policy and practices. The OvEnt final report combines insights from the literature originating from different traditions, a selected number of examined initiatives in the inventory and ten in-depth case studies of diverse character.

Firstly, the research examines 'entrepreneurship as a competence'. Starting from entrepreneurship, the present study shows that this phenomenon has been approached from a multitude of different perspectives with varying interpretations. Key entrepreneurship themes discussed in academic literature since the first use of the word 'entreprendre' have been summarized in the OECD definition as: creative resources, innovative capabilities, perceiving opportunities and generating value. This definition acknowledges the importance of values other than those that are strictly business-related and embraces activities which are not only undertaken by a business owner (entrepreneur), but also by actors without any stake in a company (e.g. intrapreneur). Certainly, entrepreneurship is a product of its environment, and is shaped not only by technological evolution, and changing business models, but also by natural, social and cultural aspects.

What is more, various sub-streams have emerged over the years, e.g. social entrepreneurship, women and entrepreneurship, and eco-entrepreneurship, which complement the term through independent characteristics. Overall, we summarize the entrepreneurship dimensions with the following figure.

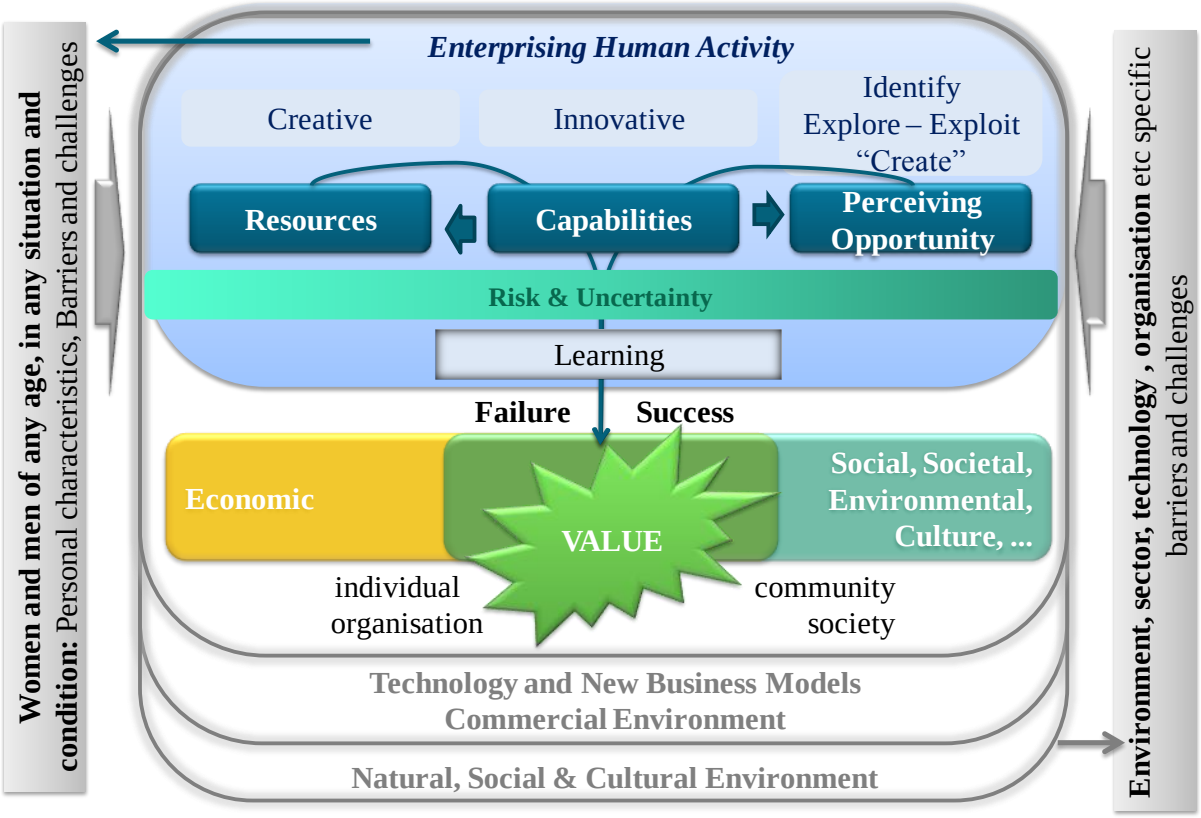
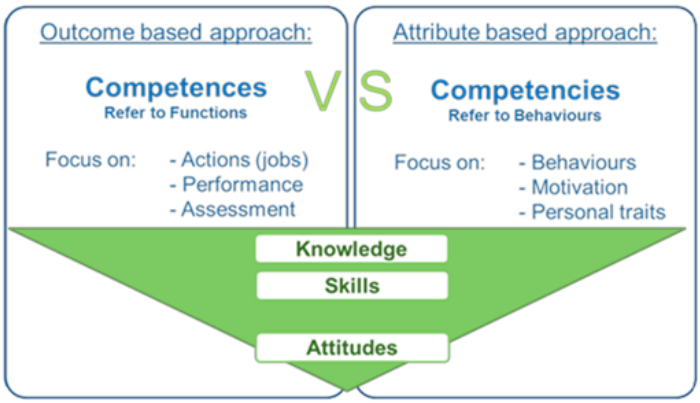


Figure 20: Summary of Entrepreneurship Dimensions

In summary, entrepreneurship is characterized by entrepreneurial human activity, determined by innovative capabilities looking simultaneously at resources and opportunities to conceive new combinations generating value. This value may have the form of economic and financial gains; be it of social, societal, environmental and cultural nature; or a combination of all these factors as encountered in academic debate. What is more important, this value should be novel – a result of the creative combination of resources and innovative capabilities which respond to existing (or future) opportunities. Entrepreneurial activity happens in conditions of risk and uncertainty; thus, the entrepreneur must be capable of assuming them. To a certain level, creativity may serve to fulfil this purpose. Moreover, some suggest that risk and uncertainty increase when, for instance, environmental values rather than traditional economic-value driven business is at stake. Even though an entrepreneur may fail during the value creation process, the associated learning remains important.

In the course of exploring the different definitions and notions surrounding entrepreneurship as a competence, several issues emerged. The link between innovation and entrepreneurship is often debated. Secondly, different types of value can be generated – economic versus other value, or combination of both. The OvEnt study approached the topic from a competence framework perspective. Thus, the crucial concern for the OvEnt study has been to contribute to a framework for universal use reflecting the high-quality entrepreneurship Europe is striving to obtain in the future. With this in mind, the discourse surrounding innovation and entrepreneurship appears to be extraneous to our research, in which we seek to learn from both terminologies without eliminating either.

Moving to 'entrepreneurial competences' the research focused on clarifying competence versus competency concepts by reviewing the key frameworks conceptualized in academic research. In short, '*competency*' usually refers to the individual's behavioural characteristics, motivations and personal traits whilst '*competence*' refers to tangible and reckonable outcomes such as actions and performance that can be assessed against standard measures. The EU policy debate on competences has tended to lean towards an outcome-based approach while cross-cutting issues are taken also into consideration. The European Parliament and Council (2006) published the Key Competence Framework in which "competences" are defined as a set or combination of skills, knowledge and attitudes (K-S-A). Transposing the K-S-A approach to the earlier competence and competency discourse, we see that while *Knowledge and Skills* are common to both definitions of competence and competency, '*Attitude*' - directly related to the domain of competency - is increasingly becoming a cross-cutting issue common to both domains.



Source: elaboration of: Winterton (2002); Le Deist and Winterton (2005); Mitchelmore & Rowley (2010) and Lester (2014)

Figure 21: Characteristics and attributes of competency and competence

In this report, we use the term 'competences' concerning entrepreneurship when referring both to competences and competencies, using specific terminology (i.e. competences or competencies) where required.

In addition, we have presented different academic approaches to conceptualize entrepreneurship competences: the holistic taxonomy (Cheetham & Chivers, 1996; 1998), a modern multi-dimensional version of the holistic taxonomy (Le Deist & Winterton, 2005; Winterton et al., 2006), and the evidence-based taxonomy (Mitchelmore & Rowley, 2010; 2013). In the academic world, research tends to focus on a narrow perspective, which conceptualizes competences linked to the entrepreneur (business owner) or the profession (SME manager). In the selected initiatives and related non-academic evidence in our study, however, entrepreneurship competences empowering all citizens have been widely applied – in line with the definition of the European Parliament and Council (2006).

Looking at the different components and constituent parts of entrepreneurship as a competence, the literature, and also policy and practice highlight the need for both 'business related functions' and 'conceptual/personal/attitudinal aspects'. The OvEnt conceptualization of entrepreneurship as a competence focused on four factors: (i) components, (ii) elements grouped within larger themes and groups, and (iii) an entrepreneurial process, complemented by (iv) a learning process. The first is predetermined by the European Parliament and Council (2006) and, in general, a synthesis

of the conceptualisation and operationalisation of entrepreneurship as a competence from academia and practice appears to rest on *components* which are mostly translatable into the K-S-A framework.

In the academic and policy debate and in practice, the most common themes discussed in relation to entrepreneurship are: *creativity, teamwork, problem-solving, resource management, risk-taking, opportunity identification, self-efficacy, self-confidence, communication, leadership, decision making, innovation, responsibility, collaboration, ideas generation, problem-solving, work independently or autonomy, negotiation and networking*. Overall, financially related elements seem to dominate, and are emphasized by many of the initiatives selected by the OvEnt study, with some even stressing financial and economic literacy from an early age. Interestingly, ethics, environment, society and social issues are also evident; either integrated into the descriptors of the entrepreneurship learning outcomes or separated as distinct competence groups/areas. IT literacy also emerges in the learning outcomes – for instance, under a group related to 'working with others' - supporting the debates in academia about the positive impact of networking and the acquisition of collaborative tools increasing entrepreneurs' chances to innovate. Despite existing commonalities and repetitive terms, structuring the entrepreneurship elements into coherent groups has proven to be challenging, also due to the interconnected and multifaceted character of entrepreneurship as a competence.

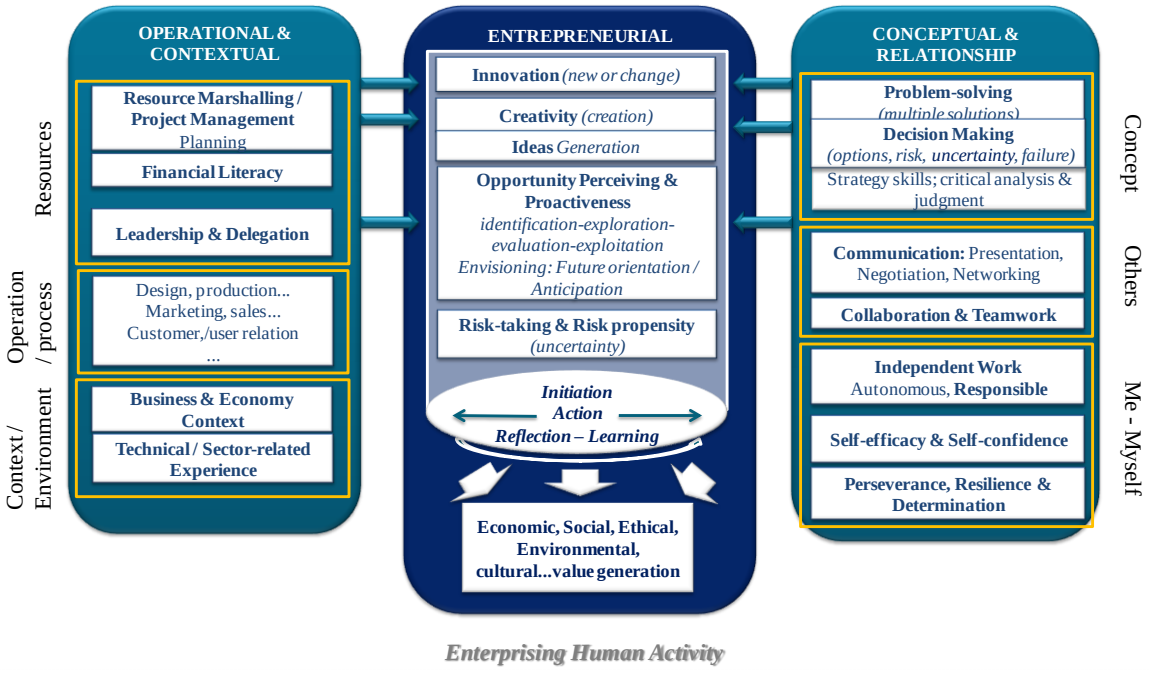


Figure 22: Entrepreneurship Competences within larger themes and groups

By clustering individual identified elements into three groups – (1) Operational and Contextual, (2) Entrepreneurial, and (3) Conceptual and Relationship – larger themes were detected.

On this point, we clarify the terminology: the OvEnt study considered 'entrepreneurship as a competence' as a large framework including all the above mentioned groups and themes. Whilst the entrepreneurial competence group includes innovation, creativity, opportunity perceiving and risk taking; other elements are closely tied in. For instance, there appears to be a thin line between creativity, idea generation and problem-solving. Risk taking may be

present in other themes, such as decision making, but it also reflects uncertainty and the unknown. Opportunity, on the other hand, is subjective – depending on one's perceptions and also on one's knowledge and previous experience. Finally, there are self-efficacy and perseverance, two cross-cutting elements which affect other themes.

The OECD emphasizes the importance of 'human actions' rather than intentions when measuring entrepreneurship. However, for the purposes of the competence framework, the entrepreneurial process starts from intentions which represent 'step zero' before these ideas are turned into actions. The present report attempts to analyse the entrepreneurial process from different perspectives – from ideas to actions. This may be seen within the opportunity theme as well as it may be reflected in the descriptors of other themes. From our research, it has been possible to assign certain competences to certain process stages; however, those linked to the attitude component remain cross-cutting– in line with the debate on competency versus competence characteristics. Furthermore, opportunity may be perceived during any stage of entrepreneurship process.

The learning process dimension determines the progress the learner makes in acquiring entrepreneurship competences. Overall, combining different classifications and approaches, the learning process may be characterised as a learning path which leads from 'awareness' to 'entrepreneurial effectiveness' – as proposed by QAA (2012). In other words, this process leads from 'what entrepreneurship means to the learner' to self-directed learning and autonomy. The first aspect appears to be associated with more knowledge-intensive and business focus, while the latter may be more in line with solidarity as a citizen (TRIO model). Value creation, although sometimes present in the conceptualisation, has been rather vague on the operationalisation side.

Having said this, the following figure presents the OvEnt conceptual framework for entrepreneurship as a competence which integrates the dimensions discussed above. Interestingly, the knowledge component dominates among 'Operational and Contextual' competences while the attitude component appears more often in the 'Conceptual and Relationship' group. We must not forget that value creation is the core of entrepreneurial action; here value is not only economic or generated only for 'the entrepreneur', but it is also for others.

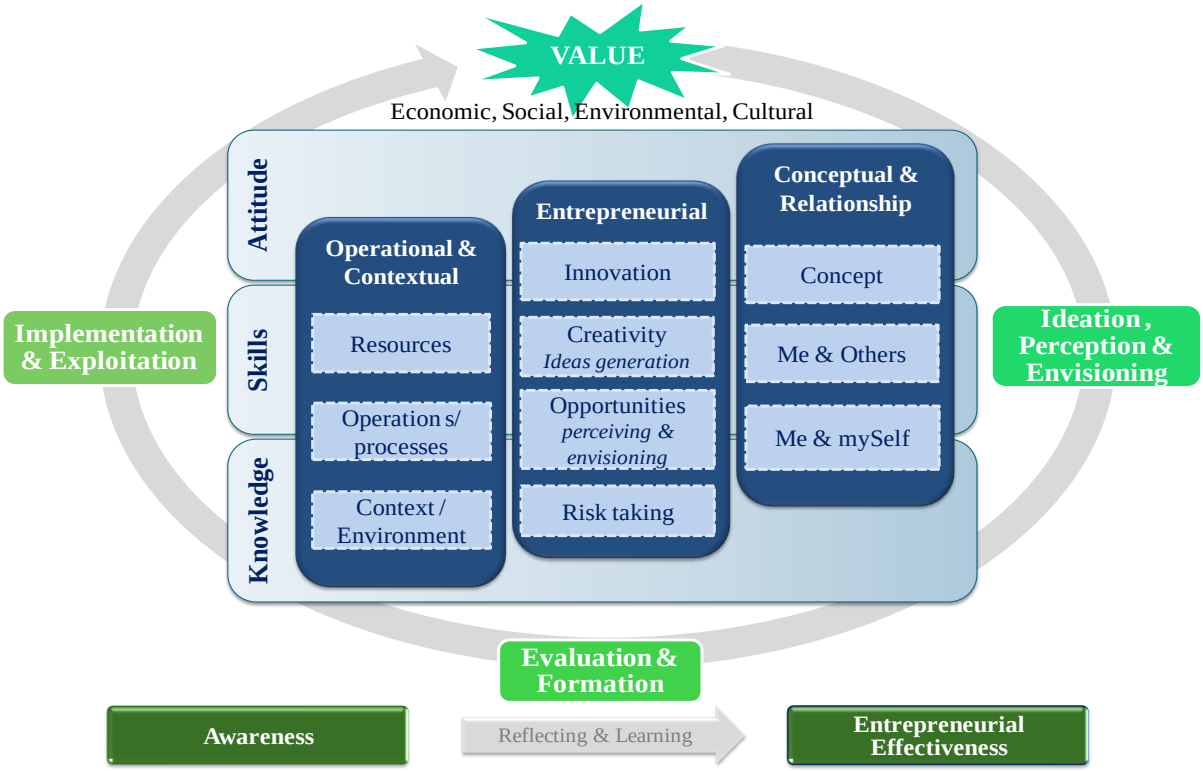


Figure 23: Summary of Entrepreneurship Dimensions

Additionally, the OvEnt final report attempts to shed light on how the standard entrepreneurship competence framework may differ with regards to the different types of entrepreneurship. We discussed the fact that barriers to undertaking entrepreneurial activity may affect the competence-set. Rather than a new set of knowledge, skills and attitudes, the standard competence-set may be applied. However, there are certain factors which should be taken into account and which make an adaptation of competences to the specific entrepreneurship situation concerned seem appropriate. This adaptation concerns mostly the type of value created, sector or technology intensity, and the characteristics of the person undertaking entrepreneurial activity – thus, external and personal conditions and characteristics. For instance, it has been argued that entrepreneurial activity which creates social and environmental value requires more determined, perseverant and committed individuals with a higher propensity to risk taking because values other than economic ones are not as easily grasped by the market (inventors, clients etc.). As for the specific characteristics of 'an entrepreneur', e.g. women and older people, the competence-set may be intensified in those competences which seems to be more problematic (e.g. risk-taking, self-efficacy or digital competence).

Before presenting the OvEnt study findings from an educational perspective, we briefly reviewed the key terminology – *enterprise, entrepreneurship, entrepreneurial education*. In line with the OvEnt inventory and the case studies, the different approaches originate from a narrow and a wider perspective on entrepreneurship. The first focuses on enterprise and its owner, teaches *'about'* entrepreneurship and is characterized by knowledge-intensive courses. The second affects personal development, is rather practice oriented and targets entrepreneurial citizens and society. For the purposes of the OvEnt study, we have not introduced specific terminology to distinguish between entrepreneurship education in a narrow or a wide sense. We have, however, acknowledged it to be important for research.

In the last few decades, the classification of and the debate about entrepreneurship education and training evolved from a rather narrow perspective, which focused on business management and the creation of new firms, to a broader perspective which aimed at entrepreneurial behaviour. Initiatives have only recently embraced entrepreneurship education from a wider perspective; thus, the notion still tends to be associated mainly with business-related and start-up programmes and studies.

When learning entrepreneurship as a competence, it is not the knowledge component which seems to cause challenges to entrepreneurship education. While there is no clear cut about which entrepreneurial competences are better addressed by which pedagogical approach, a wide set of teaching methods seems to address the variety of entrepreneurship competences. Already discussed with regards to the learning process, more self-directed, flexible and individual approaches are considered more appropriate for entrepreneurial learning. The OvEnt final report presents different approaches taken by initiatives in practice – based on theoretical underpinnings or supported by experienced entrepreneurs and educators. Overall, action based learning, learning-by-doing and collaborative learning seem to be the most widely employed and commonly agreed upon. Competitive learning is complementing the learning experience and self-reflective methods seem to gain importance across education levels. The effectuation approach as well as divergence thinking technique are emphasized in contemporary research, in particular to address such entrepreneurship themes as: uncertainty, risk, ambiguity or creativity, alongside with handling change.

From the OvEnt study, we may also conclude that methods associated with start-up programmes – mentoring, peer review, networking, and competitions – are largely transferred to lower education levels. The same applies to social versus traditional entrepreneurship which both can learn from each other.

When teaching methods are challenged, assessment methods seem to struggle along. Traditional summative methods (written and multiple choices tests) do not seem to fully serve the purpose when it comes to validating a wide set of competences tackling in particular skills and attitudes (QAA, 2012) - especially creativity, innovation, problem solving or handling ambiguity, uncertainty, risk taking or developing a more positive attitude to failure. The OvEnt case studies findings support this assumption. It has been reflected in the innovation versus implementation approach taken with regard to learning and assessment; in other words, into the 'lenses' of *innovation and creativity* linked to elements of surprise and new, and the *implementation* in terms of 'doing as asked to' formula.

A more recent trend indicates that teaching and assessment methods are increasingly blended in modern pedagogical approaches – task assignment/project work, self-reflection, peer review, external review. This is based on the premise that specific entrepreneurial teaching methods often require specialised assessment forms, in particular concerning the component 'attitude'.

On this note, teaching and assessment strategies are yet largely to be explored. From an academic viewpoint, it would need longitudinal cohort studies to empirically conclude on this issue. Also among the analyzed initiatives, we have observed that initiatives first focus on operationalizing entrepreneurship competences and only tackle assessment forms at a later, more mature project stage.

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Glossary of terms

Avoid premature articulation	Avoiding premature articulation is a teaching method based on intentionally creating a situation in which student is given incomplete information upon which he/she has to act and draw conclusions; additional information is provided in phases, or only after the assessment (used in UWTSD Case study)
Blended learning	Blended learning is a formal education form in which a student learns partly through delivery of content and instruction via digital and online media with some element of student control over time, place, path, or pace.
Challenge-based learning (CBL)	Following a sequence of defined steps, challenge-based learning encourages learners to solve real-world problems. Instead of presenting students with a problem to solve, CBL offers general concepts from which the students derive the challenges they will address. Challenge-based learning is an initiative originally conceived by Apple within K-12 education.
Collaborative learning	Collaborative learning activities are based on the interaction of at least two students, typically a group of students, who work together, draw on each other's knowledge and skills and share experiences while working on a given assignment
Competitive Learning	Competitive Learning describes a learning form where competitive elements are used in order to achieve better learning outcomes, frequently resembling a real market economy situation. It is used often used by means of business plan and business idea competitions.
Convergent thinking	Convergent thinking is a process of answering a question or problem with one single solution or answer. It usually does not require significant levels of creativity or innovativeness. It is often put in opposition to divergent thinking
Co-operative Open Learning' (COOL)	While challenge based learning encourages learners to solve small and large real-world problems often involving stakeholders from the community, COOL focuses on the promotion of self-organised learning strategies and the development of personal qualifications for improving social skills. COOL is a proprietary learning method developed by EESI-Impulszentrum and IFTE (case study 3).
Curiosity-based learning	Curiosity-based activities aim at increasing student's curiosity and align teaching with the learner's interest. Curiosity-base learning goes hand in hand with inquiry-based learning.
Divergent thinking	Divergent thinking is associated with generating ideas, creativity and innovativeness. Instead of searching for one solution to a problem, student rather explores many possible options. It is often put in opposition to the convergent thinking
Formal learning	Learning that occurs in an organised and structured environment (e.g. in an education or training institution or on the job) and is explicitly designated as learning (in terms of objectives, time or resources), often linked to a country's educational system. Formal learning is intentional from the learner's point of view. It typically leads to validation and certification.
Formative Assessment	Formative assessment refers to methods used to conduct in-process evaluations. Formative assessments help teachers identify what students are struggling with during the learning process so that adjustments can be made.
Glorious Failure	Glorious Failure is a teaching / assessment approach in which student is allowed to 'fail' if he/she reflects upon why and articulate the reasoning

Informal Learning	Learning resulting from daily activities related to work, family or leisure. It is not organised or structured in terms of objectives, time or learning support. Informal learning is often unintentional from the learner's perspective. Since informal learning is difficult to capture when limited information is available through desk research, the informal learning is not always included in the current inventory but it is present when networking, mentoring and forums exist as part of the initiative.
Inquiry-based learning	See Curiosity-based learning or Student-centred teaching
Experiential learning	The concept broadly refers to a learning activity that combines practical experience, experimentation and reflection on experience. Learning occurs through the learners own direct experience and reflection in the process.
Learning-by-doing (LBD)	Through learning-by-doing the students acquire knowledge and skills through their own actions and experiences. This approach thus encourages students to have an active role and to engage in learning activities. LBD approach has been further developed to the project-based learning and similar.
Non-formal learning	Learning which is like formal learning (and unlike informal learning) institutionalised and embedded in planned activities not always explicitly designated as learning (in terms of learning objectives, learning time or learning support), but which contain an important learning element. Non-formal learning is intentional from the learner's point of view.
Project-based learning	To enable the students to gain skills and knowledge, the project-based learning method integrates knowing and doing. Three variants are sometimes distinguished: challenge-based learning, place-based education and activity-based learning. Whereas the learner seeks to solve real-world problems in challenge-based learning, he/she typically focuses on solving community problems in place-based learning and on constructing own meaning through hands-on activities in activity-based learning. Project-based learning is rather multidisciplinary, may take longer to achieve, and often involves real world, fully authentic tasks.
Problem-based learning	Problem-based learning differs from the traditional classroom teaching, as the method takes point of departure in a problem which the student needs to address through problem solving skills. This form of learning is often carried out through group work, where students work together.
Student-centred teaching	Student-centred teaching shifts the activity focus from the teacher to the student. It includes active learning, collaborative learning, inductive learning, in the latter students are first presented with a challenge, question or problem, and learn along the way to the solution. Student-centred teaching may include inquiry-based learning, case-based instruction, problem-based learning, project-based learning, discovery learning etc.
Summative assessment	Summative assessments are used to evaluate student learning and achievement at the end of defined period—typically at the end of a project, unit, course, semester, program, or school year.
Technology Based Learning (TBL)	Technology Based Learning refers to learning via electronic technology, among others, internet, intranets, audio and video conferencing, bulletin boards. It is a broader term to refer to online learning, web based learning and computer based learning. Today e-Learning has to great extents replaced the term TBL.

ANNEXES

Annex I. OvEnt Inventory

The OvEnt Inventory sought to create a broad typology of existing initiatives that support the acquisition of entrepreneurship competences by citizens. The final inventory is the result of considerable efforts to present an equal geographical balance of national, European, regional and local initiatives, including a few international initiatives as well as to cover different types of entrepreneurship competence initiatives, e.g. business oriented initiatives as well as initiatives tackling a more social dimension of entrepreneurship focussing on youth empowerment and personal development.

I.1. OvEnt Inventory Executive Summary

The present final executive summary is the result of an analysis of 42 initiatives of the final OvEnt Inventory.

Inventory Characteristics

Area of Focus and Delivery Channels / Types of initiative

The OvEnt inventory has introduced focus areas serving to define the key purpose of each initiative distinguishing between Learning/teaching entrepreneurship competences, Teaching/support methods and models, (New) assessment methods and tools and (New) entrepreneurship competences framework. Overall, the vast majority of initiatives in our Inventory aims at learning/teaching entrepreneurship competences (32) followed by teaching/support methods and models (10) and assessment methods and methods and tools (5). What is more, 5 initiatives focus on providing a new entrepreneurship competence framework, albeit either being very holistic and comprehensive in its scope, or not addressing implementation aspects.

The OvEnt inventory also categorised initiatives in accordance to their type/delivery channel distinguishing between 8 different delivery channels with three possible options per initiative. In line with the dominance of formal learning contexts, as explained further in the learning settings section, almost half of the initiatives (19) are curricular student/teacher programme based provided by official education institutions. Curricular programmes are followed by learning-by-doing approaches (16), mostly mini-company based. In fact, these two delivery channels frequently appear in combination (7).

Education level

Currently, all education levels are represented in the inventory with 5 initiatives tackling several of them. Altogether, 7 initiatives target primary education, 20 initiatives target secondary education and 16 initiatives tertiary education level, whereas 11 initiatives include vocational education and another 5 are categorized as further (adult) education or "other". Around one fourth of initiatives in the inventory include targets more than one educational level; above all, this applies to primary and secondary education levels. Regardless of its educational level, five of the included initiatives aim at educating teachers (incl. primary, secondary educators) through continuous or initial teacher training.

Targeted and involved stakeholders

Around two thirds of the initiatives in the inventory target learners directly, of which 5 target children, 19 target youth learners and 7 initiatives focusing on adults. The remaining third is somehow educator-focused with important involvement of school governance (frameworks, train-the-educator initiatives, networks for entrepreneurship education and similar). What is more, 9 initiatives target and involve both groups equally, most of them seeking actively to collaborate with business representatives and former alumni, while a few also involve the community as well as the learners' parents.

Along key target group divisions one can recognise typical patterns with regard to the channel/type of initiative and focus area. Initiatives targeting learners are either curricular or have a learning-by-doing character focusing on learning entrepreneurship competences. Meanwhile, initiatives targeting educators typically comprise the study/testing of new models and tools and/or a train-the-educator component focusing on new assessment methods and tools, teaching support methods and tools and new entrepreneurship competence framework.

Key findings and patterns

Competences

For the purpose of the inventory, entrepreneurship competences are divided into the components Knowledge (K), Skills (S) and Attitudes (A). Since many initiatives do not draw a clear line between knowledge, skills and attitudes including some initiatives using different components, some categorisation of competences has been undertaken for the purpose of comparability and clarity. The ESP (I1), for example, distinguishes between 'Experience', 'Competences' and 'Knowledge/Skills', while NextLevel's Progression Model (I2) categorises competences in form of 'Action', 'Creativity', 'Environment' and 'Attitude'.

The final inventory has identified a total of 102 key competences related to knowledge, 120 skills and 70 attitudes. After a preliminary classification the primary fields of knowledge addressed are business, financial literacy and marketing. With regard to skills, the most common competences appear to be creativity, leadership, team and communication related, whereas the main attitudes are creativity, responsibility and initiative related. With little surprise the included (new) competence frameworks include the most numerous and precisely articulated entrepreneurship competences with a view to knowledge, skills and attitudes. Youth Start (I8), for example, includes 14 fields of knowledge, 21 skills and 13 attitudes, whereas SEECEL (I-10) comprises 14 fields of knowledge, 14 skills and 6 attitudes. The wide range of included initiatives bears, however, certain risks regarding the informative value of entrepreneurship competences actively stimulated. While some competence frameworks are put into practice, e.g. SEECEL (I10), QAA Guidance (I32), others serve mainly as a point of reference for teachers active in entrepreneurship education, e.g. the *référentiel* (I38).

As a result, the mere fact that many competences are included in a framework and in the present inventory is not automatically an indicator that those competences are put into practice by the respective initiative. On the basis of the long list of competences (accessible in the 'long list' sheet of a separate Excel document) drawn up from the initiatives in the inventory, it appears that initiatives seeking to encourage entrepreneurship competence, in

particular address a more narrow group of business and management related Knowledge fields and Skills (mirroring diverse enterprise functions) and a wider group of Skills and Attitudes, mostly transversal skills, related to a person's entrepreneurial behaviour.

It is difficult to recognise clear-cut patterns in terms of competences. Generally, the higher education and further (adult) education examples tend to tackle more in-depth business and economic knowledge ranging from economy, marketing, finance, human resources and accounting to business models and tools, e.g. Social Business Model Canvas. Meanwhile, secondary and primary education level initiatives tackle more basic business and economic knowledge, e.g. marketing, economy, business plan development, etc. Moreover, higher and further (adult) education initiatives (incl. MOOCs) included in the Inventory commonly address entrepreneurship attitudes to little extents, as compared to secondary and primary education initiatives. What is more, there appears to be a clear division between classroom courses focusing on knowledge and extra-curricular activities, whereas skills/attitudes seems to be often encouraged within in an informal learning context, e.g. pitches, forums and networking events.

As for the MOOCs, these do not seem to tackle entrepreneurship competences as systematically and comprehensively as most other initiatives in the inventory. After an analysis of these initiatives it appears that MOOCs primarily address the competence component 'knowledge', i.e. they provide knowledge on business procedures, business plan development as well as knowledge concerning the skills and mindset typically found among entrepreneurs. In some included cases, e.g. I28, course participants are required to engage actively in the creation of a business plan which stimulates entrepreneurial skills and attitudes; yet the exposure to a 'real' or simulated market environment is still limited.

Some interesting observations can be made regarding initiatives with entrepreneurial skills tackling social, ethical and value-based dimensions which are linked to the more open definition of entrepreneurship (see above), e.g. understanding the value of entrepreneurship and environmental awareness. At lower education level this dimension appears to be more rooted within the initiatives along with more traditional entrepreneurship competences (e.g. creativity, risk management, perseverance, initiative, etc.), in an 'integrated approach'. This is, for example, the case in Youth Start (I8), SEECEL (I10), Lemonade Day (I27) and Bellacoopia (I42). At higher education level and other initiatives, these competences related to "the corporate social responsible entrepreneurship" seem to be addressed rather by a dedicated initiative (e.g. TRANSITION (I6); MOOC on Social Entrepreneurship (I28)). Potentially, this pattern is related to differences with regard to the type of curriculum which tends to be wider at lower education levels (secondary level), whereas at more advanced education level (tertiary) more specific curricula tend to be applied.

Depending on the specific target group addressed by an initiative, specific competences may be emphasised. This is, for example, the case for Enterprising Women's Growth Programme (I15) which tackles risk and uncertainty management as well as the ability to delegate work in its workshops provided to female entrepreneurs. According to Enterprising Women, these are competences that tend to be more important for female business owners than for men due to women-specific characteristics and behaviour (e.g. risk aversion). What is more, programmes designed for entrepreneurs, e.g. the OEMP (I5), the MBA in Business Foundation and Management (I29), the ENP (I37) often specifically target leadership and decision-making as a competence.

Judging on the basis of the initiatives in the inventory, economic and financial IT literacy seems to be among the most commonly addressed competences of the inventory appearing as a keyword in almost half of the initiatives. IT literacy, on the other hand, is less frequently addressed, perhaps because it is already taken for granted for secondary and tertiary education learners. Among other initiatives it is addressed in JEP (I9), YouthStart (I8) as well as in practice firms in the Czech Republic (I39). Digital entrepreneurship is a similar case: Although it is not targeted as such it is an inherent part of the knowledge and skills highlighted by several initiatives, for example in marketing through social media, while the only case where it is explicitly addressed is in the Flairlifter project (I25).

Learning settings and pedagogical approach

The vast majority of initiatives in the inventory comprise an institutional learning environment (34/42). Only 5 initiatives are non-institutional, i.e. online based courses (MOOCs), while 2 initiatives comprise a mixed learning environment where a tight curriculum is applied in a less institutionalised setting (ASTEE (I16) and TRANSITION (I5)). Regarding the learning context, a more diverse picture is drawn up by the inventory. While more than half of the initiatives provide of a formal learning context, one third of initiatives are subject to a mixed learning context combining formal with informal and non-formal elements as well as non-formal and informal ones on their own. The delivery of learning (learning form) is in its majority through face-to-face, with more than 40% of initiatives including a mixed learning form. Non-formal initiatives correlate tend to aim at accelerating start-ups as well as start-up foundation. Initiatives with informal learning context, on the other hand, focus on learning/teaching entrepreneurship competences (next to other combined focus areas).

Concerning the pedagogical approach the inventory includes more initiatives with a live pedagogical approaches rather than ICT schemes. This tendency appears to be representative of initiatives seeking to encourage entrepreneurship competences in Europe: ICT learning plays rather a complementary role with face-to-face learning implemented more widely. Blending learning approaches are rare in the inventory with practice firms in the Czech Republic (I39) and EJE (I28) being the only near to blended learning examples. The most common pedagogical approaches are learning-by-doing approaches combined with collaborative and to some extents also competitive teaching methods.

Assessment

Beyond doubt, the assessment of entrepreneurial competence is a field which only occasionally forms part of the selected initiatives; however, the topic has received increasing attention in recent years. In particular, initiatives with a learning-by-doing component commonly do not comprise a systematic assessment component to validate their learning outcomes. An exception is the ESP (I1) which develops new assessment methods on a well-established learning-by-doing component (mini-company). Altogether 5 initiatives focus on new assessment methods and tools. With the exception of ENTR Spiegel (I26) these are all EU funded projects reflecting the EU's commitment to advance in this field.

Initiatives focussing on the assessment of entrepreneurship tend to target educators more than learners with 80% of assessment initiatives involving educators. For example, the LUT

Measurement Tool for Entrepreneurship Education (I7) allows teachers to self-assess their teaching performance and obtain virtual mentoring on the basis of an online facility. Hence, the ESP (I1) is the only assessment tool targeting students through self-evaluations and a final exam. What appears striking is that initiatives focussing on the assessment component are likely to employ ICT means to deliver assessments of entrepreneurship competence, frequently in the form of self-assessments via online platform, e.g. LUT (I7), ENTRE Spiegel (I26).

The included higher and further education programmes, on the contrary, do not assess entrepreneurship distinctively, i.e. in terms of employing specific methodologies. Here, standard summative assessment methods are mostly employed, e.g. exams and presentations on knowledge/skills related to entrepreneurship. The MsC in Entrepreneurship at Dauphine Université (I13) is somewhat of an exception, since it not only assesses business plans developed by students but also the learning process involved, thereby employing more specific assessment methods, also used at UWTSD (I3) ("glorious failures", "avoiding premature articulation"). The MOOC initiatives, on the other hand, appear to employ rather traditional assessment forms through writing shorter assignments (Entrepreneurship 101 (I21)), quizzes (Essentials of Entrepreneurship: Thinking & Action (I40)) and also evaluation of business plans (Social Entrepreneurship (I28)).

Areas of Impact

For the purpose of OvEnt Inventory 8 different impact area categories have been set up. These are: further education, employment / employability, start-up foundation / considering entrepreneurship as a career option, increasing company's growth and competitiveness, regional growth and competiveness / accelerating start-ups, quality of entrepreneurship education, social impact and personal development / empowerment / citizenship. As a limitation one should note that the categorisation of the initiatives is not mentioned explicitly leaving some room for subjectivity.

Selected initiatives aim at increasing start-up foundations, improving employment possibilities and increasing quality of entrepreneurship education the most. Also here, up to three options are allowed when describing each initiative, and therefore two thirds of the impact areas appear in combination, employment and start-up foundation occurring together in 19 cases. With little surprise, the vast majority of these initiatives focus on learning/teaching entrepreneurship competences.

Concerning the education level of initiatives in the Inventory some, yet limited, patterns can be recognised. Primary education initiatives in their majority tackle an increase of educational quality in entrepreneurship learning (5/7) followed by personal development/empowerment (4/7) and start-up foundation / considering entrepreneurship as a career option (4/7). At secondary education level more than 80% of initiatives at tertiary level seek to enhance employment / employability of participants, while two thirds aim at impacts in start-up foundation / raising awareness to entrepreneurship as a career option. Little surprising is, on the other hand, that the great majority of initiatives at tertiary level aim at impacts with regard to start-up foundation and employment / employability.

In the context of the types of initiatives included in the Inventory the following observations can be made: By design, quality of entrepreneurship education, as an impact area, goes hand in hand with such initiatives as train the educator, framework, guidelines and

standards, and study/testing new models and tools. Learning-by-doing and curriculum initiatives, on the other hand, mainly occur in combination with start-up foundation and employment / employability.

Regarding the age of the learner, the Inventory comes to expected findings. The older the learner, the more start-up foundation and employability / employment appears among the impact areas. Meanwhile, two impact areas are by their nature only applicable to advanced maturity levels of learning subjects: increasing company's growth and competitiveness and accelerating start-ups. These initiatives are mostly programmes for entrepreneurs / business owners, e.g. the Business Foundation and Management MBA (I29), the OEMP (I6) or online based courses for starting/active entrepreneurs (MOOCs), e.g. the MOOC 'Essentials of Entrepreneurship: Thinking & Action' (I40). A similarly expected finding is that personal development / empowerment / citizenship are above all impact areas encountered among initiatives targeting youth and children.

Additional remarks

The vast majority of entrepreneurship education initiatives covered in the inventory tackles entrepreneurship in a more narrow sense, i.e. by providing participants with competences to create and better manage their own businesses or as intrapreneurs within other companies. While this trend appears representative of the landscape of entrepreneurship initiatives, entrepreneurship approaches tackling the social, citizenship and empowerment dimensions have been discussed for more than two decades by now. For this reason, additional efforts have been made to include initiatives capturing this wider entrepreneurship dimension. The wider entrepreneurship dimension - youth empowerment / citizenship; personal development

The impacts and learning outcomes are two further fields where information is difficult to be obtained. There are many ways of providing info on impacts. In most cases the information provided was not the result of a formal impact assessment or project evaluation reports. For the more complex EU funded projects that are currently ongoing it is yet too early to make a judgement on the impact of the project. In these cases merely the expected impact and results of the project are portrayed. Most commonly impacts are described in providing numbers on the target groups reached throughout the projects (x teachers trained or x students received entrepreneurship education).

Learning outcomes are not a consistent part of all projects, in particular for projects that provide supporting teaching models and tools, learning outcomes are often not defined. In the case of learning-by-doing based programmes, learning outcomes are much more likely to be defined; yet it is not always the case. The included higher and further education programmes (OEMP (I5), MsC in Entrepreneurship (I13), GEA College (I21)) commonly set up broader learning outcomes linked to increasing entrepreneurial skills and increase growth and competitiveness.

Scope and limitations

The OvEnt inventory is an attempt to strike a diversity of existing initiatives balanced between several aspects such as geographical coverage, a mix of education levels, types of initiatives targeting and involving different groups of actors, and in different learning settings; maturity but also good practice aspects have been considered, whenever possible.

In order to achieve such diversity, some compromise with regard to the maturity levels of the initiatives was made. As agreed previously with JRC-IPTS, the great majority of included initiatives are European. In particular in the Northern European countries, UK, Scandinavian countries, Finland and Germany, the search has been proven to be easier than in Central and Eastern Europe with Southern European countries (e.g. Italy, Spain) being a middle way between these two extremes. In Central and Eastern European countries, above all, initiatives that are part of a wider framework, e.g. JA-YE's company programme (I42) and EUROPEN-PEN (I39) have been included, given the great difficulty to identify other initiatives. A possible explanation may be that Northern European countries are more likely to provide translated websites in English but also their overall progress in the area of entrepreneurship education plays an important role.

The inventory was developed using a common grid for all initiatives. Being diverse and having different level of complexities, not all fields are applicable to all initiatives, or to the same extent. For instance, the pedagogical approach is usually not addressed by those initiatives providing a new competence framework or setting guidelines and standards (I8 and I12).

Moreover, the information gathered on the individual initiatives was used and interpreted in line with the purpose of the inventory. Next to descriptive analysis some reflective analysis elements are part of the inventory. Since many initiatives comprise a combination of aspects rather than one single characteristic (e.g. involving a wide array of actors), the included information is sometimes selective (up to 3 options). This approach has been chosen in order to enable an effective analysis and typology of the initiatives. As a result, the displayed information may not always reflect the full picture of each initiative.

In the inventory a wide range of entrepreneurship competences are addressed. An important limitation of the inventory is that only those competences clearly mentioned (as competences and also incl. learning outcomes) have been included. Which competences are addressed in practice can, therefore, be subject to variation and competences not explicitly mentioned may not always be captured. Another limitation is owed to the wide scope of initiatives included in the inventory with some providing competence frameworks for school governance and others stimulating competences actively.

In addition, with a few exceptions it is often difficult to know which competences are prioritised by respective initiatives. The fact that initiatives often do not provide a ranking as in which competences are emphasised prevented the development of a more meaningful analysis of entrepreneurship competences of many initiatives.

Annex II. Case studies

The main objective of the OvEnt case studies (Work Package 4) was to gain a profound understanding of the entrepreneurship competence concept as it is currently translated into learning objectives, curricula, teaching guidelines, and practical courses, through an in-depth examination of study cases. Overall, 10 cases studies were selected based on a careful set of selection criteria seeking to capture a diversity of initiatives promoting entrepreneurship as a competence while maintaining a balance between educational levels, geographical coverage and maturity level. The in-depth case studies report is available at https://ec.europa.eu/jrc/en/entrecomp. The main characteristics of the selected cases are depicted in Table 12.

Table 12: Comparative overview of initiatives' characteristics

Initiative / Aspect	**LUT MTEE** **(Case study 1)**	**ESP** **(Case study 2)**	**You(th) Start Framework** **(Case study 3)**	**SEECEL Instrument ISCED level 1** **(Case study 4)**	**NextLevel** **(Case study 5)**	**JEP** **(Case study 6)**	**OEMP** **(Case study 7)**	**UWTSD/IICED** **(Case study 8)**	**SIMULIMPRESA** **(Case study 9)**	**TRANISTION** **(Case study 10)**
Education level	Other / Further adult *Indirectly: primary, secondary, VET, and most recently tertiary education*	Secondary (upper) including VET	Secondary (lower & upper)including VET	Primary	Secondary (lower)	primary	Other / further adult	Tertiary & further adult	Secondary, VET, tertiary, further adult	Other / further adult
Geographical scope (N° countries as to 2013/2014)	National (Finland) & European (currently over 20 countries)	European (16 countries)	National (Austria)	European (8 SEET countries)	National (Denmark)	National (Ireland) (expanding to UK)	International / based in Spain	National (UK)	National (Italy)	European (7 countries / 6 implementing centres)
Target groups 1: primary target	Teachers and principals	Upper Secondary students	Teachers & school mgt/ school governance authorities. Primary beneficiaries are students (involved directly and indirectly)	Teachers, school mgt/ school governance, relevant authorities, business associations	Pupils (13-17 years old)	Pupils (10-12 years old)	Business leaders	Tertiary students and adults, including teachers	Students / Trainees (11 - 60 years old), incl. specific groups (disabled, unemployed, women…	Social innovators
Target group 2: secondary target with an active role	School governance and regional authorities (Finland)	Teachers & Business representatives		Indirectly – final beneficiaries: students	Teachers	Teachers, Business representatives	-	Teachers, local entrepreneurs and community, alumni	Trainers & teachers from diverse organisations, mentor companies,	Business support organisations, e.g. Incubators, accelerators; mentors
Focus area	New assessment methods & tools *for teachers/entrepreneurship education*	Learning entrepreneurship competences New assessment tools and methods	a comprehensive framework; learning entrepreneurship competence; (new) teaching methods	a comprehensive framework; learning entrepreneurship competence; teaching and assessment methods	Learning entrepreneurship competences	Learning entrepreneurship competences	Learning entrepreneurship competences	Learning entrepreneurship competences New teaching (and assessment) methods	Learning entrepreneurship competences	New business support models; Learning entrepreneurship competences
Competences: K-Knowledge, S-Skills, A-Attitude	*students:* Knowledge / Skills (Attitudes in a very limited way)	Knowledge / Skills / Attitudes	Knowledge / Skills / Attitudes	Knowledge / Skills / Attitudes	Skills/Attitudes	Knowledge/ Skills / Attitudes (focus on S&A)	Knowledge / Skills	Knowledge / Skills / Attitudes	Knowledge / Skills / Attitudes (S dominating)	Knowledge / Skills attitude in a limited way
Impact areas	Quality of entrepreneurship education; regional competitiveness	Further education, employability/employment; start-ups foundation	Quality of entrepreneurship education; Personal development; entrepreneurship/start-up foundation	Quality of entrepreneurship education; regional competitiveness & indirectly – personal development, further education, employability/employment, entrepreneurship career	Personal development; employment/employability; entrepreneurship/start-up foundation	Further education; Personal development; Employment / employability; entrepreneurship career	Company growth and competitiveness; Employment	Quality of entrepreneurship education; further education; personal development; Employability/Employment; Start-ups foundation	Further education; Personal development; Employment / employability; entrepreneurship/start-up foundation	start-up foundation; company growth

II.1. Case study 1: LUT Measurement Tool for Enterprise Education (LUT MTEE)

II.1.1) Summary

The Measurement Tool for Enterprise Education™ (LUT MTEE)[79] is a self-assessment online questionnaire addressed to teachers, and school management staff, with the main objective to assess entrepreneurship education. The tool has been established by **Lappeenranta University of Technology** (LUT), and developed, piloted and implemented in several phases, firstly targeting teachers and principals in primary school in Finland. It takes form of a web-based self-assessment questionnaire and a generated feedback. This response feedback contains numerical comparison and a text section encouraging and supporting progress, containing various links to resources for teacher professional development.

Teachers' self-reflection is in the core of the tool construct, alongside with concepts of both, entrepreneurship and intrapreneurship.

At the end of 2014, the LUT MTEE is used by Finnish teachers from primary, secondary schools and vocational education and training (VET) schools, and Universities of Applied Science. Moreover, the tool has been implemented as part of the teacher initial training – addressing student teachers. Beyond Finland, the LUT MTEE for secondary and VET schools has been adapted to eight national contexts. As such, the tool is available in three languages – Finnish, English and Swedish - but it will be translated also into other languages under 'The Entrepreneurial School' project[80].

The tool's value goes beyond assessing teachers' activities and providing advice on how to align these with the principles of entrepreneurship education. Analysing the database, the tool serves as a benchmark among teachers, schools, subject areas or regions.

In summary, the tool targets **teachers and school principals**. The questionnaire and the feedback vary among user groups and among education levels. Such difference involves the wording of the questions, the response texts, and/or the emphasis on certain aspects of entrepreneurship education. Moreover, the initiative closely collaborates with Finnish **regional policy authorities**.

The LUT MTEE questionnaire incorporates a variety of students' entrepreneurship competences, where 'Knowledge' and 'Skills' components dominate. 'Attitudes' are included in a very limited number of questions. Based on the evidence gathered during the tool implementation, **failure, risk** and **creativity** are identified as those competences rather less addressed by existing teaching methods.

The LUT tool is applied on "usual" teachers' and schools' activities, with the aim to enhance them in line with principles of enterprise and entrepreneurship education characterised by the following: the teacher as instructor and facilitator, **learning by doing and student-centred approach.** The evidence analysed[81] showed that Finnish teachers use a variety of teaching methods, among which learning by doing, real world simulations and creative

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79 Lappeenranta University of Technology - Centre for Training and Development (n.d.-a). Available at: http://developmentcentre.lut.fi/hankesivusto.asp?hid=7&alasivu=53

80 The Entrepreneurial School (TES) [general website]. Available at: http://theentrepreneurialschool.eu

81 Ruskovaara, E., Rytkölä, T., Seikkula-Leino, J., Pihkala, T. (2011a). Entrepreneurship Education in a Classroom – What's about Entrepreneurship there? [Conference Paper]. ESU Conference. Seville, 2011.

problem solving techniques are rather frequent. Quite many of the frequently employed methods take place in classrooms, whereas only few outside. Interestingly, teachers rather use study visits than inviting a visitor to the classroom. Thus, it seems that **enlarging the teaching environment** and opening the teaching to other local players remains an important task for the near future. Alongside, a more holistic perspective to teaching, determined by multidisciplinary and cross-subject approach, but also by teachers working together in teams and their networking with external local community, is emphasized[82].

Information and communication technologies has an interesting role in teaching, as delivery tool – e.g. games and simulations -, and as source of teaching content enriching the learners' experience – e.g. multimedia, web search.

The assessment strategy consists of a self-reflection component at individual teacher/principal level complemented by an external review carried out by researchers at global level when updating benchmark indicators. The users - teachers and principals - obtain assessment results about: (i) entrepreneurial pedagogy, (ii) entrepreneurship education contents used in the teaching, (iii) collaboration in networks, (iv) operating culture and learning environment, and (v) planning and evaluation of entrepreneurship education. **Self-assessment is most effective when performed every 6 months.**

The evidence collected so far[83] suggests that the tool positively influences **the quality of teaching practices** towards entrepreneurial learning. Interestingly, it has been shown that an entrepreneurial way of doing things is well understood by teachers while 'entrepreneurship' is, instead, a distant term at primary education level. Once reached a critical mass of users, the tool is able to produce statistics for entrepreneurship education per region, country or across education subjects, thus **contribute to the evidence based policy making.** For instance, the LUT advised eight Finnish regions with entrepreneurship education strategies on the next steps to undertake. With its database, the tool has potential for research community and may produce potential **scientific impact** on further research in entrepreneurship education.

The LUT Measurement Tool is based on a mixed public private financing model. When developing the tool, the participatory research method and the use of trial group highly contributed to the tools usefulness and as such, to the tool's uptake by teachers. The key to the initiative's sustainability is **the wide applicability of the tool and the potential use of the growing database**. The success shown so far already attracted interest from other initiatives under which the tool is being further developed. The potential transferability has been proved geographically and across education levels, as well as from continuous to initial teacher training.

Briefly, the success factors lies in the collaboration with users from the design phase, resulting in an understandable terminology and language of the short, but comprehensive, questionnaire. Moreover, collaboration with regional authorities helped reaching critical mass of tool's users in Finland.

[82] Ruskovaara et al (2011a), interview with LUT representative.
[83] Idem.

II.1.2) Timeline

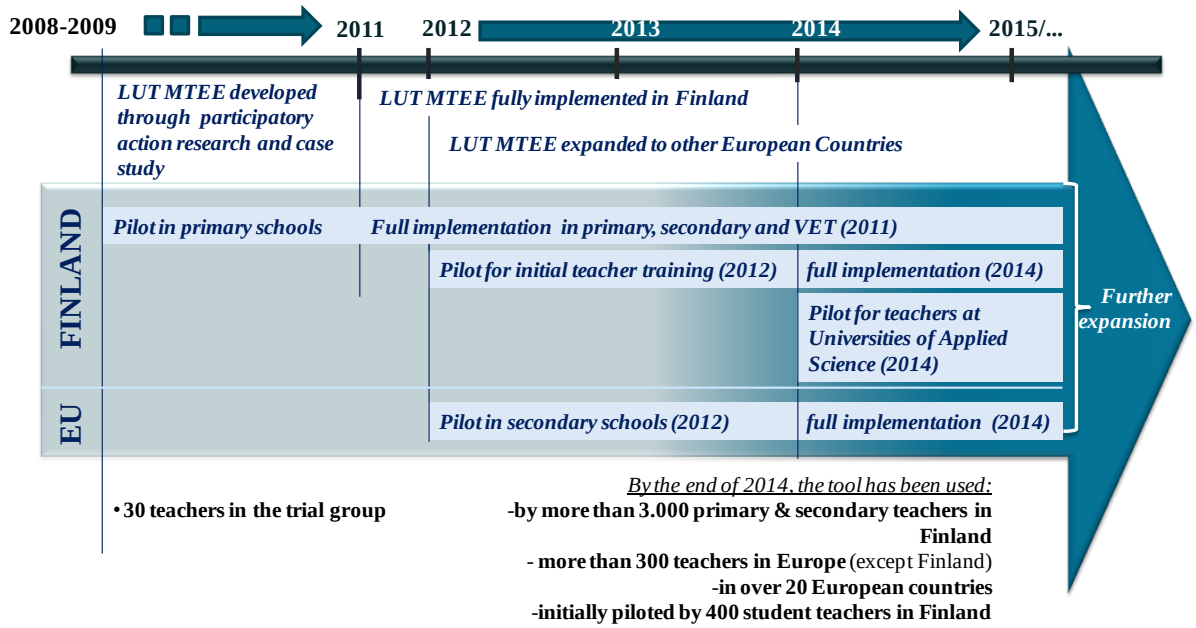

Figure 24: LUT MTEE's Timelines and key milestones

II.1.3) Infobox

LUT measurement tool: Infobox	
Implementation:	From 2008 pilot in Finland and for primary education level, from 2012/2013 in other European countries and for secondary education level (including initial 2-3 years for piloting) The LUT MTEE (self-assessment tool) takes 5 or 15 minutes to fill-in.
Focus Area	New assessment methods and tools (for teachers/entrepreneurship education)
Targeted education level	The tool is applicable for primary education level, and more recently, lower and upper secondary education level, including VET. *Initial teacher training is being currently piloted (2014-2015)*
Main target group of the initiative	Educators: Teachers
Secondary target group:	School governance and regional authorities, depending on the finish region, are actively involved.
Entrepreneurial competences	Knowledge / Skills - Attitudes is addressed by a very limited number of questions failure, risk or creativity are those competence rather less addressed by existing teaching methods *note: primary and secondary students' perspective*

Teaching methods	*Addressing students:* wide range of teaching methods, in particular: Learning-by-doing and Collaborative learning approaches; student-centred approach. More holistic approach is suggested, including multidisciplinary teams of teachers; and enlarging the teaching environment - opening to the outside and use of local stakeholders. Games have potential. *In relation to the teachers' development:* Self-reflection is used as a teaching method.
Learning settings	The usual learning setting on which the tool is applied is mainly face-to-face and institutional; curricular and extra. The tool is provided as an online questionnaire with an email feedback (targeting teachers)
Assessment Methods:	Teachers: Self-assessment and self-reflection (online) Students: not applicable
Impact area:	Quality of entrepreneurial education through continuous (professional) development and initial teacher training Regional competitiveness through entrepreneurship education policy Impact on Scientific community and research in entrepreneurship education
Output dimensions	- more than 3.000 primary and secondary teachers in Finland - 400 student teachers in Finland (in pilot 2012) - more than 300 teachers in more than 20 other European countries - 7 Finnish regions take actions for their regional Entrepreneurship Education strategy *Tools:* - tool for existing primary, secondary and VET teachers - longer and shorter version and different language versions - tool for Finnish teacher students - tool for Finnish teachers in Universities for Applied Science
Overall impacts	- Increased quality of teaching practices towards entrepreneurial learning - Increased evidenced based policy making at regional level – 7 Finnish regions - Scientific impact, on further research in entrepreneurship education - (Indirectly) potential impacts on increased entrepreneurship competences obtained by students. The Nordic Council of Ministers and Nordic Innovation have selected the tool as the best practice in entrepreneur education in two consecutive years.

Resource dimensions	- 30 primary and secondary teachers involved in the construction of the tool (in Finland) - group of researchers (around 10 researchers) - Finish tool version – 1mil Euros - 500.000 Euros in further development under other projects - Around 2mil Euros for all the tool family – Finish, English for primary and secondary schools, initial training and tool for teachers of Universities of Applied science.
Business model	- Mixed public (mainly) and private funding, LUT own sources and contribution from Finish foundation for entrepreneurship, Yksityisyrittäjäin Säätiö, European social fund, Finish national funding, European grants (e.g. CIP).

II.1.4) Learning objectives

Being applied on existing pedagogical activities performed by teachers, the learning objectives or learning outcomes of pupils are not addressed under the LUT measurement tool. Learning objectives are established by individual schools under their regular practice (corresponding to the national curricular).

The LUT MTEE does not specifically define learning objectives or learning outcomes for teachers. However, by using it teachers should be able to self-evaluate and refine their teaching practices.[84] Teachers learn to improve their entrepreneurial teaching performance through assessing their teaching contents and methods and receiving regular feedback on how to improve it.

II.1.5) Competences

Regarding entrepreneurship competences for learners (pupils), it has been expressed on the TES project website[85] that the LUT measurement tool is in agreement with such learning outcomes concerning the following competences. The link between the LUT tool and these competences is indirect. The tool, through questions, guides the teachers to implement such teaching methods and contents addressing the following competences:

Table 13: LUT MTEE – (students') competences

Competences:		
Knowledge	**Skills**	**Attitudes**
Business development and innovation*	Innovation and creativity*	Willingness to take risks*
Financial issues*/**	Financial capability / managing money*/**	Self-confidence*
Marketing**	Decision-making*	Positive attitude to failure / learning from one's mistakes**
Business plan**	Leadership*	Bearing uncertainty**

[84] Measurement Tool for Enterprise Education (n.d.-b). TES.web.

[85] Measurement Tool for Enterprise Education (n.d.-b). TES.web. Available at: http://www.tesguide.eu/tool-method/measurement-tool-for-enterprise-education.htm

Competences:		
Entrepren. connected to subject**	Collaboration and social skills*	Take initiative*
Economic (news)**	Problem solving*	Self-responsibility**
Production process**		Goal-oriented / future-oriented**
Sales**	Self-assessment skills** and recognition of one's possibilities	
moral/ethical aspects of enterprise**	Independent work**	
	Seeking and exploring opportunities**	
	Commercial skills (bring&buy sales)**	
	Seek original ideas and different solutions to the traditional ones**	

*Source: based on information available at Measurement Tool for Enterprise Education (n.d.-b). TES.web. (agree with; *), and questionnaire (not available online (**)) and a feedback from the representative of LUT;*

II.2. Case study 2: The Entrepreneurial Skills Pass (ESP)

II.2.1) Summary

The Entrepreneurial Skills Pass (ESP)[86] **is an international qualification** certifying that students (15-19 years old/vocational and secondary education level), who have had a real entrepreneurship experience, have gained the necessary knowledge, competences and skills to start a venture of their own or be successfully employed.

ESP consists of three key elements: (a) a practical entrepreneurial experience (1 school year mini-company experience), (b) an assessment of entrepreneurial competences (pre-mid-post self-assessment), (c) an examination of business, economic and financial knowledge (1 hour-online exam).

Only the students fully participating in the three elements of the ESP and correctly answering 70% of the questions of the exam get the final certificate, which is issued at international level by CSR Europe[87], EUROCHAMBRES[88] and JA-YE Europe[89] and its member organisations.

The Entrepreneurial Skills Pass ran as **pilot programme during the school year 2013-2014** with **more than 2,000 students from 16 countries participating**. **Year 2014-2015 is the first year of full implementation**. Students took the self-assessment at the beginning of the school year. The mid- assessment is planned in March/April 2015. The post assessment and the final exam will be taken in May-June 2015.

With reference to the OvEnt study, the ESP focuses on two key areas: (i) **learning/teaching through real entrepreneurship experience** i.e. using well

[86] Entrepreneurial skills Pass (ESP). [general website]. Available at: http://entrepreneurialskillspass.eu
[87] European Business Network for Corporate Social Responsibility (CSR Europe). [general website]. Available at: www.csreurope.org
[88] Eurochambers [general website]. Available at: www.eurochambres.eu
[89] Junior Achievement - Young Enterprise (JA-YE Europe). [general website]. Available at: http://www.ja-ye.org

established JA-YE Company Programme, and (ii) **assessing entrepreneurship competences acquired by students** (two components being recently piloted - ESP self-assessment tool and ESP exam).

The ESP addresses a variety of entrepreneurship competences covering all components - **knowledge, skills and attitudes** - and employs wide range of teaching methods, in particular based on **learning by doing and collaborative and competitive learning dynamics.** The practical learning experience is implemented in various learning settings depending on each country[90]. The key success factors rely on training teachers and involving people from business/industry. **Teachers play an active role** in guiding students through the mini-company experience, supporting and providing feedback about their self-assessment results and preparing them for the final exam. As such, they are supported by trainings and other teachers' material. The **engagement of volunteer mentors from the business sector** plays an important role as well, helping students make the connection between what they are learning and the world outside school. Their role as expert advisor is an excellent complement to the role of the teacher in the classroom. Such face-to-face interaction is a key element while e-mentoring - using online meeting tools - is also popular. Overall, ICT is used as tool to deliver the self-assessment/final exam and, depending on the countries, to enhance students' experience with multiple types of online delivery and content.

Obviously, it is still early to discuss the impact of the ESP. However, the results of the pilot run in 2013-2014 were satisfying. Delivered in English, it revealed a good successful rate, even if some students had problems with financial knowledge - contrary to marketing where the majority achieved superior results. In progress, the self-assessment tool will provide with comparable data on students' self-reflected entrepreneurship competences across Europe[91].

The initiative draws upon experience and knowledge of many other national or European initiatives and shows **solid future plans**, **high levels of sustainability** as well as **high potential to be transferred** to other regions and across educational levels.

The ESP is co-funded by the European Commission (Leonardo da Vinci Programme) as well by private sponsorships and partnerships. The consortium behind the ESP has concentrated on links with Europe-wide networks such as EUROCHAMBRES and CSR Europe to help raise awareness, generate endorsements from the employer community and bring in more private sector engagement on the ground in schools.

Apart from the financial sustainability, JA-YE Europe provides a solid structure enabling the uptake of the ESP across Europe and potentially beyond vocational and secondary education level. Furthermore, alumni and business representatives voluntary involvement and close partnerships at both, national/regional level as well as European level, helps to engage private and public stakeholders and link them with the schools. Other success factors lays in the quality of teaching including teachers' motivation, students' motivation and effective incentivization as well as a proper use of national languages when addressing students at secondary level.

[90] Depending on the countries, JA-YE Company Programme is implemented as part of the curriculum or as an after-school programme.

[91] Self assessment platform (n.d.): Available at: http://self.entrepreneurialskillspass.eu

II.2.2) Timeline

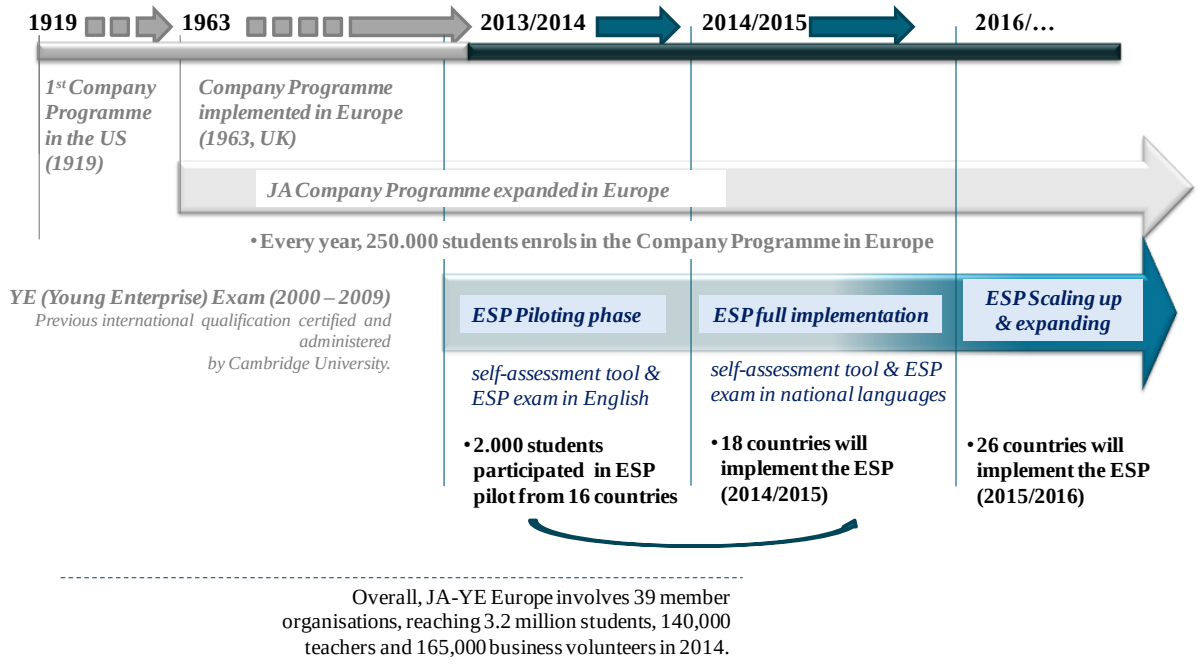

Figure 25: ESP timeline and key milestones

II.2.3) Infobox

Entrepreneurial Skills Pass - Infobox	
Implementation:	ESP Piloting phase in 2013/2014 school year, its first full implementation in 2014/2015. The ESP is built around well-established Company Programme which takes place over the course of 1 school year.
Focus Area	Learning/teaching entrepreneurship competences (well established) New assessment tools and methods (development)
Targeted education level	(Upper) Secondary education, including VET
Main target group of the initiative	Learners - Students (age 15-19 years old)
Secondary target group:	Educators: Teachers - Business Representatives Increasing importance of alumni involvement
Entrepreneurial competences	Knowledge / Skills / Attitudes Emphasized need for financial/economic literacy
Teaching methods	Learning-by-doing (mini-companies), including mentoring from business people/entrepreneurs Collaborative and competitive learning dynamics Self-assessment tools
Learning settings	Vary across countries, mainly curricular but also elective and extra-curricular. Face-to-face teacher-volunteer partnerships in-school and out-of-the-school setting. Variable use of ICT to enhance students' experience.

Assessment Methods	Participation in the Company programme, Self-assessment (pre-, mid-, post-) and Online Questionnaire based exam are the key assessment methods. Linked to the mini-company programme, peer-evaluation, external review, presentations are used. Self-assessment method addresses mainly skills and attitudes; online exam mainly knowledge and skill-based tasks.
Impact area:	Further education, employment/employability, start-up foundation
Output dimensions	- **2.000 JA-YE Company Programme students from 16 countries participated** in 2013/2014 ESP pilot - Comparable data on students' knowledge and self-assessed competences across Europe *Target Outcomes under the ESP EU funded project (2013-2016, focus on VET):* - 5.000 JA-YE Company Programme students who successfully obtain the certificate - 200 businesses which guarantee youth opportunities - 200 VET teachers trained - 200 participating VET schools
Overall impacts	A monitoring and evaluation plan is in place to assess the project as well as the quality of the outputs trough a set of both quantitative and qualitative metrics (e.g. n. of students who completed the exam; n. of students who passed the exam compared to the n. of students who took the exam; increase in the n. of students taking the exam compared to the n. of students who completed the Company Programme from project start to project end; n. of students taking the self-assessment; outcomes of the self-assessment; satisfaction of target groups, etc.). In the long run, the impact of JA Company programme will be reinforced by the ESP - by tracking what happens to a certain representative of the ESP holder over 3 years: - Improved entrepreneurship competences - Higher success in career - Higher likeliness to start own business - Positive impact on skills development
Resource dimensions	Total amount from EU (VET focus): 600.000 € Total budget: 861.885 €
Business model	EU grant (Leonardo da Vinci programme); national or regional funds; private sponsorships and partnerships; eventual fees and licensing (ESP exam).

II.2.4) Learning objectives

Learning objectives incorporated in the ESP are drawn from the experience of JA-YE Europe and the JA-YE Company programme, and they are defined alongside the programme's topics:

Table 14: JA-YE Company programme learning objectives

Topic:	Key learning objectives[92]: *The students will be able to:*
Organising JA-YE Company	- summarise the responsibilities of the jobs and describe leadership opportunities within the JA-YE Company Programme - evaluate the leadership, educational and social opportunities gained from the JA-YE Company Programme - organise a company, sell stock, produce a product, market a product or service, and maintain financial records
Developing business plan	- demonstrate leadership ability - develop a business plan - carry out the plan - establish production and sales goals for a product or service
Managing a JA-YE Company	- develop an effective sales presentation - differentiate between production and productivity & monitor quality control - describe the effect on productivity of employee attitudes and skills - evaluate the impact of technology, management, and government regulations on productivity
Liquidating a JA-YE company	- describe and compute the taxes the company will have to pay - explain how dividends are determined and paid - evaluate the impact of entrepreneurs on the local economic system

Source: based on information available at JA-YE - Core Programmes - Company programme (n.d.).

II.2.5) Competences

The following competences have been identified on the basis of publicly available sources, including the

Table 15: JA-YE Company programme - competences

JA-YE Company programme – competences:	
Knowledge / Experience about[93]	***Enterprising skills, attitudes and behaviours***[94]
Company structure and roles (**)	Creative thinking and problem solving (*)
Idea generation and business opportunity (**)	Confidence and a can-do attitude (*)
Customer/User Focus (**)	Taking initiative (*)
Marketing Strategies (**)	Teamwork and leadership (*)
Business Plan (**)	Being resourceful (*)

92 Information taken from: "Session plan" (n.d.). JA-YE Europe - Core Programmes – Company Programme. Available at: http://ja-yecoreprogrammes.org/company_programme/index.php?pageid=64&action=showlinks&id=148

93 Info based on: "Entrepreneurship Experience" (n.d.). Entrepreneurial Skills Pass. Available at: http://share.jayeapps.com/ESP/components/entrepreneurship-experience

94 Information based on: Company programme, Secondary school (n.d.). JA-YE Europe. [JA-YE Company programme brochure]. Available at http://archive.ja-ye.org/Download/company-programme.pdf

Design and Production (**)	Perseverance, negotiation and decision-making (*)
Sales strategies (**)	Ability to take responsibility and manage risks (*)
Financial literacy (**)	Ability to apply math science, language, writing, technological or specialised skills (**)
Presentation techniques and communication skills (**)	

Source: based on available public sources; (*) indicates the elements tested by the self-assessment tool while (**) indicates those elements tested by the ESP exam

II.3. Case study 3: Youth Start Initiative in Austria

II.3.1) Summary

Youth Start may be seen as a large initiative comprising several activities and projects implemented in different phases and mutually complementing each other. The **Youth Start framework of reference for entrepreneurship competence**[95] consists of statements of what learners can do and is used as a planning and design tool addressed principally to **educators and school governance in secondary and vocational education** institutions. The framework is implemented in the entrepreneurship education syllabus for VET/Professional Schools and the 'New Middle School'[96] in Austria.

The framework is not tied to a single project but embedded into a series of activities implemented by EESI-Impulszentrum (eesi)[97] and IFTE[98] which have evolved in entrepreneurship education in Austria during the past 20 years. These activities are: (a) the TRIO Model for Entrepreneurship Education; (b) the Next Generation' Entrepreneurship Challenge Programme; (c) the Certification of Entrepreneurship Schools and (d) Teacher Training.

With reference to the OvEnt study, Youth Start focuses on two key areas: (i) (new) teaching/support methods & models through the competence framework, school syllabus incorporation of entrepreneurship education, certification of entrepreneurship schools and (ii) teaching/learning entrepreneurship competence through a range of curricular and extra-curricular activities, e.g. the Next Generation Entrepreneurship Challenge Programme.

The Youth Start framework tackles a **wide range of entrepreneurship competences including knowledge, skills and attitudes**. By formulating "can-do-statements" in the categories (1) Developing Ideas, (2) Implementing Ideas and (3) Thinking Sustainably, each consisting of 2 sub-categories, the framework sets out the competences youths are expected to possess at different educational levels (represented by A1-C2). The TRIO Model can be considered an emancipatory approach which views entrepreneurship education as a means to reach autonomy and self-responsibility of youths in the process of creating a

[95] YouthStart Framework of Reference for Entrepreneurship competences. (2014, Version 15). Impulszentrum für Entrepreneurship Education (eesi) des bmbf & Initiative for Teaching Entrepreneurship (ifte), Vienna 2014. [paper poster].

[96] Neue Mittelschule. [general website]. Available at: http://www.neuemittelschule.at

[97] Impulszentrum für Entrepreneurship Education (EESI-Impulszentrum). [general website]. Available at: http://www.eesi-impulszentrum.at

[98] Initiative for Teaching Entrepreneurship (IFTE). [general website]. Available at: http://www.ifte.at

society of 'citizens'.[99] As the theoretical fundament of EESI-Impulszentrum's and IFTE's overall activities, **competences related to ecological, social and societal issues** are an integrate part of the framework. These competences are present under each category and more concentrated in 'Thinking sustainably - Acting as a visionary'. Financial literacy has also its place in the framework, under 'Thinking sustainably – Financial Sustainability', ranging from *´using pocket money´* to more advanced *'financing concept for my business model according to the motto 'brain versus capital'*[100]'. IT literacy is included as a way to work together.

On its own, the You[th] Start Framework does not address how the competences should be learned or assessed. Thus, the case study explores related activities of EESI-Impulszentrum (eesi) and IFTE showing how the framework can be applied in practice. These activities are at times put into practice, e.g. the 'Next generation' business plan competition; other activities have more of a supporting character, e.g. entrepreneurship school certification. When implementing the framework, You[th] Start initiators actively promote specific pedagogic approaches, among others**,** entrepreneurial **Challenge Based Learning (CBL) and 'Co-operative Open Learning' (COOL)**[101], the latter being a proprietary learning method. Moreover, teaching methods associated with You[th] Start are based on **hands-on learning (learning-by-doing)**, **competitive learning** - applied through business idea and business plan competitions – as well as debates, **buddy systems**, project and group work, role plays, etc. You[th] Start initiative comprises activities supported by ICT tools for students, e.g. an online business planer for 'Next Generation'[102] competition participants and the crowdfunding platform 'Starte DEIN Projekt'[103].

Although the assessment of entrepreneurship does not constitute a key cornerstone of You[th] Start, there are **several assessment forms** practiced and suggested in relation to You[th] Start activities, **summative as well as formative** ones. The main summative assessment form is through the 'Next Generation' business plan and business idea competitions where students are assessed on the basis of the application form as well as on the pitch they present at the competitions final. Formative assessment forms are **coaching, mentoring** as well as **buddy systems (peer-review).** As a special complement, EESI-Impulszentrum promotes the **EEP**, **a self-assessment software**[104] applied by educators testing students' personality traits and attitudes in relation to entrepreneurship.

The You[th] Start Initiative shows **high levels of sustainability** backed up by public resources that fund both, EESI-Impulszentrum's project related activities as well as its day-to-day operations. Further sustainable aspects of the initiative include the incorporation of entrepreneurship education within the school syllabus in VET/professional schools dating back to 1996, the incorporation of the revised You[th] Start Framework within the 'New Middle

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99 Aff, J & Fortmüller, R. (2006). Entrepreneurship-Erziehung. Published in wissenschaftplus. Available at: http://www.wissenistmanz.at/wissenplus/zeitschrift/archiv/heft-1-06-07/wp_1_06_07c.pdf

100 Faltin, G. (2013). Brain Versus Capital; Entrepreneurship for Everyone - Lean, Smart, Simple. Stiftung Entrepreneurship, Berlin, 2013. ISBN-13: 978-3000409042

101 Cool Impulszentrum: COOL [general website]. Available at: http://www.cooltrainers.at

102 The "Next Generation" Entrepreneurship Challenge Programme is an annual competition carried out in collaboration with the Bank of Austria for more than 9 years for students in secondary vocational education (BMHS)

103 Starte Dein Projekt [project website]. Available at: www.startedeinprojekt.at/projekte

104 "15. Entrepreneurship" (n.d.). Available at: http://www.abc.berufsbildendeschulen.at/upload/1276_E_15%20-%20Entrepreneurship%20und%20%DCFA%20%2810.2007%29.pdf

School', and close and fructuous co-operation with the Austrian Ministry of Education. What is more, the **certification of entrepreneurship schools** allows EESI-Impulszentrum (eesi) to drive forward the development of entrepreneurial schools and create schools of excellence. Ultimately, the large-scale **training of teachers in entrepreneurship education** allows EESI-Impulszentrum and IFTE to maintain an effective pool of experts giving feedback on new initiatives.

Given the linkages of various activities of EESI-Impulszentrum and IFTE, starting with the TRIO Model as a foundation stone, **transferability** is partially already ensured within Youth Start activities. Although being mainly implemented in secondary schools and VET institutions in Austria, the Framework is generally applicable across different education levels. Efforts to expand and transfer activities are pursued actively, e.g. by extending the framework to 8-9 year old pupils within the UStart project[105], thus transferring some of the entrepreneurial challenges included in the Youth Start framework, as well as by including an Italian school within the certification of Entrepreneurship Schools.

The initiators emphasise the **importance of connectivity to business for entrepreneurship education** activities, e.g. by organising visits from entrepreneurs, partnerships for internship programmes, etc. Further the **ad-hoc and continuous teacher training** allows EESI-Impulszentrum to spread their entrepreneurship education philosophy. What is more, entrepreneurship education should aim to encourage self-responsibility for the learning outcomes of learners. Last but not least, the **multi-dimensional approach to entrepreneurship education** practiced at EESI-Impulszentrum and IFTE, composed of several dimensions, e.g. the curricular dimension, the pedagogical dimension, to mention a few, is an important aspect ensuring a broader uptake of entrepreneurship education at school.

[105] The Youth Start Entrepreneurial Challenges (UStart) project is funded under Erasmus + key action 3, Policy Experimentation with grant number '388460-EPP-1-2014-2-PT-EPPKA3-PI-POLICY'. Since the project has only been awarded at the end of 2014, no project description is out in the public domain. All the information presented in the case study was provided by Mr. Johannes Lindner during the case study interview.

II.3.2) Timeline

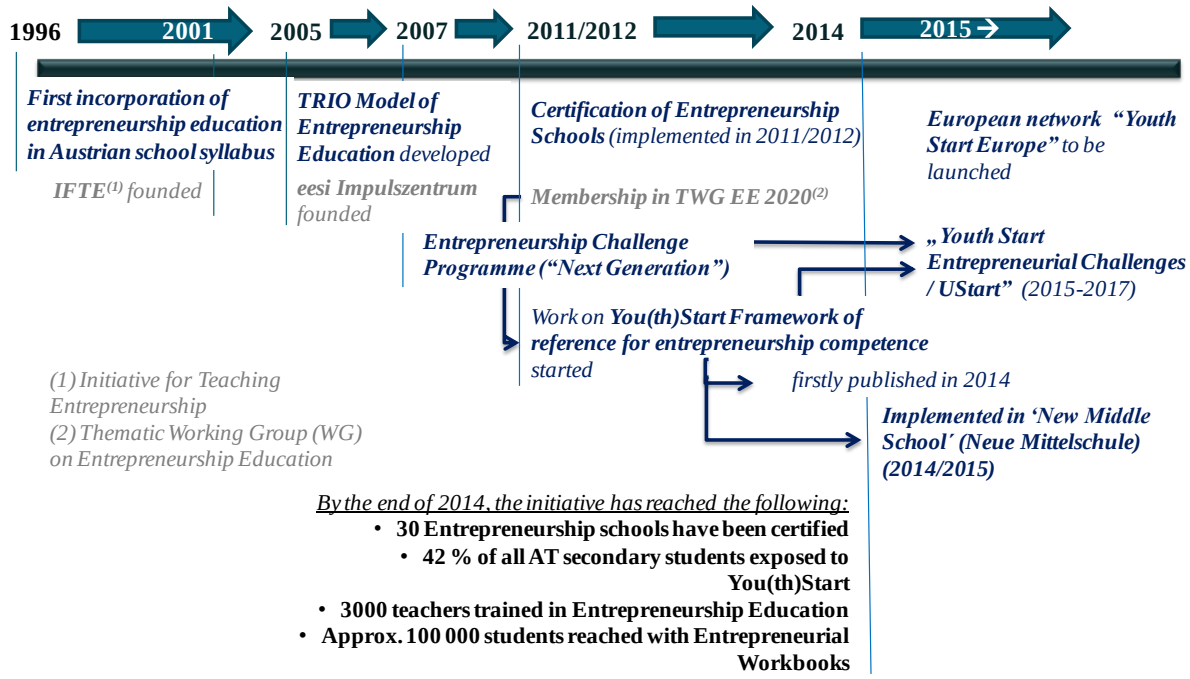

Figure 26: The YouthStart initiative – timeline and key milestones

II.3.3) Infobox

Youth Start: Infobox	
Implementation:	Based on experience with entrepreneurship education in Austria since 1996, Youth Start framework was initiated in 2011 and its first version was published in 2014. In 2014/2015, the Framework has been implemented in new type of secondary schools in Austria. From 2015, Youth Start Europe Initiative will be launched and new "Youth Start Challenge programme" is to be implemented.
Focus Area	(new) entrepreneurship competences framework; (new) teaching/support methods & models, teaching/learning entrepreneurship competence
Targeted education level	(lower and upper) secondary education level (particularly vocational)
Main target group of the initiative	Educators: Teachers; others: school management, school governance & authorities (those developing syllabus)
Secondary target group:	Primary beneficiaries are students between 11-14 and 15-19 years old
Entrepreneurial competences	Knowledge / Skills / Attitudes – A1-C2 levels; a comprehensive framework of statements within 6 levels (A1-C2) and under three categories – developing ideas, implementing ideas and thinking sustainably. Attitude, Identify Opportunities, Organising, Working Together, Acting as a Visionary and Financial Literacy are emphasized in form of sub-groups of statements. Aspects related to the corporate social responsibility are integrated under the 'thinking sustainably' category ('Acting as a visionary' sub-category)
Teaching methods	Entrepreneurial challenge based learning characterized by Collaborative learning, Challenge Based Learning, hands-on learning (Learning-by-doing), complemented by Competitive learning
Learning settings	Formal, institutional, face-to-face mainly with some ICT components; curricular and extra-curricular activities; in the classroom and outside.
Impact area:	Quality of entrepreneurship education, personal development / youth empowerment; (considering) entrepreneurship as a career option
Output dimensions	- 3.000 teachers trained in Entrepreneurship Education - Approximately 100.000 students reached with Entrepreneurial Workbooks - Implementation of entrepreneurship education syllabus at VET/Professional Schools (accounting for around 42 % of all Austrian secondary students) and the 'New Middle School' - 30 certified Entrepreneurship Schools, with Entrepreneurship as School programme

Overall impacts	- Increased use of entrepreneurial teaching methods - Increased interest in entrepreneurial teaching from the side of teachers, school management, regions… - Increased entrepreneurship competences of students - Youth learn how to participate in society – sustainable; emancipation
Resource dimensions	- Employment: 5 employed people at EESI-Impulszentrum; 1 contact point in every Federal State in Austria
Business model	- Funded mainly from public sources - Public-private partnerships for new programmes and competitions - Award as social entrepreneur from Ashoka

II.3.4) Learning objectives

Learning objectives are formulated in the framework of reference of entrepreneurship competences in the form of 'can-do-statements' illustrated below. The learning objectives combine knowledge, skills and attitudes strongly incorporating competences related to ethical and ecological issues.

Table 16: You[th] Start's learning objectives (in the form of can-do-statements)

Topic		Level	Key learning objectives: *The students will be able to:*
DEVELOPING IDEAS	**Attitude**	A1	➢ I can identify areas which I'm good at ➢ I think about what I will do in the future ➢ I am able to fulfil simple tasks
		A2	➢ I can undertake simple tasks and focus on completing them successfully ➢ I can explain supply and demand, e.g. how it can determine the market price of a product ➢ I can reflect in my education and job prospects in the future
		B1	➢ I can identify my strengths and weaknesses ➢ I can set goals to improve my skills where needed ➢ I am comfortable in taking responsibility for a task ➢ I can face potential competition in the implementation of tasks ➢ I can describe my own professional goals ➢ I know that people have different career options
		B2	➢ I can identify my own strengths and weaknesses ➢ I pursue my goals persistently ➢ In the process I am willing to take responsibility and work to overcome potential difficulties
		C1	➢ I am motivated to further develop my abilities ➢ I can set myself long-term targets to achieve my goals ➢ I can take over a task and complete it successfully ➢ I am ready to take over a task and complete it successfully, also in competitive situations
		C2	➢ I can justify and evaluate my own goals and values ➢ I respect others and am actively committed to dealing with societal issues ➢ I can take over a task and complete it successfully, also in competitive situations
	Identify opportunities	A1	➢ I can develop my creative ideas and recognise their value
		A2	➢ I can develop creative ideas which solve problems and recognise opportunities in the market and in society ➢ I can develop a collection of ideas and I can record them e.g. in an Innovation Savings book (a notebook to support young entrepreneurs) ➢ I can present my own ideas ➢ I can identify risks in everyday life and reflect on how to avoid them
		B1	➢ I can develop ideas and provide justifications why they should be implemented ➢ I can identify and seize opportunities ➢ I am aware of risks and take over responsibility for my own actions ➢ I can present a draft concept and understand the purpose of a business plan
		B2	➢ I can develop ideas into business proposals, and evaluate their innovative approaches and their market potential ➢ I can evaluate business risks using case studies and make appropriate decisions ➢ In a discussion with others I can find arguments for my ideas in a structured way
		C1	➢ I can read, interpret and evaluate business plans ➢ I can design mu own business plan within/for a social enterprise business model ➢ I can interpret the entrepreneurial risks of my own business mode and can take decisions based on controlled risk management
		C2	➢ I can create a business plan for a business model including a SWOT analysis ➢ I deal with risks in a controlled way when implementing a business model ➢ I can analyse the concept of an organisation or a business, and can make suggestions for further development

II.3.5) Competences

The competences listed in the table below have been drawn up on the basis of the can-do-statements included in the framework depicted above.

Table 17: Framework for Entrepreneurship Competences Youth Start - competences

Competences:		
Knowledge	**Skills**	**Attitudes**
supply and demand (DI, A)	creativity (DI, A), creative problem-solving (DI, IO) (II, O	self-confident (DI, A), sustainable thinking (TS, V)
financial	able to recognise and seize opportunities (DI, IO)	goal oriented and ambitious (DI, A)
risks in everyday life (DI, IO)	presentation skills (DI, IO)	stand up for others and societal issues (DI, A)
business plan (DI, IO)	able to identify and develop ideas (DI,IO)	motivated (DI, A)
market (DI, IO)	decision-making (DI,IO)	competitive (being able to face a competition) (DI, A)
social enterprise business model (DI,IO)	teamwork (DI,IO) (II, WT)	responsible (for tasks) (DI, A)
SWOT analysis	able to identify, evaluate and manage risks (DI, IO)	value recognition (DI, IO)
business/organisation analysis (DI, IO)	planning and resource management (II, O)	risk awareness (DI, IO)
decision making processes (II, O)	independent work (II, O)	persuasive (DI, IO)
marketing and financial plan (II, O)	team leading, team management (II, O)	initiative (DI,WT)
economic, ecological and social issues (TS,V)	persuasion skills (II, WT)	ethical behaviour and thinking (TS,V)
fair trade (TS, V)	negotiation skills (II, WT)	
ecologically and socially sensitive business models (TS, V)	ability to plan step by step project management approach (II, O)	future-oriented ecologically and socially sensitive behaviour (TS,V)
literacy (investments, financing sources,…)	project management (II, O)	
price and value of a product (DI, A) (TS, F)	communication skills (II, WT)	
career options (DI, A)	networking (II, WT)	
	cooperation (II, WT)	
	strategic thinking skills (II, WT)	
	use modern technologies (II, WT)	

II.4. Case study 4: SEECEL Instrument for Entrepreneurial Learning - Key Competence Approach - ISCED level 1

II.4.1) Summary

The **Instrument for Entrepreneurial Learning - Key Competence Approach in ISCED level 1**[106] is publically funded initiative developed and managed by South East European Centre for Entrepreneurial Learning (SEECEL)[107], a regional think tank institution focused on human capital development. As expressed in its Strategic Plan 2013-2016, SEECEL believes that entrepreneurial learning should be approached from lifelong perspective starting from pre-primary till tertiary and further to adult education. Despite the consensus on the importance of embedding entrepreneurship in education systems, there had not been a systemic effort in SEECEL member states. Programmes at ISCED 1 level targets fundamental and transversal competences for social and personal development, in preparation for further education.

The SEECEL Instrument includes **a framework of learning outcomes** defined in terms of knowledge, skills and attitudes, and corresponding **teaching and assessment methods**. **In-service teacher training** forms an essential part of the instrument providing with concrete 'Teachers Trainings Modalities' while initial teacher training is interestingly addressed by another instrument developed for ISCED level 5&6[108]. The initiation of the instrument in ISCED level 1 followed successful experience with ISCED level 2. The Instrument in primary education has been piloted in 2013/2014 followed by first year of its initial implementation in 32 participating schools[109] in eight SEET countries (South East European Countries and Turkey)[110].

The primary target groups **are teachers and schools (school management)** in primary education level, alongside with **teacher training authorities and national governmental bodies.** These players are actively involved in the instrument development and implementation. The final beneficiaries are pupils from 5/7 to 11 years old. The instrument also involves universities and other teacher training institutions, business associations or women entrepreneurship ambassadors, as well as parents.

While learning outcomes are well defined having been the priority of the framework at the initial phase, the assessment methods are yet the least developed. Further enhancement of the framework in terms of assessment methods and teaching methods is yet to become a priority when certain critical mass of entrepreneurial schools having implemented the existing instrument is reached. Being said that, the SEECEL Instrument addresses large variety of entrepreneurship competences covering all components - **knowledge, skills and attitudes - comprehensively**. In total, the Instrument consists of 34 learning outcomes, out of which 14 are defined under 'knowledge', 14 under 'skills' and 6 under 'attitude' component.

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106 ISCED 1 – SEECEL - South East European Centre for Entrepreneurial Learning (n.d.). Available at: http://www.seecel.hr/isced-1

107 South East European Centre for Entrepreneurial Learning (SEECEL). [general website]. Available at: www.seecel.hr

108 ISCED 5/6 – SEECEL - South East European Centre for Entrepreneurial Learning (n.d.). Available at: http://www.seecel.hr/isced-5-6-5058

109 In most of the SEE countries (except Turkey), the same school establishments participate in both, ISCED level 1 and ISCED level 2.

110 Albania, Bosnia and Herzegovina, Croatia, Kosovo, The Former Yugoslav Republic of Macedonia, Montenegro, Serbia, Turkey

Interesting agreement was reached by the network of SEECEL experts, that the key *financial and economic concepts* are an integral part of the overall entrepreneurial literacy. It is also noted[111] that financial and economic literacy is deficient in the primary school curricula in the SEE region. Furthermore, such items as *understanding of scarcity and necessity* are also considered to be important from early education level.

As a comprehensive instrument suggesting how the entrepreneurial learning should be implemented, it incorporates a wide range of teaching methods. The main approaches are a **student centred (competence based) and a life-story approach,** including active, collaborative and induced learning. Taking this into consideration, the teacher is placed to the role of facilitator rather than the one of instructor, facilitating the learning of individuals rather than the entire class. The instrument emphasizes **learning activities outside schools, case studies and practical entrepreneurial experience** making necessary connection with the real word. These are the short term priorities which allow immediate action. A **"peer mentoring"**, a learning where peers are older and more experienced but still students (e.g. ISCED level 2 students), is an interesting and useful model emerging in the schools. SEECEL instruments are not focused on technology based learning mainly due to the stage in which schools are not yet ready; however, visuals, digital tools and multimedia are represented among the teaching methods.

Overall, the focus is not on business related activities (applicable on ISCED level 1 – ISCED level 3) but rather on **thinking entrepreneurial, being generator of new ideas, being innovative and thinking out-of-the-box**.

By prioritizing at the development stage, proposed assessment methods are oriented to towards 'attitude' component. Main differences are observed in the way how to assess 'knowledge' versus 'skills' / 'attitudes'. While short **text report** is suggested for assessing knowledge, **self/peer reflection,** and **field-work** is seen in the skills/attitudes category, and **event** is used to enhance attitudes only.

The main impact area may be seen in the **quality of entrepreneurial education**. At more individual level and indirectly, the SEECEL targets **developing entrepreneurial behaviour in any situation** and **change of mindset of the individual and the society.** Thus, the Instrument's potential impacts go beyond creation of more start-ups. It is yet too early to see the concrete impacts of the ISCED Level 1 instrument. However, **an increasing interest of teachers, schools and regions** in entrepreneurial learning has been observed.

The ISCED level 1 Instrument draws upon experience and successful implementation of the instrument in secondary level and by design, is implemented in eight south east European countries. Thus, the initiative has shown **high levels of sustainability** as well as **high potential of the initiative to be transferred** to other regions, across educational levels and sectors.

SEECEL and its activities are mainly funded from public sources. Besides solid financial model, the key sustainable aspects of the ISCED level 1 Instrument lays in the SEECEL **systemic approach to all its activities and involvement of players with relevant expertise and decision making power.** Interestingly, the SEECEL is steered by relevant

[111] South East European Centre for Entrepreneurial Learning - SEECEL (2014a). Entrepreneurial Learning –A Key Competence Approach ISCED Level 1. Available at: http://www.seecel.hr/UserDocsImages/Documents/ISCED1-Entrepreneurial_Learning_A_Key_Competence_Approach.pdf

ministries of its member states and works closely with national teacher training authorities and teacher training institutions while exploiting synergies with parallel activities in different education levels. The SEECEL takes multi-disciplinary and cross curricular approach and thus, the framework is applicable to all subjects. Teacher training modalities (in-service training) being an integral part of the framework ensures its effective delivery. Moreover, building on European reference frameworks and tools supports the sustainability and transferability of the SEECEL Instruments.

The central coordination, continuous support to practice sharing and discussions represent the additional success factor of the initiative. Among other positives, this overcomes drawbacks of the instrument implementation and uptake related to the existing country differences.

II.4.2) Infobox

SEECEL Instrument: Infobox	
Implementation	Piloting phase ISCED level 1: 2013-2014 First year of implementation in ISCED level 1: 2014/2015
Focus Area	Through (new) Entrepreneurship Competences Framework, SEECEL addresses learning/teaching entrepreneurship competences; propose teaching methods and assessment methods.
Targeted education level	The case study report focuses on the primary (ISCED level 1) *Note: SEECEL Instruments address also other education levels (including secondary and tertiary)*
Main target group of the initiative	Educators: Teachers Others: School managers / schools; responsible for policy development and implementation; teacher training institutions, business associations
Secondary target group:	Final beneficiaries are learners: pupils between 5/7 and 11 years old[112]
Entrepreneurial competences	Knowledge / Skills / Attitudes emphasizing: financial and economic literacy, scarcity and necessity
Teaching methods	Student-centred / competence learning, learning-by-doing, collaborative learning are the main pedagogical approaches; Immediate priority is given to: case studies, study visits and peer mentoring.
Learning settings	face-to-face, in school premises and outside; institutional
Assessment Methods:	Wide range of assessment methods suggested per each component (knowledge-skills-attitudes)
Impact area:	Quality of entrepreneurial education; change towards entrepreneurial mindset of individual and society with the ultimate goal to increase region growth and competitiveness. (indirectly) personal development, considering entrepreneurship as a career option, further education, employment/employability

[112] See 'Table 1: Grades and age in ISCED 1 level in SEECEL Member States', SEECEL (2014a), page 14.

Output dimensions	- 32 entrepreneurial schools[113] participating directly in the initial implementation in 8 countries - Entrepreneurial learning outcomes with appropriate teaching and assessment methods embedded in the schools curricular in all subjects; e.g. in 8 different subjects in Croatia, in 6 subjects in Turkey (languages, social science, etc.) - Since 2013, around 2.560 students exposed by SEECEL Instrument in ISCED level 1 - Around 160 entrepreneurial mentor teachers (for the instrument expansion) - International (regional) network of entrepreneurial school established - Working Groups for development of the Entrepreneurial learning package, developed IT tools (On line Community of Practice, Taskbox, Teacher Knowledge Base) for constant online communication
Overall impacts	- Increased interest in entrepreneurial learning as a key competence by governments, schools and teachers *expected:* - Increased quality of entrepreneurship learning in South East European countries - Increased number and quality of entrepreneurial schools and teachers - All schools in SEET countries implemented the SEECEL Instrument in the future - Developed entrepreneurial behaviour for any situation and change of mindset
Resource dimensions	- participating schools in the pilot (in 2013/2014) - around 160 participating teachers in the pilot (in 2013/2014) - 3.000.000 Euros SEECEL budget for 2013-2016 (including other Instruments and initiatives)
Business model	SEECEL's activities are mainly funded from public national and European sources - SEECEL Member states, Croatian government, Swedish government, and European institutions. For SEECEL activities, including ISCED 1, but also ISCED 2, ISCED 5&6, in-service teacher training and training needs assessment tool, and Small Business Act assessment: - 3.000.000 Euros for the period 2013-2016, 85 % from IPA Multi – beneficiary Programme and 15 % by Croatia

[113] Since schools corresponding to ISCED level 1 and level 2 are based in the same establishment in vast majority of countries (except Turkey), it can be said that the same schools participated in previous phase relating to ISCED level 2 Entrepreneurial learning package The teachers participating in ISCED level 2 instrument become mentors to ISCED level 1. Overall, the participating schools become mentor schools for future expansion and full implementation.

II.4.3) Timeline

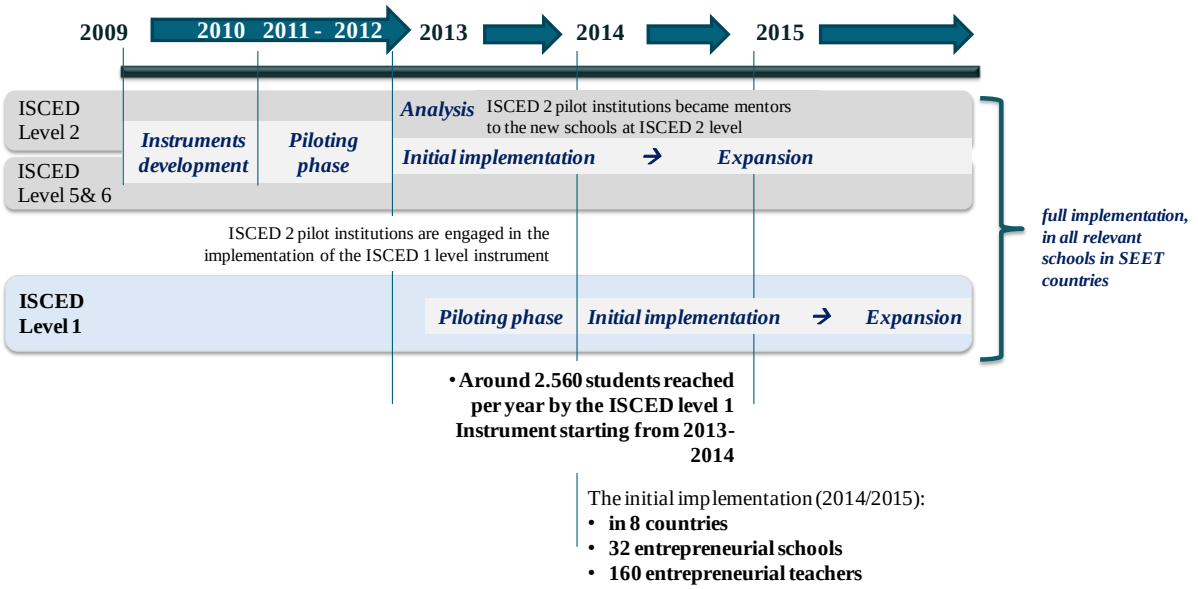

Figure 27: SEECEL Instrument ISCED level 1 – timeline and key milestones

II.4.4) Learning objectives

Rather than learning objectives, learning outcomes together with teaching methods and assessment methods are proposed by the SEECEL Instrument[114]. The figure below provides with the comprehensive Framework.

Table 18: Learning Outcomes at ISCED Level 1 (including teaching and assessment methods)

KNOWLEDGE		
LEARNING OUTCOMES	**TEACHING AND LEARNING METHODS**	**ASSESSMENT METHODS**
K1 Describe an entrepreneur K2 Recognize scarcity in the immediate surroundings K3 Examine difference between product and service K4 Describe income and expenses (expenditure) K5 Describe bills and receipts K6 List the benefits and costs of your goal K7 Describe different jobs/occupations K8 List examples of opportunities K9 List examples of entrepreneurial ideas K10 Identify environmental risks K11 Relate environment pollution with human activities K12 List examples of public goods K13 Give examples of people acting as consumers and producers K14 Explain how people's choices determine what will be produced	• Case studies • Discussion • Group work • Guest speakers • Idea generation • Lectures • Life-story approach • Peer group presentation • Projects • Role-playing/simulation • Field visits • Visuals, digital tools and multimedia • Practical entrepreneurial experience	• Short text report • Presentation • Project / group work

[114] SEECEL (2014a).

SKILLS

LEARNING OUTCOMES	TEACHING AND LEARNING METHODS	ASSESSMENT METHODS
S1 Demonstrate the ability to work individually and in teams S2 Demonstrate the ability to communicate ideas to others S3 Demonstrate the ability to create objects S4 Demonstrate the ability to lead a group S5 Demonstrate the ability to collect ideas from others S6 Demonstrate the ability to take decision and explain it S7 Demonstrate the ability to recognize and list risks S8 Identify consequences of their activities S9 Demonstrate the ability to solve problems together with others S10 Demonstrate the ability to evaluate results from a group work S11 Demonstrate the ability to plan an activity S12 Present personal assets and abilities S13 Recognize job opportunities S14 Calculate your monthly pocket money	• Case studies • Discussion • Group work • Guest speakers • Idea generation • Lectures • Life-story approach • Peer group presentation • Projects • Role-playing/simulation • Field visits • Visuals, digital tools and multimedia • Practical entrepreneurial experience	• Practical assessment • Field work • Presentation • Project work • Self /peer reflection

ATTITUDES

LEARNING OUTCOMES	TEACHING AND LEARNING METHODS	ASSESSMENT METHODS
A1 Take responsibility to complete tasks and to meet deadlines A2 Take the initiative to meet others and get involved in groups A3 Demonstrate the ability to work independently A4 Demonstrate the ability to respect others A5 Demonstrate the ability to help and support others A6 Demonstrate responsibility for public goods	• Case studies • Discussion • Group work • Guest speakers • Idea generation • Lectures • Life-story approach • Peer group presentation • Projects • Role-playing/simulation • Field visits • Visuals, digital tools and multimedia • Practical entrepreneurial experience	• Practical assessment • Field work • Presentation and discussion • Project / Group work/ • Should include event (fair exhibition) • Self /peer reflection

Source: SEECEL (2014a), p. 21-23

II.4.5) Competences

The following table presents the Entrepreneurship Competences incorporated in the framework of learning outcomes:

Table 19: SEECEL Framework in ISCED level 1- competences

Competences:		
Knowledge	**Skills**	**Attitudes**
an **entrepreneur (**K1)	**ability to work individually and in teams** (S1)	Take **responsibility** to **complete tasks** and to **meet deadline (**A1)
scarcity in the immediate surroundings (K2)	ability to **communicate ideas to others** (S2)	Take the **initiative** to meet others and **get involved in groups** (A2)
product and service (K3)	ability to **create objects (**S3)	ability to **work independently (**A3)
income and expenses (expenditure) (K4)	ability to lead a group (S4)	ability to **respect others (**A4)
bills and receipts (K5)	ability to **collect ideas from others** (S5)	ability to help and **support others** (A5)
benefits and costs of your goal (K6)	ability to **take decision** and explain it (S6)	**responsibility for public goods** (A6)
jobs/occupations (K7)	ability to **recognize and list risks** (S7)	
Opportunities (K8)	Identify **consequences** of their activities (S8)	
entrepreneurial ideas (K9)	ability to **solve problems together with others (**S9)	
environmental risks (K10)	ability to **evaluate** results from a group work (S10)	
environment pollution & human activities (K11)	ability to **plan an activity (**S11)	
public goods (K12)	**Present** personal assets and abilities (S12)	
Consumers and producers (K13)	Recognize job **opportunities** (S13)	
how **people's choices** determine what will be **produced** (K14)	**Calculate** your monthly pocket money (S14)	

Source: based on SEECEL (2014a), page 22-25

II.5. Case study 5: The NextLevel Programme

II.5.1) Summary

The NextLevel programme is a Danish programme run by **the Foundation for Entrepreneurship – Young Enterprise (FFE-YE),** a private commercial foundation primarily supported by four-ministerial partnership in Denmark. Rather than prescribing a fixed programme, NextLevel is **a broader framework for secondary schools project development,** aiming at a common goal. The main idea is to provide lower secondary education students[115] and teachers with the opportunity to apply curricular based knowledge in **an "outside-school" environment creating a link between school and the professional world.**

The Nextlevel programme was set up in 2011 being implemented for almost 4 years now. The programme is currently subject to a profound review of the programme and will be re-launched from the upcoming school year (a more elaborated and complete model will be published in June 2015). The review is implemented in line with a reform in Danish secondary education which will anchor entrepreneurship more firmly within the Danish education system.

NextLevel's main component is the '**project course'** in which students develop a project idea, plan its implementation and take their idea to the "next level" by attempting to implement part of the idea, for example by reaching out to potential clients in business or engaging with community organisations. In general, the NextLevel programme provides four different categories (Movement, Knowledge and the world, Welfare and Society, Language and culture) for student project development. Next to the project module students have the opportunity to participate in **national competitions** yet participation is not a mandatory part of the NextLevel programme.

With reference to the OvEnt study, the NextLevel focuses on one key area: learning/teaching through real project based work. The programme focuses on the learning of entrepreneurial competences, rather on **skills and attitudes** than on business/entrepreneurship knowledge. The main competences targeted by the initiative are creativity, entrepreneurial attitude, e.g. self-confidence, accept failure and handle ambiguity and contextual understanding (e.g. market and economic understanding). As a project oriented programme to gain experience in a **non-school environment,** the primary teaching methods are learning-by-doing, collaborative learning supported by competitive learning, and the programme is based on effectuation perspective. The programme combines institutional learning in the classroom with non-formal or informal learning elements, chosen in accordance to the teachers' preferences. Learning happens face-to-face, in the initial in-class activities as well as the outside of class activities. ICT is a supporting tool with teaching/learning material available on NextLevel's online portal including links to further learning process guides available on other websites. The NextLevel programme is currently an extra-curricular activity but within the upcoming school reform, it can be used as a curricular component in Danish lower secondary school.

[115] The Danish education system typically comprises primary education (grades 1-6), lower secondary education (grades 7-9/10 and upper secondary education (grades 11-12) in case of the general education qualifying for university. Source: Danish Ministry of Education [general website]. Available at http://eng.uvm.dk/Education/Primary-and-Lower-Secondary-Education

The primary target group are lower secondary students with a very active role of teachers. Co-operation with business is not a focus of the programme; however business has been involved marginally as partner in the competitions and in the framework of the students' project courses.

Supported by the 'Partnership for innovation and entrepreneurship in education'[116], **NextLevel is fully sustained by public financial resources**. In the near future an **English version of Nextlevel will be set up** and discussions on how to replicate NextLevel in other European countries are ongoing with FEE-YE's core European project partners.

The FEE-YE is currently evaluating the NextLevel programme but it is too early to reveal any conclusions and decisions made on the basis of that evaluation. Feedback from former participants (students) and teachers indicate that that students show increased levels of **willingness to engage in further entrepreneurial activity.** Observations also suggest that NextLevel participants are reassured of their social and leadership skills and are more likely to act as leaders in further school projects.

On the other hand, the FEE-YE carries out **annual studies on the impact of entrepreneurship education in Denmark**, which contributes to FFE-YE initiatives' design, e.g. a study in 2012 found that more recent perspectives in entrepreneurship education, e.g. Sarasvathy's effectuation perspective seem – in comparison with the traditional perspectives - to have the most positive effect on students.[117].

II.5.2) Timeline

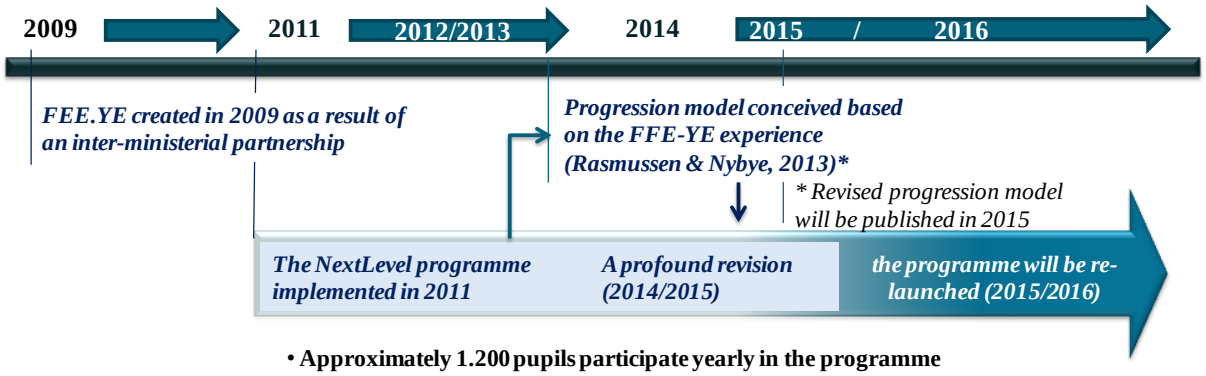

Figure 28: The NextLevel programme – timeline and key milestones

[116] Four-ministerial partnership founded FFE-YE and supports all its activities. As stated on the websiste, the government has appointed a Partnership for innovation and entrepreneurship in educations to strengthen and coordinate the efforts to incorporate innovation and entrepreneurship in the educations. The appointment of the Partnership is a follow-up on the educational initiatives in the government's national innovation strategy 'Denmark – a nation of solutions'. – see more on http://eng.ffe-ye.dk/the-foundation/the-organisation/about-the-organisation

[117] FEE-YE (2012). Impact of Entrepreneurship Education in Denmark in Denmark. Executive summary. Retrieved January 5 2014, from: http://eng.ffe-ye.dk/media/45278/Executive-Summary-Impact-of-EE-in-Denmark-2012.pdf

II.5.3) Infobox

NextLevel: Infobox	
Implementation:	NextLevel has been set up in 2011, a revision has been carried out in 2014/2015 and the revised programme will be launched in the upcoming school year (2015/2016) The NextLevel projects lasts usually for a period of 7 months (October to April)
Focus Area	Learning entrepreneurship competences
Targeted education level	Lower secondary education (grades 8-10)
Main target group of the initiative	Learners: Lower secondary education students (typically 13-17 year olds)
Secondary target group:	Teachers in secondary education
Entrepreneurial competences	Skills / Attitudes are in the main focus
Teaching methods	Learning-by-doing, Collaborative learning, Competitive learning, *Effectuation perspective*
Learning settings	Face-to-face in the classroom and outside of the classroom
Assessment methods:	Project work, Peer-evaluation, Self-evaluation; Competition application for those participating in a competition.
Impact area:	Personal development – through enhanced skill development; Employment/Employability, and in a long term, foundation of start-ups or (considering) entrepreneur as a career option.
Output dimensions	- Approximately 1.200 students take part in NextLevel per year - 72 projects where submitted to the competition in 2014 (note: pupils only submit their project if their teacher ask them to do so)
Overall impacts	More profound evaluation of NextLevel programme is currently being carried out (20104/2015). Based on feedback and observations indicates so far that NextLevel participants: - are more willing to engage in further entrepreneurial activity - are reassured of their social and leadership skills and are more likely to act as leaders in further school projects
Resource dimensions	- NextLevel Budget: Approx. Dkr. 150,000. (≈ € 20,000) - Teachers' effort between 30-60 hours (estimation; no official records)
Business model	The business model is based on public funding mainly.

II.5.4) Learning objectives

Learning objectives are not defined separately for NextLevel programme. Being a cross curricular programme, the learning objectives largely depends on which category and subject the teacher choose as base for the programme. In this respect, the learning objectives are closely aligned with those of selected specific subjects.

For instance, e.g. a teacher in the subject 'Danish', used the following learning objective: *"The pupil must be able to give an oral and a written presentation of a known subject"*, whereas in the subject 'social science' the learning objective includes, e.g.: *"The pupils must show that they have knowledge about political, cultural, social and economical issues"*. Other relevant subjects may be 'English', 'Physics and Chemistry', 'Maths'. Comprehensive list of learning objectives per subject can be found on EMU.dk portal[118].

The NextLevel Programme leans on the Progression Model; however, the learning objectives cannot be translated from the model on to NextLevel on a 1:1 basis. However, it should be noted that NextLevel is currently undergoing a profound revision where it will be closer aligned to the Progression Model. The learning objectives of the Progression Model are presented on Table 20.

Table 20: Key learning objectives according to the "Progression model"

Topic:	Key learning objectives: *The students will be able to:*
Action	- initiate long-term activities on their own, and on the basis of mature reflection they can create economic, social or cultural value (Initiation) - use their professional competence in value-creating initiatives, either through their own businesses, existing organisations or as a project team (Value-creation) - vary their written, verbal and digital communication in a strategic manner depending on the target group and situation (Communication) - cooperate in different social contexts and reflect on these. Students can build and be part of a team. They can professionally use and extend networks (Cooperation)
Creativity	- see opportunities and can moreover create ideas and opportunities that can be transformed into economic, social or cultural value (Ideas and opportunities) - combine and transform their professional knowledge in new ways. They can both act in a structured and analytical way and break with conventional knowledge and structured procedures (Applied knowledge) - find alternative ways and solutions, when they meet with obstacles, and do it with limited resources (Solutions)
Environment	- analyse and reflect on cultural conditions that mean some-thing to individuals, groups and decisions. They are able to challenge established assumptions on the basis of their extensive knowledge about different cultures and culture patterns (Culture) - use their professionalism in various private industries and public areas through entrepreneurship, locally, nationally and globally (Contexts) - evaluate and use different strategies for entering a private market or a public area. Students understand economy and market as an integrated part of society (Market) - analyse economic problems, seek financing and participate in strategic meetings with investors and other stake-holders (Economy)
Attitude	- can handle complex situations and create visions that can be transformed to value-creating scenarios in the real world (Belief in own abilities) - act in situations characterised by ambiguity and handle risk. They can reflect

[118] Please see learning objectives for various subjects with the grade 8 and 9 being relevant to the NextLevel target group, at: http://www.emu.dk/omraade/gsk-lærer

Topic:	Key learning objectives: *The students will be able to:*
	on risks and on activities in relation with these (Handle ambiguity) - to acknowledge and learn from their own failures and reflect on others' failures and successes (Accept failure) - take a position on ethical problems at a high level of abstraction and reflection in relation to their professional knowledge, as well as consider transformative actions in relation to culture, democracy and sustainability in a globalised world (Ethical values)

II.5.5) Competences

The following competences have been identified by FEE-YE on the basis of own reflections and the Progression Model:

Table 21: Entrepreneurship Competences in NextLevel project course component

Competences per entrepreneurial dimension: *NextLevel – project course component*		
Knowledge	**Skills**	**Attitudes**
Cultural understanding (Environment)	Value creation (Action)	Initiative (Action)
Contextual understanding (Environment)	Communication (Action)	Belief in own abilities (Attitude)
Market understanding (Environment)	Cooperation/team work (Action)	Handle ambiguity (Attitude)
Economic understanding (Environment)	Idea creation and transformation (creativity)	Accept failure (Attitude)
Understanding of entrepreneurship	Analytical thinking (creativity)	Ethical values (Attitude): Understanding your social impact
Product/service design	Alternative solutions (creativity)	Social leadership
	Planning and organisation of idea	Risk taking
	Project management	Entrepreneurial self-efficacy

Source: based on discussions with FEE-YE and the Progression Model.

II.6. Case study 6: Junior Entrepreneur Programme (JEP)

II.6.1) Summary

The **Junior Entrepreneur Programme** (JEP)[119] is a privately funded, not-for-profit Irish initiative organised on a county by county basis (county partner model). Interestingly, the JEP has been initiated by experienced entrepreneurs. It is centrally coordinated but implemented in collaboration with JEP County Partners (local entrepreneurs), who sponsor and deliver the programme to schools in the allocated counties. Academic partner, Curriculum Development Unit (CDU) of Mary Immaculate College in Limerick advises on the curriculum and teacher training. The JEP is an entrepreneurial awareness and skills enhancement programme for primary school pupils, implemented as a 10/12 week mini-company programme. The programme has been running in Ireland since 2010 **allowing the children to connect to the wider world and learn by doing.** Since then, the programme has expanded to 23 Irish counties and is currently being piloted in the UK.

The programme focuses on pupils in the 8-12 years age group. The aim is to teach the pupils the skills of setting up and running a business. This is done through: 1) helping children recognise entrepreneurship and enterprise; 2) raising awareness and understanding of the role of the entrepreneur in society; and 3) improving skills concerning initiative, creativity and independence. Interestingly, entrepreneurs are at the core of JEP's conception, management and implementation. Teachers play a crucial role in the JEP delivery at schools, being closely connected with children and their family environment.

The JEP addresses a variety of entrepreneurship competences covering all components: **knowledge, skills and attitudes** with skills and attitudes being central to the learning experience. Among skills, **teamwork and communication with others** are emphasized as a way to learn how to recognize one's skills and the skills of other pupils, and are mentioned in several occasions across the curriculum. **Self-awareness and self-esteem** are also in the focus alongside **creativity and innovation**. **Financial literacy** and **IT literacy** (using multimedia and software) are clearly incorporated in the learning objectives.

Accordingly, the key pedagogical approach is experiential learning; learning-by-doing and collaborative learning complemented by students' self-reflection. The teacher becomes a facilitator and self-directed learning is at the core of the programme.

The JEP is delivered through a well-defined and tested curriculum of 10/12 weeks, in line with the principles of the Primary School Curriculum. Face-to-face interaction is a crucial aspect of the programme. While the programme is mainly based at school premises, several activities may happen outside, in the local school environment (e.g. market research, production).

The assessment strategy is focused on the engagement, process and achievement; in other words, the completion of all activities anchored in the curriculum. Such portfolio of students completed activities takes form of 'JEP package', a folder submitted at the end of the programme. Among other documentation, the JEP package includes pre- and post- self-assessment of children enterprising skills. Other assessment components involve external entrepreneurs or other students, parents and teachers during two main events. The 'Dragon

[119] Junior Entrepreneur [general website]. Available at: http://www.juniorentrepreneur.ie

Panel' provides feedback at the initial stage and validates the 'Big Idea' on which students work during the programme, while the 'Showcase Day' validate the work at the end of the JEP. Additionally, students interact with their peers in the classroom, discuss and jointly decide about the course of actions for the realization of their 'big idea' (peer review).

The key impact areas of the JEP are: children's **personal development** - skills enhancement, self-awareness and recognition of others -, **further education** - interest enhancement and self-directed learning -, as well as **considering entrepreneurship as a career option**, in terms of '*I want to become an entrepreneur*'. The latter may have indirect positive impacts on start-up foundation. Importantly, the JEP is preparing children for secondary education level where they choose subjects and direct their future.

It is too early yet to see the long term impacts. The future evaluation strategy is currently being treated with thoughtfulness. Legal and ethical constraints related to any follow-up communication with such young children beyond school establishment needs serious consideration before the evaluation strategy is put in place. Overall, JEP received positive feedback from both, students and teachers. Alongside improved communication skills, students seem to show more self-awareness and independence (self-direction); what is more, they seem to recognize better strengths and weaknesses of others. Teachers are positive about the value JEP brings to children and schools. Using business-like indicators, interestingly, the small business creation under JEP in schools in Ireland generated approximately ½ million of Euros turnover.

The JEP model shows **high levels of sustainability** as well as **high potential of the initiative to be transferred** to other regions and across educational levels. The initiative draws upon experience from a similar programme targeting a different age group as well as experience of academic partners with curriculum development. Further, it has initiated piloting phase in the UK, thus, expanding and transferring the activities geographically.

The business model is based on private funding, sponsored by local entrepreneurs and enabling the delivery of the JEP in the respective county free of charge for schools and parents. The JEP has successfully attracted and sustained local entrepreneurs, being proved by the growing number of participating counties.

Another sustainable aspect relates to the links with the national curriculum. The JEP programme materials have been reviewed by the Council of the Curriculum, Examination & Assessment (CCEA). Further the JEP programme is supported by the Irish Minister for Education and Skills Ruairí Quinn, who encouraged primary schools to become involved in it, and it has been identified as a good practice by the Committee of the Regions in 2011[120].

Briefly, the key success factors rely on the involvement of local entrepreneurs in the role of county partners, motivation of teachers but also relations with parents. Positively seen is the strong legal and ethical base of the programme. Besides, using a competitive environment as the key pedagogical approach proved to be inadequate at primary education level creating unhappiness among students and teachers.

"We've had lots of light-bulb moments, but nothing has been as inspiring as what we've seen in primary schools with the Junior Entrepreneur Programme (JEP). There's something

[120] European Union, Committee of the Regions (2012). Encouraging entrepreneurship at local and regional level. Best Practice Examples from EER Regions. CoR_1616/October 2012/EN. Available at: http://cor.europa.eu/en/takepart/eer/Documents/encouraging-entrepreneurship-local-regional-brochure-2012-EER.pdf

about the energy that exists in a primary school classroom. The ten to twelve year old pupils have not been impacted by the points race. They are open, creative and quick to learn." (Jerry Kennelly, co-founder of JEP; Junior Entrepreneur Programme, 2015)

II.6.2) Timeline

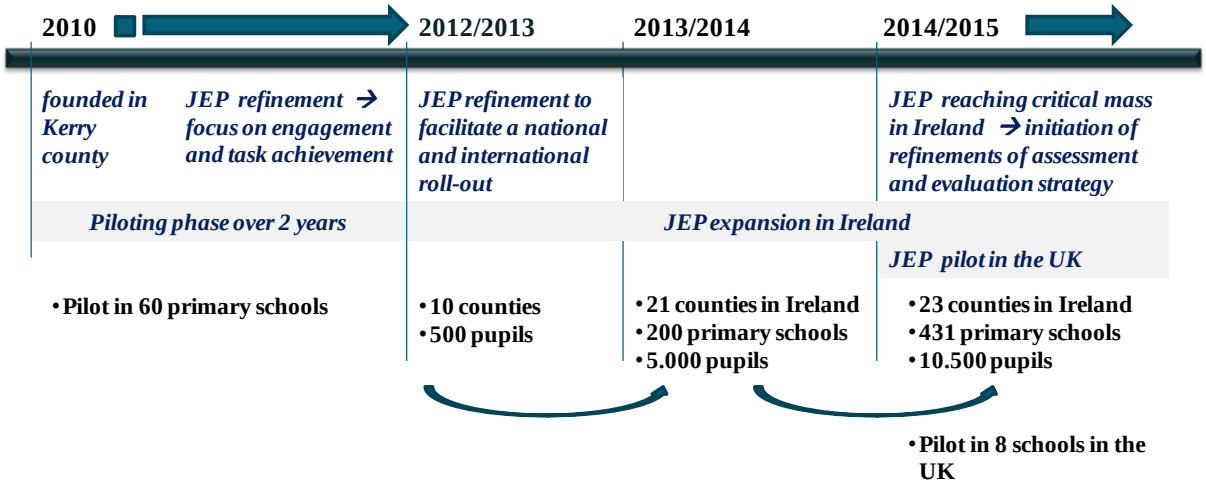

Figure 29: The JEP programme – timeline and key milestones

II.6.3) Infobox

The Junior Entrepreneur Programme Infobox	
Implementation	From 2010 in Ireland; in 2015 piloted in the UK 10/12 weeks mini-company programme; running every year between December and April
Focus Area	Learning / teaching entrepreneurship competences
Targeted education level	Primary education
Main target group of the initiative	Learners: pupils (10-12 years old)
Secondary target group	Teachers and Entrepreneurs
Entrepreneurial competences	Knowledge / Skills / Attitudes; with primary focus on attitude and skills
Teaching methods	Experiential learning; learning-by-doing and collaborative learning, complemented by self-reflection
Learning settings	Face-to-face learning, mainly in the classroom with possible outside school activities (e.g. market research, production). The programme is aligned with the Northern Ireland curriculum
Assessment Methods	Task achievement and engagement in all JEP activities is assessed on the basis of the 'JEP package' submitted at the end of the programme, including a self-assessment activity sheet and other documentation. Other assessment and validation

	components are the dragon panel (presentation) and showcase day incorporating external feedback. Peer review is part of the teamwork and joint decisions.
Impact area:	Personal development (enhanced skills and self-awareness), Further education (enhanced interest, selection of subjects in secondary schools), Employment / employability but more importantly, considering entrepreneurship as a career option
Output dimensions	- In Ireland, the number of involved children has doubled from 5.000 in 2013/2014 to 10.500 in 2014/2015[121] - The number of schools has increased from 200 in 2013/2014 to 431 in 2014/2015 - The JEP programme is aligned with the Northern Irish curriculum for primary schools, - Improved teaching materials for entrepreneurial learning - In the Kerry county, 1.100 pupils have completed JEP since 2010, an estimated 50%-60% of primary school pupils in the region completed the programme
Overall impacts	It is yet early to indicate long term impacts of the JEP programme. Overall, the JEP has potential impact on: - Enhanced competences of the JEP participants; already showed by increased enthusiasm, self-esteem, communication skills but also self-awareness and recognition of skills of others - Enhanced self-directed learning approach taken by students; knowing what they like doing and what they want to do in the future - Improved entrepreneurial learning, allowing different methods of measuring success and being appropriate for all students including those with special needs and disabilities Interestingly, small businesses created under the JEP in Irish schools (since 2010) have generated around ½ mil Euros turnover.
Resource dimensions	- The programme currently involves 431 teachers (2014/2015 academic year) - The programme is supported by 23 entrepreneurs in 23 areas (2014/2015)
Business model	JEP is financed from private sources and rely on a number of sponsors (entrepreneurs and county partners)

[121] School year of the JEP implementation

II.6.4) Learning objectives

Junior Entrepreneur programme (2015) outlines the learning objectives per each of the 7 steps and Weeks.

Table 22: The Junior Entrepreneur Programme - learning objectives

Topic:	**Key learning objectives:** *The students will be able to:*
Week 1: Opening the Door to Entrepreneurship	- The pupils will learn about who an entrepreneur is and will understand what it means to be an entrepreneur - Pupils will be able to identify the characteristics and basic skills of an entrepreneur. - The pupils will be able to describe a range of enterprising skills and will evaluate their own enterprising skill set - Pupils will be able to name entrepreneurs locally, nationally and internationally
Week 2: Exploring New Ideas	- The pupils will reflect upon their own strengths and personal qualities and their potential to contribute to a team. - Pupils will think critically and creatively in order to generate a range of potential entrepreneurship project ideas. - The pupils will work collaboratively to negotiate and agree a group project idea. - Pupils will use oral, visual and written presentation skills to communicate details of their agreed group project to the 'Dragons' and the class. - Pupils will prepare a range of questions to ask a business person or entrepreneur in order to maximise their learning during the forthcoming business person's visit to the classroom.
Week 3: A Business Visitor to the Classroom	- The pupils will learn about the world of business and entrepreneurship through the eyes and experience of a successful business person / entrepreneur. - Pupils will consult with the school principal, class teacher, school staff and parents in arranging, executing and evaluating the visit of the business person to the classroom. - The pupils will use interviewing skills to maximise their learning while engaging in discussions with the visiting entrepreneur. - Pupils will reflect upon the lessons learned from the business person's insights and will consider the implications of that learning for their chosen Junior Entrepreneur Project.
Week 4: Will the Idea Work?	- The pupils will learn about the market research process, its importance, and different types of market research. - Pupils will devise a questionnaire to undertake market research at an appropriate level for their Junior Entrepreneur project. - The pupils will present the findings from their market research using graphs, bar charts and pie charts. - Pupils will use the information acquired in the market research to inform development and planning in relation to their chosen project idea.
Week 5: Roles and Responsibilities	- The pupils will learn about the different roles and responsibilities associated with each area of business. - Pupils will identify their individual skills and talents in order to be assigned to the most appropriate business team. - The pupils will learn that team work and co-operation are essential in

Topic:	Key learning objectives: *The students will be able to:*
	order for the project to be a success. - Pupils will be able to describe the roles and responsibilities of the finance, marketing, production, sales and public relations teams.
Week 6-9: Making it all Happen	- The pupils will learn about the various processes and stages involved in implementing their chosen Junior Entrepreneur project. - Pupils will work in teams and will learn about the importance of teamwork in order to ensure the successful completion of all stages of the project. - The pupils will learn how to calculate costs, source funding, monitor the budget and keep a record of all financial income and expenditure throughout the project. - The pupils will work collaboratively to make their chosen product or design their chosen service. - Pupils will design flyers, posters and other promotional materials to market their product or service. - Pupils will learn how to use video, photographs, audio, music and Microsoft Powerpoint to record the key stages of the project from start to finish. - The pupils will experience inter-team and intra-team collaboration in action as they progress through each stage of their Junior Entrepreneur project.
Week 10: Evaluating the Success of the Project	- The pupils will evaluate the stages of the project, review the various activities undertaken and reflect upon the final outcomes of their JEP project. - Pupils will re-evaluate their own enterprising skill-set having completed the JEP programme - The pupils and teacher will reflect upon the lessons learned during the programme.

II.6.5) Competences

The following competences table is based on competences addressed by a variety of activities, including the showcase day, Dragon panel and the self-reflecting activity carried out by pupils.

Table 23: The Junior Entrepreneur Programme - competences

Competences:		
Knowledge	**Skills**	**Attitudes**
Entrepreneurship, who an entrepreneur is and what he/she does (w1,w3)	Writing, Drawing, Listening, Storytelling, Numeracy	Creative thinking (w2)
Entrepreneurs in their local community, at national and international levels. (w1)	Creativity and innovation (***)	Self-esteem (w1,w2,w5); Self-confidence (w2); Self-awareness (w1,w2,w5)
Enterprising skills of a successful entrepreneur (w1)	Generate ideas (w2)	Handling conflicts

Competences:		
Knowledge	**Skills**	**Attitudes**
Understanding of product and service opportunities	Planning and organisation (***)	Initiation (w3)
Roles and responsibilities associated with each area of business; finance, marketing, production, sales and public relations teams (w5)	Communication(**)(***)	Thinking critically (w2)
Processes and stages of project implementation (w6-9)	Presentation skills (oral, visual, written) (w2,w6-9) (**)	
market research process and types, Consumer awareness (w4)	Self-reflection and self-evaluation (w1, w10)(***) ability to identify one's enterprising skills (w1) and ability to re-evaluate the skills (w10)	
	Collaborative skills, team work(***) and intra-team cooperation (w2,5,6-9), inter-team collaboration (w6-9) ability in collaboration with others (w2, w4)	
	Leadership (***)	
	Consultation with others in a hierarchy (parents, principle, teacher) (w3) Engage in discussions with others (w3)	
	Decision-making(***)	
	Problem-solving(***)	
	Negotiation with others (w2)	
	Interviewing skills (w3)	
	Evaluation skills (w10) and reflection on lessons learned (w3, w10)	
	Use /apply collected information in a specific context (project) (w4)	
how to calculate costs, source funding, monitor the budget and keep a record of all financial income and expenditure, Dealing with money (financial literacy) (w6-9) (***)		
IT literacy (technology) – marketing product design, use of video, audio, PowerPoint presentation (w6-9)		

Source: based on JEP website and in discussion with JEP national coordinator; (w1-10) indicates in which week the competence is taught (based on the learning outcomes; and where information available); (*) indicates the competences addressed by showcase day and (**) by Dragon panel; (***) addressed by self-reflecting activity carried out by pupils (Evaluation of Skills Checklist).

II.7. Case study 7: Owners and Entrepreneurs Management Program (OEMP)

II.7.1) Summary

The Owners and Entrepreneurs Management Programme (OEMP)[122] is an international executive education programme designed for established business owners and entrepreneurs from all over the world. The main idea is to **provide participants with the knowledge and skills to bring their company to the next level**. The OEMP is predominantly an in-class programme structured around 3 1-week modules. The contents of the programme seek to refresh participants' knowledge and gain additional insights into 3 core topics: basic business management, internationalisation and innovation.

With reference to the OvEnt study, the OEMP focuses on one key area: **Learning/teaching entrepreneurship competence**. The main competences targeted are related to entrepreneurship relevant **knowledge** (marketing, human resources and economic analysis) and **skills** (team leadership, creativity, negotiations and managing risk/uncertainty).

As an international programme for business leaders, the course includes a **strong networking aspect.** As a result, it offers a range of extra-curricular activities with more informal learning character.

A particularity is that all of OEMP's teachers are entrepreneurs themselves. The main teaching methods are **collaborative learning and self-reflection/self-evaluation supported by competitive learning,** applied in some of the extra-curricular activities (e.g. Venture Lab). The programme focuses on institutional learning in the classroom with informal learning elements.

Being a 3-week in-class course blended with skills-focused sessions, the **teaching and learning happens face-to-face with ICT tools** (e.g. blackboard, etc.) as a secondary supporting element.

Established in 2012, the OEMP is now in its 4th edition. Until today, the **OEMP has trained 40 business leaders** from all over the world. In spite of its recent set-up, there are a number of show cases in terms of successful entrepreneurs who have after completing the training programme successfully expanded their business operations. In line with its networking character, the OEMP has brought together business leaders of which some have teamed up in successful business partnerships.

[122] IE Executive Education. (n.d.). Available at: http://www.ie.edu/execed/oemp?_adptlocale=en_US

II.7.2) Timeline

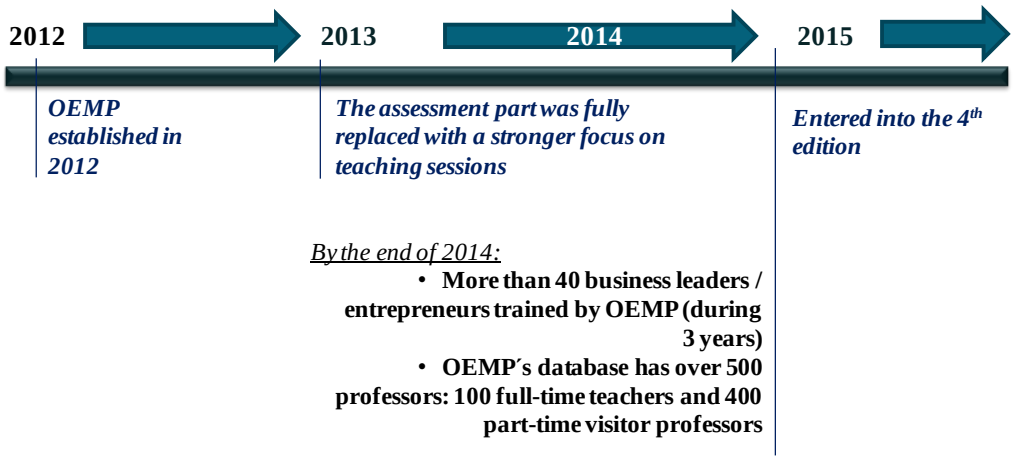

Figure 30: OEMP– timeline and key milestones

II.7.3) Infobox

OEMP: Infobox	
Implementation	Executive Education programme at Instituto Empresa (IE)
Focus Area	Learning entrepreneurship competences
Targeted education level	Further (adult) education
Main target group of the initiative	Learners: Business leaders and entrepreneurs/business owners
Secondary target group:	Teachers – professors and entrepreneurs
Entrepreneurial competences	(Advanced) Knowledge and skills, 'knowledge' dominating.
Teaching methods	Self-reflection/self-evaluation; Learning by doing (real company)
Learning settings	Mainly face-to-face in the classroom
Assessment methods:	Minimum participation (80 %) /There is no other assessment method
Impact area:	Company growth and increased competitiveness; Employment (top executives)
Output dimensions	- In 3 years the OEMP has produced 40 trained entrepreneurs from all over the World
Business model	Private business school; active partnerships with business and industry

II.7.4) Learning objectives

Learning objectives are defined through the OEMP's Programme Structure in line with the 3 in-class modules.

Table 24: Learning objectives – OEMP modules

Topic:	Key learning objectives: *The students will be able to:*
Laying the foundations	- Step back and think strategically - Lead change - Manage and delegate
Going global	- See new business opportunities - Make changes - Manage and delegate
Innovating for sustainable success	- Maintain innovation within the company - Think and decide under uncertainty - Manage and delegate

Source: based on discussions with IE

II.7.5) Competences

The following competences have been identified in discussions between CARSA and Instituto Empresa (IE).

Table 25: Entrepreneurship competences in OEMP Competences

Entrepreneurship competences in OEMP		
Knowledge	**Skills**	**Attitudes**
Step back and think strategically	Growth and team leadership	Entrepreneurial spirit
Capability to see new business opportunities	Negotiations and making deals	
Ability to maintain and market innovation within the company	Change management	
International economic environment analysis	Creativity	
Human resource management	Communication/presentation (pitching)	
General control of all relevant aspects in a company	Managing risk/uncertainty	
Marketing (incl. new media)		
Management control and information systems		

Source: based on discussions with IE

II.8. Case study 8: Enterprise and entrepreneurship education at University of Wales Trinity Saint David (UWTSD)

II.8.1) Summary

The University of Wales Trinity Saint David (UWTSD)[123] is one of the UK's leading universities in entrepreneurship education which has incorporated entrepreneurship education throughout many of its activities. Moreover, its staff has contributed to national and global discussions on entrepreneurship education policies and implementation in education. Indeed, the case of UWTSD represents one example of how entrepreneurship education is implemented in higher education with high standards, supported by the national quality assurance agency[124]. Its comprehensiveness is represented in the International Institute for Creative Entrepreneurial Development (IICED)[125], the responsible body for entrepreneurship education at UWTSD seeking to become a good practice at international level.

With reference to the OvEnt study, the UWTSD case study focuses on teaching entrepreneurship competence, but also developing new innovative teaching and assessment methods.

The educational activities address a variety of entrepreneurship competences covering all components **– knowledge, skills and attitudes.** The case study, by choice and focus of the IICED centre, concentrates rather on skills and attitude, and in particular examine those competences related to the creativity and innovation. As such, it employs a wide range of teaching methods. The core pedagogical approach is based on **learning by doing, curiosity-based learning**, and collaborative learning. Techniques involving creative thinking, which requires students to make connection and engage in **divergent thinking**, are emphasized. New methods have been developed by UWTSD/IICED in this respect. For instance, *'Glorious failure'* technique allows to 'fail' if a student reflects upon why and articulate the reasoning. *Avoiding 'premature articulation'*, instead, allow the learning process to come closer to the real life situation by providing students with incomplete information, setting up multiple deadlines, shifting deadlines or introduce other forms of uncertainty or ambiguity.

The University provides students with a wide range of curricular and extra-curricular activities approaching entrepreneurship education from an interdisciplinary perspective. The majority of the entrepreneurial leaning/teaching is implemented face-to-face; however, technology-based learning is an important part identified also in the University's strategic document. To illustrate the teaching approach, the case study provides examples from curricular 'Art & Design' courses, and presents the newly developed extra-curricular 'Life Design" approach. Moreover, UWTSD provides the first of its kind 'post-compulsory education and training programme' open to teacher-students, existing teachers but also professionals. As such, UWTSD's tertiary education programmes primarily target University students, but also adults. Teachers are targeted by continuous training and development

[123] University of Wales Trinity Saint Davis (UWTSD) [general website]. Available at: http://www.uwtsd.ac.uk

[124] The Quality Assurance Agency for Higher Education (QAA) (2012). Enterprise and entrepreneurship education: Guidance for UK higher education providers. September 2012. ISBN 978 1 84979 692 7

[125] International Institute for Creative Entrepreneurial Development (IICED) [general website]. Available at: http://www.uwtsd.ac.uk/iiced

activities. Other involved groups include representatives from industry, business and the wider community, as well as alumni.

The learning objectives employed at UWTSD's – along with their formulation - are aligned with the QAA Guidelines[126]. It has been noted that the existence of such guidelines at the level of national Quality Assurance body enabled the UWTSD to implement new curricular and extra-curricular activities using more innovative teaching methods appropriate for creative entrepreneurship competences. When developing or updating educational activities, the UWTSD involves both, external stakeholders and alumni. This model - 'Continuous conceptual review model'[127] has been selected as an international best practice.[128]

Teachers take on a prominent role in the delivery of learning objectives and entrepreneurship competences to students. Courses for active as well as emerging teachers are an important part of UWTSD's education programme and the University continuously invests into further development of its in-house education staff, including researchers. During these continuous or initial teacher trainings, educators acquire insights into: (a) the entrepreneurship dimension/specific knowledge, (b) the entrepreneurial way of thinking, alongside with (c) pedagogical methods and resources in support of entrepreneurship. Moreover, basics from neuroscience are presented to teachers in order to enlighten the human brain learning process.

UWTSD emphasizes the need for **well-aligned and innovative assessment techniques** reflecting pedagogical approach and the specific character of creative entrepreneurship. A multitude of assessment methods are employed at UWTSD both, formative and summative, ranging from project work evaluation, reflective essays on failure(s), to video pitches, but also self-evaluation/self-reflection, peer reviews and feedback from external stakeholder are important. More traditional exams are also used when appropriate; however the UWTSD focus has been shifted towards new techniques using design-based outcomes tools and 'Divergent Production' evaluation (e.g. relationship between contexts and triggers for the idea generation stage, or number, breadth and diversity of ideas offered). These techniques help to evaluate the learning journey rather than just a single output.

The University has accomplished to educate students who have become successful entrepreneurs, leading managers as well as persons with high social impact on society. Regarding its financial and business model UWTSD can be considered very sustainable with a diversified financial portfolio. The University's sustainability is further reinforced by close collaboration with alumni and external stakeholders as well as a number of sustainable activities, e.g. continuous methodological improvements.

UWTSD's entrepreneurship practices in entrepreneurship education show **high levels of transferability**, across educational levels as well as geographically. Thanks to the work of IICED, the University profits from good practice sharing with business world as well as at policy level.

Briefly, the **key success factors** rely on the connectivity, educators training and teachers' attitude, but also the Institution's continuous effort in entrepreneurship education research.

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126 QAA (2012).

127 Penaluna, A. & Penaluna, K. (2008). Business Paradigms in Einstellung: Entrepreneurship Education, A Creative Industries Perspective. Journal of Small Business & Entrepreneurship; 21(2), 2008; Special Issue: A Panoramic Overview Of Entrepreneurship: Insights From Different Regions Of The World, pages 231-250

128 Internationalizing Entrepreneurship Education and Training – Conference. July, 9th –12th 2006 in São Paulo, Brazil. Available at: http://www.intent-conference.de/structure_default/ePilot40.asp?G=621&A=1

UWTSD is at the **forefront in experimenting with different learning settings and teaching and assessment methods.**

II.8.2) Timeline

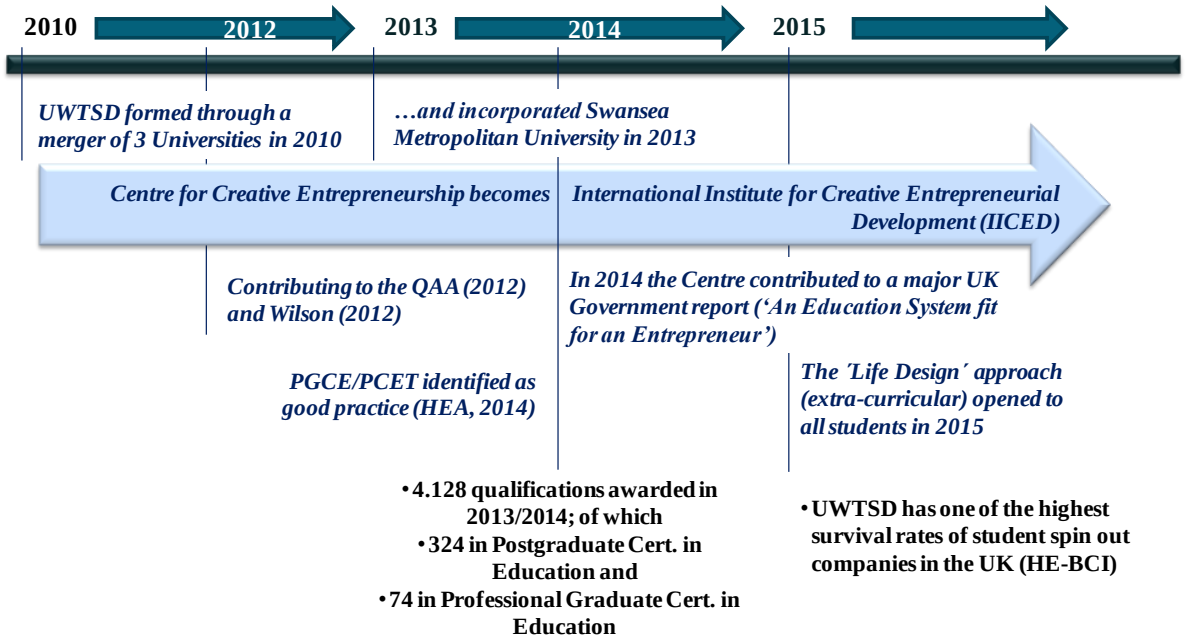

Figure 31: UWTSD– timeline and key milestones

II.8.3) Infobox

UWTSD: Infobox *	
Implementation:	Undergraduate and post-graduate courses covering a variety of disciplines; Initial and continuous teacher training; linked to the academic year/semester
Focus Area	Learning entrepreneurship competences New teaching/business support methods and models
Targeted education level	Tertiary education
Main target group of the initiative	Learners: Tertiary education students, future teachers Teachers: initial and continuous teachers training
Secondary target group:	Alumni and business / community representatives are actively involved in design, implementation and evaluation activities of UWTSD.
Entrepreneurial competences	Knowledge / Skills / Attitudes; In particular, the case study focuses on competences enhancing creativity and innovation
Teaching methods	learning-by-doing, self-reflection, collaborative learning, blended learning, *(and others)* New forms allowing learning from a failure ('Glorious Failures') and learning within ambiguous environment (avoiding 'Premature Articulation')

UWTSD: Infobox *	
Learning settings	Curricular and extra-curricular activities are mainly face-to-face while technology-enhanced learning plays an important role. The activities happens at University premises and stakeholders'/community premises (where relevant)
Assessment methods:	Mix of summative and formative assessment methods Project work, presentation/pitches, self-reflection, but also a wide range of other methods, such as self-evaluation, peer evaluation, external expert review/feedback, events, and tests
Impact area:	Further education, Employability/Employment, Start-up foundation, personal development (especially linked to the creativity) and Quality of entrepreneurship education (especially related to the international institute for creative entrepreneurial development (IICED))
Output dimensions	- 4.128 qualifications have been awarded in 2013/2014; of which 324 in Postgraduate Certificate in Education and 74 in Professional Graduate Cert. in Education
Overall impacts	- UWTSD has one of the highest survival rates of student spin out companies in the UK - improving teacher's enterprising skills - established co- and extra-curricular activities within their personal teaching contexts (by teachers)
Resource dimensions	- Three campuses in Wales and one in London - 27,000 students - Total expenditures in 2013 amounted to £35,3 million of which staffing costs represented 57%
Business model	UWTSD is funded partly from the Higher Education Funding Council for Wales (22.9 % in 2013) and the rest from own generated income.

II.8.4) Learning objectives

Life Design in UWTSD

Life Design approaches the learning objectives at rather individual level. Based on established key characteristics, each student will **reflect on its individual needs and objectives to learn.** In this respect, "Life Design" may become a powerful tool addressing weak points of both, curricular and extra-curricular activities. On the one hand, curricular activities are tight by quality norms and standards, which may draw back some innovative teaching methods and approaches, since learning objectives are not always easily assessable. This becomes even truer for such competences as e.g. flexibility, adaptability, and positive attitude to uncertainty. On the other hand, extra-curricular activities are sometimes scattered with no precise trajectory and link to one's goal; Life Design can act as a recurrent theme connecting these pieces.

QAA Guidance learning objectives

The learning objectives employed at UWTSD's – along with their formulation - are aligned with the QAA Guidelines[129]. The QAA Guidance document[130] offers a broad framework that higher education providers can use to articulate learning outcomes applicable across a wide range of types of delivery.

Table 26: Key learning objectives per QAA guidance

Topic:	Key learning objectives: QAA guidance / enterprise and entrepreneurship education
Behaviours	Students should be able to demonstrate: - the ability to seek out, be alert to, and identify opportunities (opportunity recognition) - creative and innovative approaches (problem solving) - the initiative to act on perceived opportunities while considering risk factors (taking action) - independent responsibility for managing projects (managing autonomously) - the ability to reflect and persevere in challenging environments in pursuit of achieving desired objectives or goals (personal awareness) - use of social skills to build trust, relationships and networks and to communicate ideas and information (networking and communication)
Attributes	Students should be able to: - recognise and achieve goals and ambitions, especially in response to challenge (goals and ambitions) - enhance self-confidence and belief through practice of enterprising skills and behaviours (self-confidence) - demonstrate perseverance, resilience and determination to achieve goals, especially within challenging situations (perseverance) - recognise that they are in control of their own destiny (internal locus of control) and use this understanding effectively within enterprising situations - take action and learn both from actions and active experimentation (action orientation) - innovate and offer creative solutions to challenging and complex problems (innovation and creativity)
Skills	Students should be able to demonstrate the ability to: - take creative and innovative approaches that are evidenced through multiple solutions and reflective processes (creativity and innovation) - persuade others through informed opinion and negotiate support for ideas (persuasion and negotiation) - manage a range of enterprise projects and situations appropriately, for example by proposing alternatives or taking a holistic approach (approach to management) - evaluate issues and make decisions in situations of ambiguity, uncertainty and risk (decision making) - use networking skills effectively, for example to build or validate ideas or to build support for ideas with potential colleagues or stakeholders (networking) - recognise patterns and opportunities in complex situations and environments (opportunity recognition)

[129] QAA (2012).
[130] QAA (2012), page 15.

Topic:	Key learning objectives: QAA guidance / enterprise and entrepreneurship education
	- model and propose business opportunities that take account of financial implications, legal implications and issues of intellectual property (financial and business literacy)

Source: based on QAA guidance (2012).

II.8.5) Competences

III.8.5.1 Art & Design: BA Advertising and Brand Design

The Entrepreneurship competences incorporated in the BA, and generally, in all courses to some extent are:

Table 27: Entrepreneurship competences addressed by 3 year BA

Entrepreneurship Competences:		
Knowledge	**Skills**	**Attitudes**
Knowledge on advertising and brand design	Creativity and Innovation	Risk taking
	Conceptualisation	Capacity to discover…
Knowledge related to entrepreneurship and business	Team work and team management	Resilience / positive attitude to business
Marketing	Communicate to various audiences (incl. via new media) / interaction skills such as pitching and communicating to a range of audiences.	**Adaptable, flexible /** Sense of initiative
Management	Leadership, Project planning, financial considerations	Positive Attitude to change
Market environment analysis	Problem-solving / redefining problems	Self-confidence, self-drive, motivation
	Project management	Appreciate the uncertainty, ambiguity and limits of knowledge
	Strategic thinking	
	Action orientation and planning	
	Persuasion and negotiation	
	Critical analysis and judgement	
	Client relationship building	

Source: prepared by CARSA in collaboration with IICED

III.8.5.2 Postgraduate Certificate in Education (PGCE) in Post Compulsory education & Training (PCET) (teacher-training programme)

The following components have been set up on the basis of information available on UWTSD's websites as well as in collaboration with IICED.

Table 28: Entrepreneurship competences addressed by PGCE PCET

Entrepreneurship Competences – PGCE PCET	
Knowledge	***Skills / Attitudes***
Knowledge related to entrepreneurship understanding and context	Creativity and Innovation
Knowledge on copyrights, patents and trademarks	Identifying opportunities
Cognitive neurology and its impact within teaching and learning for enterprise	Idea generation
Teaching practice	Class preparation and strategic approaches that enable enterprise to be embedded into the curriculum

Source: based on the programme's websites and in collaboration with IICED

II.9. Case study 9: SIMULIMPRESA Programme

II.9.1) Summary

The SIMULIMPRESA programme[131] is a publicly funded Italian initiative applying the Practice Enterprise model internationally coordinated by the European Practice Enterprise Network (EUROPEN). Established in 1994, SIMULIMPRESA recently celebrated 20 years of existence. In Italy, it is centrally coordinated by Istituto Don Calabria - Città del Ragazzo[132] and implemented with the help of local coordination offices. The SIMULIMPRESA programme's main objective is to give to students and trainees the chance to acquire experience in a real working environment simulating a real enterprise, i.e. taking part in a 'practice firm'. SIMULIMPRESA's practice firm concept has 3 main pillars: **business world, education field and motivation development**. The practice firm concrete implementation time varies and depends on the context it is set into. As such, the 'practice firm' experience is achieved in between 50-400 hours in a year.

The 'practice firm' is a simulated company which is established by an implementing organisation[133] – school, regional authority, training institution – and run from a real office by a group of students / trainees assisted by certified PE teacher/trainer. A group of trainers guide the practice firm, one having the role of the PE Director. Different mentor companies participate in the SIMULIMPRESA programme, ranging from tourism, manufacturing industry, but also social cooperatives.

The practice enterprises trade virtual products and services with other simulated enterprises at local, national or international level. In this interaction, money, and financial or other institutions are fictitious – impersonated by the Central Office. The SIMULIMPRESA portal[134] and credit card system[135] serve to simulate these interactions. However, the business decisions, documentation and activities have real nature and are based in a real equipped office.

SIMULIMPRESA is applied across different education levels and targets wide array of learners. These are young people from secondary schools and university students but also adults who need to refresh their vocational skills, including employees, unemployed people, women returning to work and disabled adults. Trainers are crucial to the initiative, having the role of facilitators, while mentor companies provide all technical and business information necessary for effective simulation. Trainers also come from diverse institutions, such as vocational training centres, technical public high-schools, professional public high schools, real enterprises, universities, chambers of commerce, and trade unions. SIMULIMPRESA practice firm methodology does not involve alumni in the teaching.

SIMULIMPRESA addresses a variety of entrepreneurship competences covering all components: **knowledge, skills and attitudes,** where skills seem to dominate. The competences appear to be two-folded, both relevant for the world of work and entrepreneurship. Firstly, they are connected with the working place / enterprise function,

131 SIMULIMPRESA [general website]. Available at: http://www.simulimpresa.com/go
132 Istituto Don Calabria - Città del Ragazzo [general website]. Available at: http://www.cittadelragazzo.it
133 Activation Simulation Enterprise (n.d.). Programma SIMULIMPRESA. Available at: http://www.simulimpresa.com/go/index.php/risorse/attivazione
134 SIMULIMPRESA portal is accessible from: http://portale.simulimpresa.com/analysys/ingresso.php
135 International Credit Card Simulimpresa is accessible from: http://cci.simulimpresa.com/asp/login.asp

and secondly, they are transversal. This is reflected into the trainees' assessment tool for trainers. The emphasized transversal skills are: acting alone, team-work and cooperation, sense of responsibility, proposal capability, and self-learning. Moreover, trainees learn competences related to national, but also international, trade (business).

The SIMULIMPRESA programme uses face-to-face learning settings – in a realistically equipped office - complemented by online simulated international and national interaction with other practice firms, banks, clients, suppliers etc. The practice firm experience takes form of either intra- or extra-curricular activity. The didactic methodology draws on **action-oriented** and **practical-based learning**, in other terms learning by doing, collaborative learning complemented by competitions. In the programme, the training at practice firms is personalised. Self-directed learning is an important pedagogical component. Each trainee manages his/her role and participates in a process of technical knowledge transfer. Each trainee experiences the full Practice enterprise cycle on a rotation basis. Depending on its concrete implementation, the practice firm experience is usually complemented by lectures or similar usual school programme's activities.

Since 2001, more systematic assessment tools and certification systems have been put in place within the SIMULIMPRESA programme. The assessment methods consist of self-evaluation, project work, are complemented by validation components in the form of fairs and competitions. Additional assessment methods are applied to the programme, degree, qualifications as foreseen by schools and training institutes under their usual pedagogical approach. The Central Office provides several assessment tables addressed to all involved parties. These include self-assessment for trainees, tool for PE trainer assessing the trainee, self-assessment for trainers and PE Director. Moreover, the practice firms may comply with EUROPEN certification "Quality Practice Firm" and have the right to request a certificate for minimum students' competences issued by EUROPEN.

In the 20 years of existence, 224 'practice firms' have been created under SIMULIMPRESA and the programme got to reach 11.180 trainees yearly. Overall, the programme has high potential to impact areas such as personal development - enhance skills, especially collaboration -, initial education and further education - increase school attendance, updated VET skills -, employability and foundation of start-ups. Beyond this, the SIMULIMPRESA programme has an important role when integrating people with disabilities into the society.

Since 1994, the practice firm concept of the SIMULIMPRESA programme has proven itself highly sustainable and transferable. The critical mass of trainers, implementing organisations, as well as mentor companies, has been reached. The central coordination and the continuous effort of the Central Office to improve procedures are the key sustainable aspects, alongside with the intensive teacher training. Regarding transferability, SIMULIMPRESA is one of the EUROPEN-PEN members with the widest scope of the practice firm concept implementation.

Briefly, central coordination and constant effort in process quality improvement, continuous interaction not only motivating trainers but also enabling high learning factor among them, and mentor enterprises connecting the PE and the trainees to the real world, these are the success factors which ensured more than 20 years of SIMULIMPRESA programme.

II.9.2) Infobox

SIMULIMPRESA: Infobox	
Implementation	SIMULIMPRESA has been implemented since 1994 based on 'practice firm' model firstly used in Germany in 1964. The duration of the practice firm experience depends on the context in which it is implemented (by school, University or VET), ranging between 50-400 hours per year.
Focus Area	Learning/teaching entrepreneurship competences
Targeted education level	From secondary education level to adult learning
Main target group of the initiative	Broad category of learners (trainees): people from 11 till 60 years old; such as young people with limited school attendance, high school or university students and graduates, unemployed, women returning to work and workers who need to up-date their vocational skills.
Secondary target group:	Educators and facilitators (trainers) from vocational training centres, technical public high-schools, professional public high schools, real enterprises, universities, chambers of commerce and trade unions. Mentor companies are subject to the simulation. Regional and provincial authorities support the programme.
Entrepreneurial competences	Knowledge / Skills / Attitudes; where 'Skills' seem to dominate (a) Business-function related competences & (b) transversal competences, such as: Autonomy and Independence, Sense of responsibility, Team work and Collaboration, Self-learning and Proposal capacity International trade related knowledge is acquired.
Teaching methods	Learning-by-doing and Collaborative learning, complemented by competition element and self-reflection.
Learning settings	The practice firm is implemented face to face in a 'simulated' office space; ICT complements and reinforces learning experience, enables interaction between 'practice firms' (e.g. trade) and other external organisations (simulated banks, social security institutions etc.)
Assessment Methods:	Self-reflection and an assessment by trainer Additional methods may be used by individual implementing organisations (e.g. oral exam and thesis)
Impact area:	- Personal development (enhance skills, especially collaboration) - Initial education and further education (increase school attendance, adult education) - Employment/employability - Foundation of start-ups/considering entrepreneurship as a career option
Output dimensions	In 20 years (by the end of 2014): - Over 400 practice firms in 20 years - Over 10.000 trainees/year in practice firms - Over 2.500 trainers trained by the Italian Central Office
Overall impacts	- Decrease of the learning time by 40 % as surveyed by a labour ministry research

	- Higher employment rate among young Practice Enterprise trainees, especially in the tourism area There are no data from schools and other organisations implementing PE concept on the number of start-ups and similar indicators.
Resource dimensions	- Central coordination by central office: 3 fulltime employees - Implementation by individual training centres and schools / trainers and teachers (2.5000 trainers) - Estimated budget about 500-1.000 Euros per practice enterprise - updating sessions for trainers 2x per year
Business model	Mainly public sources; financing from Italian regions, use of additional funds from the EU for harmonizing Practice Enterprise processes and activities among European countries. Volunteering companies (enterprises being simulated)

II.9.3) Timeline

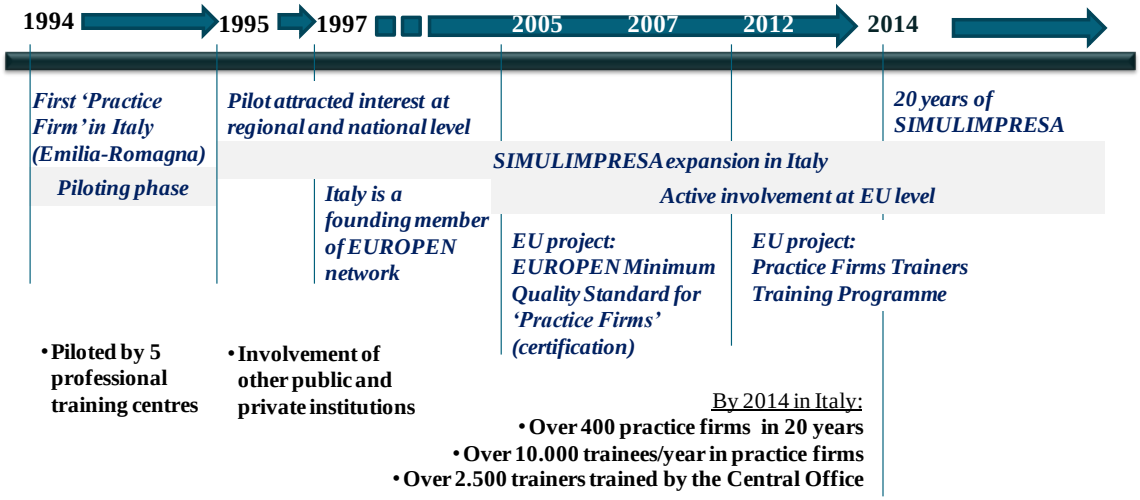

Figure 32: The SIMULIMPRESA programme – timeline and key milestones

II.9.4) Learning objectives

Learning objectives are defined based on the defined working places following the enterprise function/departments of the practice firm in question.

Table 29: SIMULIMPRESA learning objectives – transversal skills

Topic:	Key learning objectives: *The students will be able to:*
Autonomy and independence	- Work independently in understanding and fulfilling job tasks
Responsibility	- Take responsibility in solving problems at work
Cooperation	- Cooperate and share information of duties
Team-work	- Work efficiently in teams
Proposal capacity	- Express personal views on the functioning of firms
Self-learning	- Engage independently with learning job routines

Source: based on publicly available material

II.9.5) Competences

The following competences are based on competences addressed by the SIMULIMPRESA self-assessment tool for trainees as well as those competences addressed by the trainees' assessment tool for teachers (see below Table 30).

Table 30: SIMULIMPRESA - competences

Competences:		
Knowledge	**Skills**	**Attitudes**
Department / PE function specific technical knowledge (**): e.g.	Technical skills (**) Social and professional behaviour (**)	
marketing	Team work	Sense of responsibility (**)
administrative and fiscal duties	Collaboration	Proposal capacity
accounting	Capacity to express opinion	Flexibility in handling new and unforeseen situations
sales	Communication skills	Proactive / Personal attitude: involvement & engagement (*)
internal and international trade management	Problem solving (**)	Assertive
Financing and investments	Organizational ability and management skills	Autonomy and independence (**)
personnel management	Planning	Self-learning
relations with banks	Decision-taking	Persistence
National and international rules for doing business	Critical thinking	Punctuality (**)
	Social skills	Spirit of initiative and influanceability (**)
	Relationship skills (**) (friendly, open, sudden mood changes)	Adaptability in a group (**)
	Sharing resources	
	Numeracy	
	IT literacy	
	Trade and Marketing skills	

Source: based on several available sources. (*) indicates those competences addressed by self-assessment tool for trainees; (**) indicates those competences addressed by the trainees' assessment tool for teachers.

II.10. Case study 10: TRANSITION project - Incubation services for social innovators

II.10.1) Summary

Transnational Network for Social Innovation Incubation – TRANSITION[136] – is a 30-month project involving 9 partners from 7 countries, namely Belgium, Finland, France, Ireland, Italy, Spain and the UK, coordinated by the European Business and Innovation Centre Network (EBN) [137]. TRANSITION project has been born in response to the EU call for more social innovation[138] and brings together established partners within the fields of social innovation and innovation-based incubation. It aim at scaling-up social innovations (SI) across Europe by developing a new support model – so called TRANSITION model or TRANSITION Framework[139] which is based on Social Innovation Journey (SIJ) [140] concept. The project counts on six Scaling Centres[141] which provide the concrete scaling up support (incubation programme) to the social innovators. The TRANSITION project started in 2013 and a first round of social innovation support have been delivered in 2014.

The TRANSITION project addresses a variety of entrepreneurship competences covering all components - **knowledge, skills and attitudes** but being predominant to 'knowledge' and 'skills. The competences related to social aspects are in the core of the programme, alongside competences related to the business and innovation. Being incubation programme, it employs mainly learning by doing approach and self-reflection. The real learning experience is implemented through face-to-face interaction through 'spark session' events, thematic workshops and one-to-one coaching and mentoring. The ICT is used to overcome eventual geographical distance, e.g. as a follow up of the soft-landing period, when social innovators stay in contact with mentors online.

The primary target group are social innovators defined as persons with ideas and social impact. Scaling-up centres (SCs) are targeted by shared learning (among others) and the 'TRANSITION common framework'.

Regarding the first round of TRANSITION scaling support (in 2014), **TRANSITION reached out to** more than 500 social innovators through more general sessions, more than 100 social innovations have been assessed and 90 entered the incubation programmes with variable drop-out rate across SCs but living up the expectation overall. **It is too early to talk about overall impacts** of the TRANSITION project, however, it is expected that adapted social innovation support and the effort given in development of social impact evaluation matrices will positively influence social innovators (more social innovators and

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136 TRANSITION project [project website]. Available at: http://transitionproject.eu

137 EBN – innovation network [general website]. Available at: http://ebn.be

138 The EU effort related to the social innovation and the Innovation Union Flagship Initiative, commitment 27-B; and more precisely, Call for proposals No FP7-CDRP-2013-INCUBATORS

139 'TRANSITION framework' or 'TRANSITION model' or sometimes also referred to as 'Social innovation journey model' is a social innovation incubation/acceleration model based on which business support organisations such as incubators, accelerators and similar may provide services to social innovators in order to effectively scale up social innovations.

140 Social Innovation Journey (SIJ), *name issued under creative commons licence by scaling centre "Polimi Desis lab"* is a concept focusing on the sequence of steps that a lead innovator may go through during the scaling process. Reference: Meroni et al. (2013). 'Design for social innovation as a form of designing activism. An action format'. [conference paper]. Social Frontiers: The Next Edge of Social Innovation Research. Published online by NESTA in scribd.com. December 2013.

141 France – Paris Region Innovation Centre (PRICE); Ireland – WestBIC; Italy – Politecnico Milano; Spain – Denokinn; UK – The Young Foundation. Additional partner is to be confirmed.

quicker social innovation journey) and social innovation incubators (increased number of scaling up centres and quality of the support given to the social innovators).

The initiative shows a **good level of sustainability.** Although its financial model is primarily based on the EU grant (for 2,5 years), by the project's activities, and by involving key players of traditional innovation-based incubation as well as social innovation, the TRANSITION model and its implementation is being sustained beyond the projects' life.

Apart from the already mentioned EU grant, the **TRANSITION project's business model** uses co-financing from partners' own sources and the enthusiasm of social innovation stakeholders (e.g. mentors as volunteers). At the moment, social innovators are not asked to pay any fee for the TRANSITION incubation support services. From the projects' design perspective, the sustainability is ensured through two activities: Promoting Social Innovation Incubation activities and results and developing a European Social Innovation Incubation Network – ESIIN). The combination of the TRANSITION framework ensuring flexibility, and the 6 SCs implementations showing its concrete use, is the key for sustainable continuation from the model design perspective, but also proves good level of transferability.

TRANSITION is therefore **potentially transferable across different regions and across different social innovation sectors.** All these aspects are considered in the project's activities and the TRANSITION model. The model key characteristics contributing to its high level of transferability lays on its comprehensiveness and adaptability. The model takes into account both, different social innovation maturity and different social innovators' competences. Moreover, it enables adaptation to the local environment and it learns from combination of traditional and social innovation expertise. The transferability is also ensured within the TRANSITION project design (WP3-WP5) and supported by project partners'.

In brief, the first year of the TRANSITION project and the first round of provided support showed that **methods and tools effective to support social innovation are not new compared to the traditional ones**. The approach and wider perspective is new. Compared to the traditional for profit entrepreneurs, for social innovators, engagement of social innovation community has even higher importance (feedback from large number of people) and Social Impact creation is an important competence. Measuring the social impacts remains a key bottleneck. Regarding effective training settings, 1:1 coaching and mentoring while matching the right mentor with the social innovation is a key. Further, innovators in their beginnings seek to learn more knowledge and skills related to the business development activities, opposite to more mature innovations, where innovators seek more informal way of learning (e.g. networking).

II.10.2) Timeline

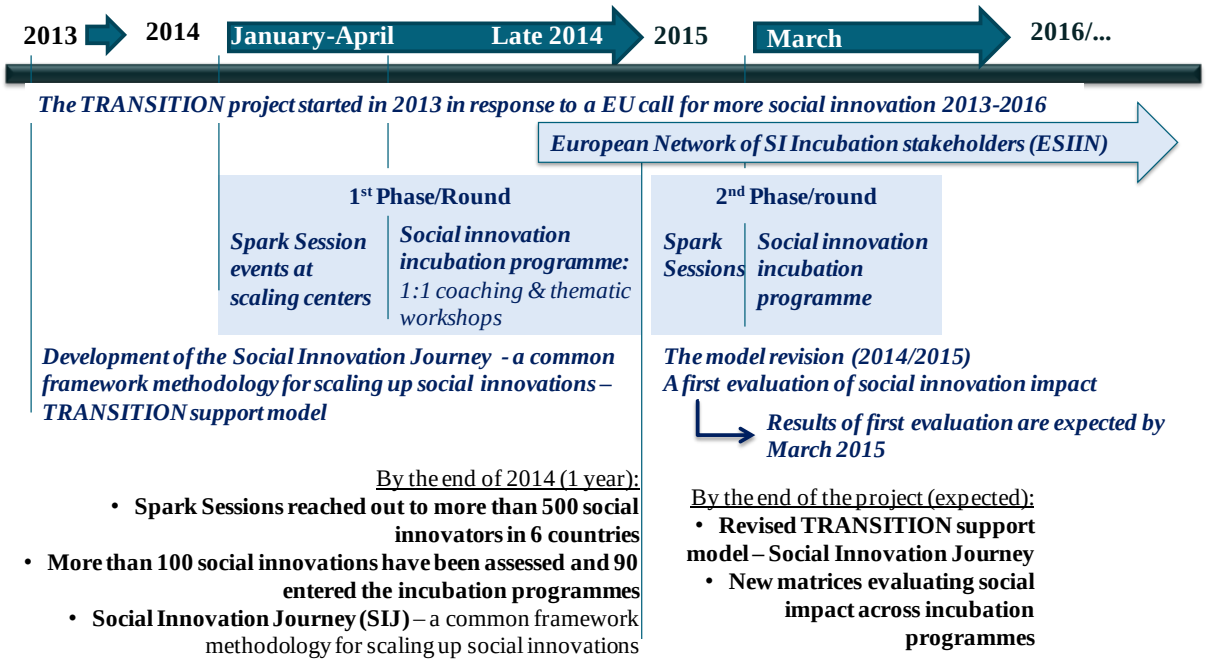


Figure 33: The TRANSITION project – timeline and key milestones

II.10.3) Infobox

Table 31: TRANSITION project- Infobox

TRANSITION project: Infobox	
Implementation:	TRANSITION project: 2013-2016 initiating social innovation incubation support in 6 scaling up centres and a network with a continuous character.
Focus Area	New teaching/business support methods and models; Learning entrepreneurship competences
Targeted education level	Other educational level
Main target group of the initiative	Learners: Social innovators (of any age)
Secondary target group:	Others: Incubators/Accelerators (as organisations supporting social innovations and their key personnel), mentors
Entrepreneurial competences	Knowledge / Skills, attitude in a limited way.
Teaching approach:	Learning-by-doing, (Self-)reflection
Learning settings	Mainly face-to-face; at the incubators' premises, or other premises; form of non-formal and informal learning. Specific activities vary in different countries but follow TRANSITION framework.
Assessment methods:	Application to the programme provides with initial assessment of the social idea; Self-assessment and work on a real project combined with peer and external experts' and users' review and presentation / pitches.

Impact area:	Scaling up (accelerating) start-ups (social innovations) Foundation of start-ups (social innovation) and overall, the initiative focuses on social impact.
Output dimensions	- Spark Sessions reached out to more than 500 social innovators - More than 100 social innovations have been assessed and 90 entered the incubation programmes - Learning outcomes in form of new / improved social innovation scaling up support model (TRANSITION model) - New matrices evaluating social impact across incubation programmes
Overall impacts	- More social innovators and quicker social innovation journey - Increased number of scaling up centres - Increased quality of the support given to the social innovators - Knowledge shared between traditional and social innovation support organisations
Resource dimensions	Total budget is 1,109,060 Euro (for the 3 year duration) Effort: The project is delivered by 9 partner organisations, while the concrete support by 6 scaling up centres (locally).
Business model	2,5 year project funded by the EC (FP7-CDRP-2013-INCUBATORS) and co-financed by consortium partners

II.10.4) Learning objectives

Learning objectives, in form of statements, are not defined at the TRANSITION model level. The particular aspect of incubation programmes, in general, is that learning objectives are defined rather by individual social innovator. The definition happens more precisely when social innovators apply for TRANSITION support and explain what they want to learn/obtain. Learning objectives reflect the innovator's individual needs. Generally, it can be stated, that in earlier stages of social innovations, innovators seek to learn more knowledge and skills related to business development activities. More mature innovations pursue rather informal ways of learning (e.g. networking).

II.10.5) Competences

The following competences have been developed on the basis of information provided by SC London and feedback from the TRANSITION project leader:

Table 32: Competences incorporated in TRANSITION Model (4 curriculum areas)

Competences: Transition scaling up support		
Knowledge	***Skills***	***Attitudes***
Social Business Model Canvas	Strategic skills	Vision
HR, contracting and governance	Individual and Team Assessment	Motivation
Social value proposition	Social Leadership	Social value thinking
Value proposition (community of benefit), Theory of Change / defining outcomes, Impact assessment processes (metrics and tools),	Communication and "social value" skills	Social values and social impact

Competences: Transition scaling up support		
Sector-specific outcome mapping	Project management and planning	Taking opportunities
Understanding your users/beneficiaries, Creating a prototype	Communication/pitches	
Trends/ macroeconomic environment, Financial model, financial scenarios, social investments	Team work	
	Innovativeness	
	Creativity	

Source: based on available information from Curriculum Areas (TRANSITION London) and feedback from TRANSITION project leader

II.11. Key players involved in Entrepreneurial Education

The current chapter presents an additional insight from the case studies on involvement of key players in entrepreneurship education.

II.11.1) Entrepreneurship Competences for Teachers

Educators' training and support is crucial alongside their motivation and recognition

The role of an entrepreneurial educator has been indicated as a key success factor by all case studies. With the pedagogical shift to more self-directed and student-centred learning together with the multidisciplinary character of entrepreneurship, teachers have to be prepared for their new role. The teacher plays a role of facilitator rather than the one of an instructor, facilitating the learning of individuals rather than the entire class.

Moreover, the teacher should understand the key concepts related to entrepreneurship, including key business and economic terms (ESP, SEECEL, JEP, UWTSD). This includes, the entrepreneurship dimension/specific knowledge, the entrepreneurial way of thinking, alongside pedagogical methods and resources in support of entrepreneurship as part of teacher education.

Educators training and support is an important element of each initiative; even though many initiatives emphasise the importance, not all address educators' training to the same degree. For instance, the SEECEL, YouthStart, ESP, SIMULIMPRESA and UWTSD cases may serve as good examples regarding the effective consideration of educators training, each for different reasons.

LUT MTEE is a specific tool to measure entrepreneurship education, but also, a tool which allows teachers to reflect upon their performance and put recommendations on how to improve their teaching into practice. Based on the experience, LUT MTEE highlights the need for holistic approach, for instance by creating multidisciplinary teacher teams. In general, teachers' networking with fellows and with the outside world is put forward by several case studies - JEP, LUT MTEE, SIMULIMPRESA, UWTSD, Youth Start.

In the case of SEECEL teacher training is incorporated by applying a rather systemic approach. A teacher training model is developed and modules are adapted for each SEET country. What is more, direct collaboration of SEECEL with teacher training authorities ensures the implementation in long-term. The SEECEL Instrument developed in each ISCED level integrates these modules as in-service teacher training for immediate impact while ISCED level 5&6 tackle pre-service teacher training directly.

Through its IICED centre, UWTSD tackles initial and continuous teacher training incorporating novelties in creative entrepreneurial development. As a good practice, UWTSD developed the first of its kind teacher training programme (initial teacher training) but also the new method 'glorious failure' and peer review, alongside the high degree of adaptation to the context of teachers' experience are key success factors. Educator training is essential to UWTSD, especially, when it comes to understanding creativity evaluation through an understanding of divergent and convergent thinking strategies. Basic neuroscience knowledge is taught to teachers to help them better understand how the human brain

works. As a result, teachers are able to understand better the learning process related to such entrepreneurship competences as creativity or innovativeness are.

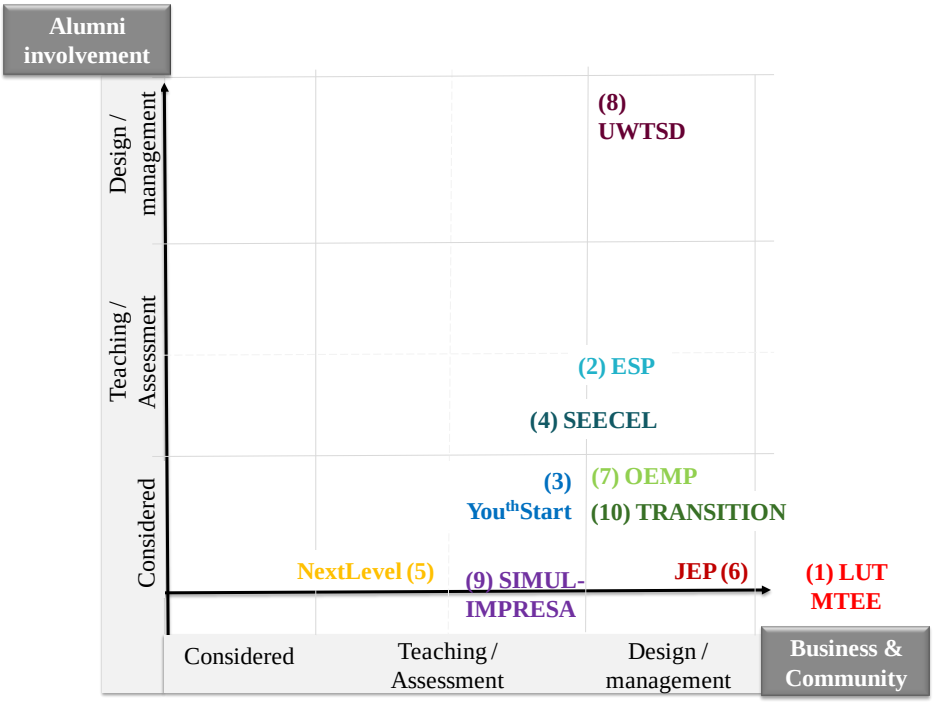
Valuable aspect is evident in JEP and SIMULIMPRESA case studies where 'differentiation' is part of teacher training. In line with the above mentioned student-centred and individual approach to teaching, differentiation is a recognition that children differ from one another in how they learn and in what they can learn. Accordingly, approaches to teaching and learning ought to be adapted to learners along with targets to be reached. Differentiation also takes into account children's interest, level of motivation as well as previous learning experience and pace of learning.

All said, it seems important to motivate and recognize entrepreneurial teachers (SEECEL, LUT, and SIMULIMPRESA). The enchantment of motivation among teachers in SUMILIMPRESA case study considers aspects such as insecurity, ability to teach in different fields, knowledge of business world, assessment confronting and change of roles. Meanwhile, UWTSD highlights the motivating effect when teachers keep in contact with students after graduation, whereas LUT MTEE considers the introduction of teacher awards.

II.12. External mentors and peers

As already discussed, it is crucial for learners to connect with the outside world. Being mainly based on learning-by-doing this approach seems highly relevant. Moreover, the majority of case owners highlighted the involvement of business representatives among the key success factor of their initiative.

There is, however, a difference in how the case studies involve external stakeholders. At first, there is involvement in teaching, then participation in the assessment as well as the validation process. The contribution of business representatives in the design phase appears to be powerful. Certain cases involve business representatives in the working groups (ESP, SEECEL, UWTSD), some initiatives are steered strategically (initiator of ESP), while others are entrepreneur-driven by direct management and coordination (JEP). Similar involvement may also apply to alumni. The following figure shows that all case studies strongly involve representatives from the business sector in teaching and assessment activities while only one fully exploits the potential of graduates / alumni (UWTSD).



Source: prepared by CARSA; note: LUT MTEE

Figure 34: Involvement of key players in entrepreneurship education

The UWTSD case study with its continuous involvement of external stakeholders and especially alumni in the entire learning/teaching process from the setting up phase until assessment may be considered a good practice in the area.

As much as business representatives are very relevant for the entrepreneurial side of education, other external stakeholders should not be forgotten. Besides the specific social innovation incubation programme (TRANSITION), other initiatives are open to the non-business community, including cooperatives, social entrepreneurs, charities or prisons, depending on the topic of the project/studies/mini-company. Regarding lower education initiatives NextLevel includes a welfare and society category, while the ESP's initiator

organises a specific social enterprise award for mini-companies creating social impact. What is more, Youth Start largely incorporates aspects linked to the 'social responsibility', whereas SIMULIMPRESA and UWTSD, both initiatives with a wide scope, cover adult education and other thus diverse profession context to the learning.

A specific characteristic of the executive programme OEMP, professors are often experienced entrepreneurs, or business leaders.

Another fact supporting the need for both, business and community representatives as well as alumni has been noted from the ESP experience. Students do not always see how entrepreneurship education may be important for their future. Business or other representatives may encourage them via real world activities, while alumni explain how they were influenced and how the initiative contributed to their success.

The JEP case study shed light on the legal and ethical aspects of alumni and external visits to the classrooms in primary schools. It intentionally designed the mini-company programme so as to ensure the best interest for kids. Legal agreements are signed with schools, parents and entrepreneurs ensuring among other aspects that an external visitor is available for each participating classroom, providing rules and guidelines. On the other hand, the JEP initiators highlighted ethical issues when keeping in contact with alumni. The initiative is currently considering for the best solution since, for instance collecting email addresses of young children for future use is not regarded as an ideal solution. Rather close relations with parents may be necessary for this purpose.

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