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GUIDE ENTREPRENEURIAL EDUCATION



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Guide - Entrepreneurial Education

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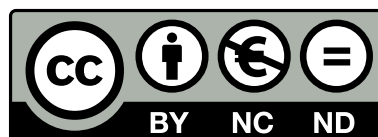
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OVERVIEW

OVERVIEW

The aim of this Intellectual output is assess the overall state of entrepreneurial education in VET across European Commission countries and in particular, to identify innovative practices within individual partner countries. In doing so, a core entrepreneurial skill-set and framework has been developed based on recent, influential academic studies and a toolkit for teachers and students created to facilitate learning in educational stakeholders within participating countries.

The overall conclusion is that entrepreneurial education works best when it is 'taught' loosely, in an unconventional manner, where learning is work-based and contextual, where the learner is self-directed in his or her entrepreneurial learning process, and the broader national entrepreneurial education policy and supports are defined, prioritized and funded. Research suggests that the Scandinavian countries of Finland and Denmark do this best, but projects in Ireland and Italy are noteworthy for their ambition to teach entrepreneurial thinking in young children, non-business students and academic staff.

A core set of entrepreneurial competences have been articulated from research sources – namely, entrepreneurial perspective, empowered autonomy and financial acumen. A toolkit has been developed to assist VET in teaching these competences to students, drawing mainly on the Business Model Canvas concept, but also incorporating elements of Finland's 'Me and My City' teaching project, the Hackathon process, and findings from the Creative Problem Solving and Gamification outputs of IV4J.eu.

Extensive notes, practical tips and related projects are also provided.

INTRODUCTION/SYNOPSIS

The overall conclusions from the research gathered from the IV4J project partners on Entrepreneurial Education, policy and practices, are as follows:

1. There are national differences in Entrepreneurial Education, policies and practices, and these differences have a validated impact on the behaviours and employability of VET students within respective countries. Many of these practices incorporate the 'Dual-Model' of school and work-based learning, and
2. On a trans-European basis, there is a re-orientation of education policy and practice from imparting entrepreneurship knowledge (i.e. on how to start your own business) to enabling students how to develop entrepreneurial mind-sets and behaviours that may be used in both business and non-business capacities. This re-orientation is grounded in both macro and micro economic development policies across Europe.

An overall national assessment of Entrepreneurial Level of Education at Vocational, Professional, College and University Level, contained in the 2016 Global Entrepreneurship Monitor (GEM Report) in Ireland, is as follows (sample of countries only):

Score	Country
High (7.5 to 8.5)	-
High (6.5 to 7.5)	-
High (5.5 to 6.5)	Estonia, France, Netherlands, Switzerland
Medium (4.5 to 5.5)	Austria, Cyprus, Finland, Italy, Latvia, Macedonia, Portugal, Slovakia
Low (3.5 to 4.5)	Germany, Ireland, Greece, Sweden, UK, Spain, Slovenia, Hungary, Bulgaria, Croatia
Low (2.5 to 3.5)	Poland
Comparator Countries	Australia (4), Canada (5), USA (5)

The above table, and information derived from interviews with thought-leaders and education stakeholders in the Entrepreneurial Education space (see note 1 below) suggests that European Nordic countries (i.e. Norway, Finland and Denmark) are perceived to be best-in-class in terms of topic-specific education provision with related benefits for VET student employability and job creation.

In this context, a commonly held belief is that the primary reason for the superior performance of these countries is the creation and implementation of an inter-departmental national education strategy (inclusive of the business sector) across primary, secondary and third-level education. Also, of significant strategic importance, is the existence of organisations funded by Government in both Denmark and London, to provide educational materials and training to facilitate entrepreneurial education strategy i.e. the Danish Foundation for Entrepreneurship.

Other factors include the cultural and economic context for enterprise and entrepreneurial education. Research from the Knowledge Centre in Denmark, regarding the value of Entrepreneurship Education,

suggests that VET students are more likely to attend school, interact with their peers and perform better after school if they have received Entrepreneurial Education throughout their education (see note 2 below).

Moreover, a key threat to progressive Entrepreneurial Education in VET is the limitation of its remit to knowledge transfer of technical business subjects (i.e. start your own business) and the 'pigeon-holing' of Entrepreneurial Education to new venture creation rather than to lateral problem-solving and initiative-taking in any domain or subject area.

NOTE 1:

2018 meetings with thought-leaders, and key stakeholders include Professor Tom Cooney of Dublin Institute of Technology, Michael Moriarty and Joan Russell of ETBI Ireland, and Paul Fitzsimmons (co-author of GEM Report Ireland).

NOTE 2:

Impact of Entrepreneurship Education in Denmark – 2014

<http://eng.ffe-ye.dk/media/785760/impact-of-ee-in-denmark-2014.pdf>

Main results of the Foundation's impact measurement.

General conclusions: Entrepreneurship education:

- impact at one level leads to entrepreneurship education at later levels
- increases the desire among pupils and students to become an entrepreneur
- affects pupils' and students' entrepreneurial behaviour outside school and studies
- leads to higher incomes later in life – for self-employed as well as for employees
- increases pupils' and students' belief in their own entrepreneurial skills
- increases the likelihood of the individual becoming an entrepreneur
- increases the likelihood of the individual wanting to work with innovation in established companies
- increases the likelihood of the individual wanting to work as a manager in a private company.

Chapter 1. **ENTREPRENEURIAL
EDUCATION POLICY
AND PRACTICE, ON A
EUROPEAN AND COUNTRY
BY COUNTRY BASIS**

1.1 Pan - European

EC ENTREPRENEURSHIP 2020 ACTION PLAN (EC 2013) – aims to bring practical experiential learning models and real-world experiences into the classroom.

The Entrepreneurship 2020 Action Plan is the EU Commission’s response to challenges brought by the economic challenges across Europe in the last decade. It aims to ease the creation of new businesses and to create a much more supportive environment for existing entrepreneurs to thrive and grow.

The Entrepreneurship 2020 Action Plan identifies three areas for immediate intervention:

1. entrepreneurial education and training to support growth and business creation;
2. removing existing administrative barriers and supporting entrepreneurs in crucial phases of the business lifecycle;
3. re-igniting the culture of entrepreneurship in Europe and nurturing the new generation of entrepreneurs.

The Action Plan and its key actions will be followed up by the Commission through the competitiveness and industrial policy and the Small Business Act governance mechanisms.

EU Commission – ‘ENTREPRENEURSHIP EDUCATION – A ROAD TO SUCCESS’ (2015) – extensive survey of national practices and projects

In 2013 Department General (DG) Enterprise and Industry commissioned ICF International (American company) to conduct a mapping exercise of examples of research on the impact of Entrepreneurial Education.

This report presents the outcome of the mapping exercise: 91 studies from 23 countries were identified. Eighty four studies addressed initiatives and actions taken at national level, and seven examples researched the effects of transnational projects operating in several countries.

The prevailing conclusion emerging from the evidence collected is that entrepreneurship education has a validated impact on subsequent student behaviour. Students participating in entrepreneurship education are more likely to start their own business and their companies tend to be more innovative and more successful than those led by persons without entrepreneurship education backgrounds. Entrepreneurship education alumni are at lower risk of being unemployed, and are more often in steady employment. Compared to their peers, they have better jobs and make more money.

Notably, effects tend to cumulate and lead to acceleration: those who participated in a higher number of entrepreneurship education measures benefited more over time. The positive impact is not restricted to students and alumni. Besides impact on the individual, evidence from the examples reviewed for this study also shows impact on educational institutions, the economy and society.

EC – ‘RETHINKING EDUCATION’ – EC invited member states to foster entrepreneurial skills from primary to higher education (2012)

In the document from European Commission named “Rethinking Education”, the EC invited Member States to foster entrepreneurial skills through new and creative ways of teaching and learning from primary school to higher education, with a focus on business creation as a career alternative.

The key conclusion of this report was that real world experience, through problem-based learning and enterprise links, should be embedded across all disciplines and tailored to all levels of education. In short, all young people should benefit from at least one practical entrepreneurial experience before leaving compulsory education’.

The so called ‘Dual Model’ of Vocational Education and Training – a systematic combination of school and workplace-based learning – has become an important part of development of vocational education. By involving companies in the design and delivery of educational programmes and including practical experience in courses can help attune curricula to current and emerging labour market needs and foster employability and entrepreneurship.

For example, in Italy, after the educational reform taking place in last years, the participation in work-based learning (alternanza scuola-lavoro) is mandatory in the three final years of upper secondary.

1.2 Finland

Finland – ‘Entrepreneurship for Education’ (2017) – Ministry of Education & Culture, guidelines for entrepreneurship

The Ministry of Education and Culture of Finland has published in 2017 guidelines for entrepreneurship, the document titled Entrepreneurship for Education – Guidelines in Finland covers all levels of education starting from the early childhood education up to higher education. Practical application of the guidelines in VET is put into practice through the ongoing VET reform process started January 2018.

The aim of the VET reform is to refocus the supply-oriented approach into a demand-driven approach making education competence-based and customer-oriented: each student is entitled to design an individually appropriate path to finishing an entire qualification or a supplementary skill set. Closer collaboration and active interaction with the business community is foreseen with an aim to assure that education providers become alert to changes in the demand of labour force. Digital learning environments and new approaches to pedagogy (e.g. modern simulators) will have a larger role in the future of learning.

The Ministry of Education and Culture of Finland participated in an international research project called Innovation Cluster for Entrepreneurship Education (ICEE). The project, carried out January 2015-January 2018, focused to understand what is needed to reach the goal set by the European Commission: every young person should have a practical entrepreneurial experience before leaving compulsory education. The ICEE Final Report was published early 2018.

<http://minedu.fi/yrittajyyslinjaukset> - in Finnish

<http://minedu.fi/documents/1410845/4363643/Entrepreneurship-for-Education-Guidelines.pdf/ad2a7ecc-ae1b-4460-8fc6-d394e9a0a23a/Entrepreneurship-for-Education-Guidelines.pdf.pdf>
- in English

<http://jaeurope.org/education/eu-projects/41-innovation-cluster-for-entrepreneurship-education.html>

<http://icee-eu.eu/component/attachments/?task=download&id=623:ICEE-final-report>

http://minedu.fi/en/policies-and-development_vet

Finland, 'Entrepreneurship and innovative capacity in higher education and vocational education and training' (ongoing evaluation by Finnish Evaluation Centre) – review of current practices and development needs and trends

The purpose of the evaluation is to reveal factors that promote or hinder entrepreneurship and innovation at the level of operating culture in vocational education and training as well as higher education. The views of students, education service providers and entrepreneurs will be studied. Opportunities for dialogue will be created to improve mutual understanding and to increase interaction between various operators and levels of operations. Results of the ongoing evaluation will be published throughout the project in related events and in form of written summaries and as feedback to education providers. The work is carried out in four phases. Final reporting will take into account the specific information needs of stakeholders with an ultimate aim to set forth recommendations on how to address the emerging challenges and opportunities

<https://karvi.fi/en/event/entrepreneurship-innovative-capacity-higher-education-vocational-education-training/>

<https://karvi.fi/event/yrittajyys-ja-innovaatiotoiminta-amatillisessa-koulutuksessa-ja-korkeakouluissa-yrtti-hanke/>

<https://karvi.fi/app/uploads/2017/09/Hankesuunnitelma-Yrtti-final.pdf>

https://karvi.fi/app/uploads/2017/09/Yrtti_Twopager.pdf

VET Reform in Finland – focus will be on competence-based and customer-oriented approaches

Within the new Finnish VET reform the role of WBL is critical. The objective of the reform of vocational education and training is to respond better to the changes occurring in working life and meet the future competence needs. Individual study paths will be created for both young people and adults already in working life. The significance of learning occurring at workplaces will be increased, and new learning agreements applied. Guidance of students at workplaces will be enhanced through collaboration between teachers and workplace counsellors. This kind of interaction is foreseen enable the parties to learn from each other and create an environment that boosts and supports entrepreneurship and mutual learning. Entrepreneurial approach forms a key component of the VET reform.

Closer collaboration and active interaction with the business community enables education providers become alert to changes in the demand of labour force. The features, particularly emphasized in the working life, consist of an independent and development-oriented way to work and readiness to take initiative. To navigate in the changing and multi-dimensional working life, entrepreneurial attitude is called for. There needs to be a possibility for creative thinking with no fear to make mistakes, this enables learners to adapt themselves to real working life. To that end, functional learning is one of the central pedagogical methods.

http://minedu.fi/en/article/-/asset_publisher/ammattillisen-koulutuksen-reformi-uudistaa-koulutuksen-vastaamaan-opiskelijoiden-ja-tyoelaman-tarpeita

<https://www.omnia.fi/uutiset/veli-matti-lamppu-uutta-osaamista-tuettava-jatkuvasti>

English versions of contracts:

<http://minedu.fi/documents/1410845/5970275/Koulutusopimusmalli+EN/d0d124cf-c0e7-4e38-b626-013d7c7931d4/Koulutusopimusmalli+EN.pdf>

<http://minedu.fi/documents/1410845/5970275/Oppisopimusmalli+EN/cd041c8c-5a71-4904-9d53-eb57cc462221/Oppisopimusmalli+EN.pdf>

Finland – Appointment of first Professor of Gamification

Dr. Juho Hamari (DSc, Econ) was appointed as Professor of Gamification at the University Consortium of Pori as of January 2017. This new, joint professorship of the Tampere University of Technology and University of Turku is the first of its kind in Finland. Gamification entails game-like elements in different kinds of systems and game dynamics and mechanics are applied, for example, in online services, education as well as in working life.

According to Professor Hamari, studying gamification is very important as games and game-like activities have risen to a central role in different sectors of life and, even more extensively, in the whole society. Gamification is not only the application of game mechanics in online services but also a wider phenomenon that permeates society and culture. Playing games creates new thinking models in other areas of life and gamification aims to influence people's experiences, motivations and behaviour in many different areas of application.

<https://www.utu.fi/en/news/news/Pages/First-Professorship-for-Gamification-in-Finland-to-University-Consortium-of-Pori.aspx>

<http://juhohamari.com/>

Research articles: <https://scholar.google.com/citations?user=tKMIaegAAAJ>

1.3 Italy

School reform was implemented in Italy in 2015 to improve learning outcomes and increase equity. For example, student aid has been reinforced with tuition waivers and reductions for more than 650.000 students.

However, it has been observed that Italian graduates take more time to enter employment (OECD 2016) than their European counterparts. This reduces incentives for secondary school graduates to go on to higher education and encourages graduates to work abroad. Transition from education to work is difficult, also for high-qualified people, causing an outflow of highly skilled unemployed people. The higher education system faces also the challenge of ageing and declining teaching staff.

As part of the 2015 school reform, traineeships have become compulsory for students in the last three years of upper secondary education (*alternanza scuola-lavoro*). There are however challenges in the structural framework such as the contract system, – lack of understanding of the interrelationship between on-campus and off-campus learning.

The ESF is Europe's main instrument for supporting jobs, helping people get better jobs and ensuring fairer job opportunities for all EU citizens. In the framework of the ESF, Basilicata Region is funding and launched some post-graduate studies as masters. Basilicata Regions intends to give a chance to students by facilitating the participation in high-level post-graduate teaching courses even for those who live in difficult economic conditions through the granting of full or partial coverage of tuition and attendance costs.

All master courses are funded in relation to the ability to transfer knowledge about effective ways to foster local development by providing entrepreneurial education i.e. Masters in Tourist Management and Marketing or Promotion of Local Production.

1.4 Netherlands

During the forthcoming 3E Conference – ECSB Entrepreneurship Education Conference in Enschede, 16-18 May 2018 - an explicit political agenda will be expressed, to promote entrepreneurship education at all levels. To achieve these objectives, it is proposed that educational systems and methods move from traditional to creative, interactive and student-centred educational models that orientate students' mind-sets towards employment opportunity identification and creation.

The lesson from innovative VET in Netherlands is the biggest threat for innovation and enterprise mentality is the success of the traditional industry and economies; if existing enterprises go well, educational stakeholders hold to the motto, 'never change a winning team.' Given the time-lag in changing business fortunes, the Netherlands partners on IV4J believe educational stakeholders in VET should take a more active role in anticipating business/ employment trends, and proposing relevant educational solutions.

For example, currently, large successful high-tech organisations predominate within the Brainport region (Eindhoven and surroundings), and the greatest perceived education need is the provision

of professional skills training (not entrepreneurship). Alternatively, in the less-developed MRA (Amsterdam) area, despite delays in infrastructure and an educational skill-building response, the area has become known for bottom-up self-organization, enabled by the in-flow and density of entrepreneurial individuals.

1.5 Germany

Germany, 2016 GEM REPORT and Entrepreneurial Education

Europe is home to the worst rates of entrepreneurial activity. According to the 2014 Global Entrepreneurship Monitor (GEM), only 6.9 percent of Europeans were in the process of starting a business.

As of 2014, a mere 5.9 percent of Germans indicated they had plans to start a new business in the near future. Of the 868,000 entrepreneurs in 2013, 53 percent started businesses because they saw an opportunity rather than out of necessity. Not only were opportunities seized, but a record number of new innovations were brought to market in 2013.

While total entrepreneurship in Germany may be ticking up, full-time entrepreneurship is at an all-time low. Recent gains in overall numbers are solely due to the large increases in part-time entrepreneurs. Figure 4 shows the breakdown over the last 5 years. The share of full-time entrepreneurs with employees, however, is on the rise; enhancing the economic importance of these new business starts.

The German situation of entrepreneurship education can be described as a very low institutionalized but as an on-going discussed topic for general and vocational training. The aims in Germany for entrepreneurship education are 'entrepreneurial thinking and acting' as defined in the German idea of 'entrepreneurship competence'.

The three-way combination of structured entrepreneurship education in general education schools and vocational training colleges, more effective recruitment by entrepreneurs to attract the next generation, and more sophisticated, balanced media coverage of self-employment issues could certainly help to create a stronger entrepreneurial culture in Germany.

[https://www.kfw.de/KfW-Group/Service/Download-Center/Research-\(EN\)/Focus-on-Economics-\(EN\)/](https://www.kfw.de/KfW-Group/Service/Download-Center/Research-(EN)/Focus-on-Economics-(EN)/)

Germany, Dual System of Entrepreneurial Education

In Germany, Entrepreneurship Education in the initial vocational education within the Dual System. Within the Dual System aspects of entrepreneurship education can be found in the different curricula for the school-based and the company-based training. The overall intention for the vocational school part is to foster a global action competence within the profession. The main emphasis is on independent and self-responsible planning, acting and reflection. The goals are described mostly as outcomes for an employee.

In specific training programs (e.g. retail) the competences for founding a company or working self-employed is integrated as optional modules. For the curricula in the companies the overall intention

is to foster qualified professional abilities and experiences. There is no explicit definition of starting an own business but business related managing processes and competences needed for those processes are defined.

1.6 Ireland

Ireland, 2016 GEM REPORT, Ranking of EU Countries in terms of Entrepreneurial Education

The Global Economic Monitor (GEM) Report is widely regarded as the most important survey of entrepreneurial behaviour and attitudes in Ireland, when published each year. In the context of this review, Paula Fitzsimmons, one of the authors of the report, confirmed the following from the 2016 GEM Report:

- Ireland ranks 5th highest in Europe for the rate of entrepreneurship among those with a graduate education – very high
- Rates of entrepreneurship are generally higher for those with higher levels of education in Ireland
- 7 in every 10 nascent entrepreneurs and new business owners in Ireland have some form of post-secondary education
- Regard for successful entrepreneurs is higher in Ireland than in the US (83% vs 72%)
- In line with academic research findings (see note 1 below), the number of lower-skilled, “necessity” entrepreneurs (because of unemployment and lack of employment opportunities) rose in Ireland during the economic downturn in Ireland, typically seeking self-employment options.
- Academic research also suggests that higher-ability entrepreneurs are unaffected by external recessionary factors, and are typically, ‘opportunity’ focused in start-up orientation. Using a binary ‘opportunity’ versus ‘necessity’ categorisation, 83% of Irish entrepreneurs chose ‘opportunity’ as their start-up orientation in the 2016 GEM Ireland report.
- 1 in 13 employees in Ireland are active in development of new activities for their employer (Germany, Sweden, UK also higher)
- Less than 50% of people in Ireland believe they have the knowledge and skills to run a business (this is the norm for Europe).
- 19% of entrepreneurs in Ireland believe they have no competing business (very high).

In summary, the Report proposes that levels of Entrepreneurship in Ireland are positively aided and improved by education in secondary, VET and higher-levels. This assertion contrasts significantly with previous beliefs that Entrepreneurs were best served by leaving college early and circumventing traditional education/ careers paths.

Paula Fitzsimmons (co-author of the Ireland GEM Report) also asserted during interview that graduate education combined with intensive support and education from by the High Impact Unit of Enterprise

Ireland (Government export industry agency) has been highly successful in developing high-potential entrepreneurs over the last 5-10 years.

Thirdly, the majority of Irish respondents are 'opportunity' oriented and unaffected by external economic conditions. This is in keeping with high levels of Irish graduate education and positive public perceptions of Entrepreneurship in Ireland.

Note 1:

Research on correlation between economic conditions and "opportunity" and "necessity" entrepreneurs, by Fatma Deli, Florida International University (2011).

Ireland National Skills Strategy 2025

The National Skills Strategy until 2025, for Ireland, sets out the Government's aims and objectives of developing a workforce capable of meeting the demand for appropriately skilled workers in one of the fastest growing economies in Europe. Included in this report, is a timeline for the development of an Irish Entrepreneurial Education policy that can be implemented through the primary, secondary and tertiary education levels.

The Department of Education are presently commencing this work and are working in collaboration with key stakeholders with the education sector and commercial enterprise. The Department has also expressed interest in the outputs, findings and proposals of this report.

Ireland – Transition Year (fourth year in secondary), opportunity to experience work-based learning.

The current secondary school curriculum in Ireland gives students the option to take a 'gap' year, when they may undertake a work-based internship including the opportunity to work in a Small Business/ Entrepreneurial environment. This development has been generally positively received; however, entrepreneurial-related internships are rare and unlikely to provide the student with significant entrepreneurial exposure.

Ireland – all major colleges have Professor of Entrepreneurship.

In Ireland, all major third level colleges now have Professors of Entrepreneurship (i.e. Trinity College, University College Dublin, Dublin Institute of Technology). Moreover, in Queens University Belfast, there is a full-time dedicated Professor of Entrepreneurship, and all courses (including non-business i.e. nursing, sport etc.) have an entrepreneurship module integrated into their curriculum.

1.7 Denmark

The Entrepreneurial Education policy and teaching practices of Denmark is widely regarded as one of the most progressive educational infrastructures for the development of entrepreneurial skills across Europe. At the heart of their reputation and successes lies a cross-sector, interdepartmental education policy and educational support network.

Entrepreneurial education has been a feature of education policy and practice in Denmark for over twenty years, with the early establishment of a four ministry partnership entitled 'Partnership for

Education in Entrepreneurship' between the Ministry of Science, Innovation and Higher Education, the Ministry of Culture, the Ministry of Children and Education and the Ministry of Business and Growth.

This was consolidated by the introduction of the 'Strategy for Education and Training in Entrepreneurship' and the creation of The Danish Foundation for Entrepreneurship, established in 2010, is another joint effort of the four Danish ministries. The Foundation supports the development of entrepreneurship education at all levels, funds entrepreneurial projects, and undertakes research and analysis in the field. Schools, teachers and pupils have the opportunity to engage with a large number of different initiatives, programmes and projects, due to the significant emphasis put on entrepreneurship education and on entrepreneurial attitude and skills at the policy level in Denmark.

Specifically, The Danish Foundation for Entrepreneurship - Young Enterprise, is the national knowledge centre for the development of teaching entrepreneurship. Established up by the Danish Government, the Foundation has the motto 'from ABC to PhD' to facilitate student access to entrepreneurship education from primary education to tertiary level.

Its three overall objectives are:

- To spread entrepreneurship education - for pupils and students to meet entrepreneurship at least once at every education level
- To enhance the quality of entrepreneurship education
- To facilitate initiatives that result in a higher number of entrepreneurs and innovative employees.

The Foundation puts emphasis on the development of material and advises on the implementation of entrepreneurship in teaching. New knowledge is generated by the Foundation through research and studies on the impact of entrepreneurship education in Denmark. The Foundation uses a broad range of implementation tools, including funds for development projects in entrepreneurship education, grants for students etc.

In addition it provides models for entrepreneurship education, education tools and enables networking for teachers and teacher training and carries out impact measurements, development projects and studies and promotes various programmes.

Since it was launched the Foundation has developed four programmes, including Start-Up programme, Company programme, Next Level and Project Edison. Alongside these programmes, there are also specialised support initiatives for elementary, secondary and VET, university and teacher training level.

Chapter 2. **PERSONAL
ATTRIBUTES AND
SKILLS OF THE
ENTREPRENEUR**

Overview

The personal attributes and skills of the Entrepreneur has been the subject of extensive research and educational curiosity for many years. Predominantly, the Entrecomp Framework definition of Entrepreneurial skills prepared by the EU Commission and the Harvard 2016 research study of 1300 students has influenced our thinking and are outlined in this chapter. Utilising the outputs of these reports, and other academic research, this paper proposes a simplified Entrepreneurial profile of 3 core skills and 5 desirable skills, plus a 5 level competence ladder for VET students and their tutors.

The concepts developed and proposed through this chapter, have subsequently been deployed as the outcomes of the Survival Kit, proposed in Chapter 4 of this Intellectual Output.

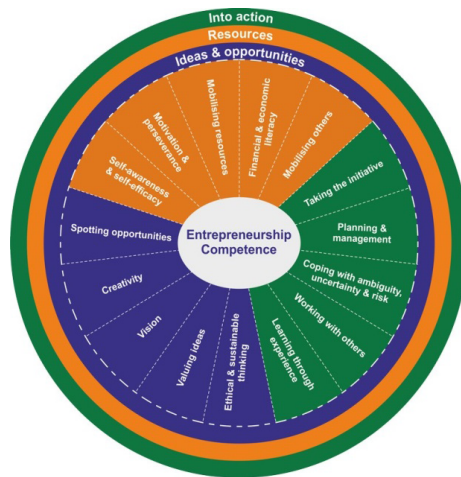
2.1 EntreComp, the Entrepreneurship Competence Framework

A common conceptual model, aimed to support the development of entrepreneurship competence at European level.

Entrepreneurship is described as a transversal competence applicable by individuals and groups to all spheres of life. The competence entails nurturing personal development, active participation in the society, (re)entering the job market as an employer or as a self-employed person and starting up a cultural, social or commercial venture.

The framework consists of 3 competence areas (Ideas and Opportunities, Resources, Into Action), 15 competences, an 8-level progression model and a comprehensive list of 442 learning outcomes. EntreComp serves as a reference in curriculum development both for the formal education and training as well as within non-formal learning contexts. Broadly defined, sense of initiative and entrepreneurship can be depicted as the capacity to turn ideas and opportunities into action that generates value for others.

There are three levels of proficiency that apply to all citizens: the foundation, intermediate and advanced levels. The expert level is context-dependent and not detailed in the framework. Although widely endorsed, the framework has not yet been widely adapted to, or tested in real settings.



Source - <https://ec.europa.eu/jrc/en/entrecomp> 13th December 2018.

2.2 Harvard 2016 Research study of Skills/ Attributes

2016 Research at Harvard Business School by HBS faculty- Lynda Applegate, Janet Kraus, and Timothy Butler aims to understand behaviours and skills associated with entrepreneurial leaders.

Administered to 1300 HBS graduates (entrepreneurial vs non-entrepreneurial) to distinguish the differentiators in EL (entrepreneurial leadership) between founders vs non-founders, serial vs non serial founders, male vs female founders.

EL Differentiates between Founder and Non-Founder Business Leaders

	Founder	Non Founder
Identification of Opportunities	Significantly Higher	
Vision and Influence	Significantly Higher	
Comfort with Uncertainty	Significantly Higher	
Assembling and Motivating a Team	No Significant Difference	No Significant Difference
Efficient Decision Making	No Significant Difference	No Significant Difference
Building Networks	Significantly Higher	
Collaboration and Team Orientation	No Significant Difference	No Significant Difference
Management of Operations	No Significant Difference	No Significant Difference
Finance and Financial Management	Significantly Higher	
Sales	No Significant Difference	No Significant Difference
Preference for Established Structure	Significantly Lower	

The report shows that the skills of identification of opportunities, creating a vision and influence others, comfort in working with uncertainty, networking and financial skills were significantly higher in student founders of new businesses. The only significantly lower skill-category among founders was preference for established structure.

EL Differentiates between Male Founders and Female Founders

	Female Founders	Male Founders
Identification of Opportunities	No Significant Difference	No Significant Difference
Vision and Influence	Significantly Higher	
Comfort with Uncertainty		Significantly Higher
Assembling and Motivating a Team	No Significant Difference	No Significant Difference
Efficient Decision Making	No Significant Difference	No Significant Difference
Building Networks	No Significant Difference	No Significant Difference
Collaboration and Team Orientation	No Significant Difference	No Significant Difference
Management of Operations	Significantly Higher	
Finance and Financial Management		Significantly Higher
Sales	No Significant Difference	No Significant Difference
Preference for Established Structure	No Significant Difference	No Significant Difference

Findings in this section of the research suggested that female founders showed significantly higher skill-sets in creating a vision, influencing others and operational management, while their male equivalents had a predominance of skill-sets in comfort with uncertainty and financial matters.

EL Differentiates between Serial Founder and Non-Serial Founder Business Leaders

	Serial Founders	Non-Serial Founders
Identification of Opportunities	Significantly Higher on all items	
Vision and Influence	No Significant Difference	No Significant Difference
Comfort with Uncertainty	Significantly Higher on all items	
Assembling and Motivating a Team	Significantly Higher on some items	
Efficient Decision Making	No Significant Difference	No Significant Difference
Building Networks	Significantly Higher on some items	
Collaboration and Team Orientation	No Significant Difference	No Significant Difference
Management of Operations	No Significant Difference	No Significant Difference
Finance and Financial Management	Significantly Higher on all items	
Sales	Significantly Higher on some items	
Preference for Established Structure	No Difference At All	No Difference At All

In the final category of differentiates between serial founders and non-serial founders, the three key areas of difference were identification opportunities, comfort with uncertainty and finance and financial management. Some areas of positive difference were found in the areas of assembling and motivating a team, building networks and sales.

Source:

<https://hbswk.hbs.edu/item/skills-and-behaviors-that-make-entrepreneurs-successful>

13th December 2018

2.3 IV4J Proposals

Drawing on:

- the three competence areas of the Entrecomp Framework (ideas and opportunities, resources, into action), and
- conclusions from the Harvard Research Study (opportunity identification, networking and collaborating, sales and marketing, planning),

We propose the following, simplified synopsis of core and desirable Entrepreneurial Skills and Attributes, to facilitate the design of subsequent business entrepreneurial education and non-business entrepreneurial education.

The core entrepreneurial skills proposed are:

1. Entrepreneurial perception
2. Empowered autonomy
3. Financial Acumen.

The desirable entrepreneurial skills proposed are:

1. Wilful determination to follow a Vision
2. Sales and Marketing
3. Ability to raise finance
4. Financial Management
5. Negotiation
6. Networking and Emotional Intelligence
7. Managerial ability.

The competence ladder for VET students and teachers proposed for graduated attainment of the skills and attributes outlined above are:

1. Cultured ability to see
2. Empowered ability to take action
3. Ability to define and attract appropriate resources
4. Ability to develop and refine a business/ contextual model of practice
5. Ability to persist and grow business/ concepts sustainably.

The starting point from this framework is opportunity identification and evaluation. The studies selected all clearly distinguish the entrepreneurial requirement to see enterprise opportunity irrespective of underlying economic or cultural barriers. In Ireland, for instance, in the midst of the recent economic downturn, the craft brewery industry saw a huge growth in their percentage revenues and the number of suppliers moving into the market. Similarly, across Europe, the growth on online shopping in most retail segments has increased enormously (approximately 40% of retail clothes sales across Europe).

The empowered ability to take action, highlights an entrepreneurial skill-set around designing, creating, piloting and launching new business venture services and products. This may be challenging for those without a self-employment or business start-up culture in their family background or reference communities. The contemporary start-up approach of 'boot-strapping' a business (i.e. starting a business without external capital or help) provides a low-risk option for first-time/ grey/ student entrepreneurs, who are motivated to trial business ideas, before building processes and securing resources for subsequently expanding the business.

In the toolkit section of this paper (Chapter 4), some contemporary platforms and options are outlined to promote students gradual acquisition of self-empowered, action-orientated beliefs and behaviours.

The final three stages of the proposed entrepreneurial competence ladder involved taking the embryonic business product or service and developing it into a sustainable economic entity.

The ability to define and attract resources is a cornerstone of all-forms of effective project management. In an entrepreneurial context, students will need to draw on financial acumen, the ability to prepare budgets and estimates and draw on sales and negotiating skills to deliver in the business vision. As has been articulated, this is an ingrained skill that many female entrepreneurs can use to their benefit.

The ability to define and refine a sustainable business model and means of delivery is the next level and a teachable process for developing financial acumen in outline in the Survival Toolkit (chapter 4).

Finally, the ability to persist and grow the organisation require some different values, skills and beliefs such as the ability to strategize, plan and evaluate, to negotiate effectively with customers suppliers and employees, and the skills of problem-solving and decision-making, to ensure the business attains its original goals and objectives or changes course or approach to attain revised goals or more realistic targets.

Chapter 3.

**AWARENESS OF
ENTREPRENEURSHIP
AS A POSSIBLE JOB/
CAREER OPTION**

Overview

Across Europe, governments and educational stakeholders and practitioners are quick to espouse the case of entrepreneurship as a possible job/ career option. At a national level, the creation of new jobs and basis for economic growth is the development and realisation of national entrepreneurial talent. Educators, on the other hand, are faced with growing numbers of graduates uncertain as to job prospects upon completing their education. The business case for investing nationally in education depends therefore on entrepreneurship and enterprise to produce jobs.

The research data to back up the trend of increasing awareness of entrepreneurship as a possible job/ career option has been difficult to identify. In Ireland, the most recent Global Economic Monitor report (2016) suggests that public perceptions of entrepreneurship as a career option are high. Similarly, a 2009 Higher-Education report on 'Entrepreneurship Education in Ireland' suggested that seventy-eight (78%) of undergraduate students expressed an interest in starting their own business at some point in the future. These students reports that their perception was mostly influenced by family members who started a business (33%) and high-profile entrepreneurs (22%).

On the educational supply side, 42% of College Presidents stated that entrepreneurship was reflected in their Mission Statement; however, they were also quick to point out the structural barriers to the practical implementation of their intentions, naming specifically inflexibility in organisational structures; lack of development resources and limited multidisciplinary working; timetabling and education delivery formats; and sadly, still, a lack of awareness of the benefits to be derived of embedding education across curricula.

Nevertheless, there is strong anecdotal evidence and individual country/ project evidence to suggest that this changing and that while not unilaterally aware across boundaries or institutions, there is a clear trend towards growing awareness of the importance of entrepreneurial education

Specifically, some key awareness raising projects identified during the course of this study included the following:

- EDISON Project (Ireland) – Training programme being implemented by Ireland ETB's, following EU Project
- EntrepreneurialSprint (Finland) – coaching programme developed by Omnia, skills assessment, networks, idea feasibility
- Motiivi (Finland) - new working methods to support young people – digitalization and gamification
- Best Services (Parasta Palvelua), Finland, Omnia is part of a consortium, creating practices related to work-based learning and learning contracts
- German Production Schools for Unemployed Young People
- Student Enterprise Programme (Ireland) – Awards programme run by Local Enterprise Offices across Ireland for secondary students.

Details of these innovative programmes and their awareness raising potential follows.

EDISON Project (Ireland)

- Training programme being implemented by Ireland ETB's, following EU Project

The EDISON course is a professional development programme run by the ETBI (VET teacher training body of Ireland) to train VET teachers to deliver their teaching from an entrepreneurial mind-set and to re-imagine their schools and colleges from an entrepreneurial perspective. The course was developed out of an EU project to reflect VET best practice across Europe in the area of Entrepreneurial Education.

The training model utilised is/was a train-the-trainer process whereby 38 teachers from a variety of ETB colleges received a pilot training course run over 3 weekend modules. A re-launch of the EDISON programme is due in teaching year 2018/19.

The three core modules of the programmes are:

- I. Understanding Entrepreneurship and Entrepreneurial Education
- II. Developing the Entrepreneurial Classroom
- III. Tools and Resources for Schools

The final exercise for teacher-participants to deliver a 'dragon's den' style presentation to a panel of experts on how their school would become an entrepreneurial college.

EntrepreneurialSprint (Finland)

- coaching programme developed by Omnia, skills assessment, networks, idea feasibility

EntrepreneurialSprint is a coaching programme that aims to generate and enhance entrepreneurial competence in business development. It provides the learner with understanding on entrepreneurship and the possibilities it brings along.

This coaching service enhances students' team working skills and ability to elaborate business ideas into service offerings and products. Even if a student is not focusing on establish an enterprise, this training prepares the students to work in a team, identify and recognize his/her strengths and put ideas into practice.

The business ideas of students are discussed and tested in teams during the Sprint with the support of a coach to improve students' business development skills. The outcome of team work is presented to coaches and other teams at the end of the initiative.

The key competences gained by students during the Sprint entails ability to assess and recognize own competences and strengths, capacity to assess business ideas and the corresponding development targets, ability to estimate own chances to become an entrepreneur and review the professional networks. The student will also be in a position to recognize the principles of profitable businesses and estimate the importance of entrepreneurship for own well-being and for the Finnish economy in general. The participants are offered different paths and options to continue their entrepreneurial studies within Omnia's Entrepreneurial Learning Environment.

In this context, advanced students can e.g. conduct their studies by tutoring at the Me&MyCity Project or participate in the National Skills Competition.

<https://www.omnia.fi/opiskelijansivut/avoinomnia-omnialaisille/ytot/ytot-1-jakso>

<https://www.omnia.fi/opiskelijansivut/avoinomnia-omnialaisille/ytot/ytot-3-jakso>

<https://www.omnia.fi/hae-oppimaan/ammattilliset-koulutukset/teemapolut/yrittajyyden-oppimaisema> (Entrepreneurial Learning Environment)

Motiivi (Finland)

- new working methods to support young people – digitalization and gamification

Motiivi – new methods for young people to face the future - is a programme that introduces new working methods to support young people that are in a vulnerable position. Support is given to target groups with an aim to find a place in the society through studies and work. The tools applied include i.e. digitalization and gamification.

Young people outside the working life or education cannot recognize the obstacles and promoters of their professional development and, consequently, cannot actively direct their actions towards realistic professional objectives. The project, implemented by a consortium led by Metropolia University of Applied Science, develops operational models of youth workshops, immigration associations and Navigator (Ohjaamo) service centres, the clients and participants of which form the main target group. The models, to be made available in digital form, reinforce professional opportunities of these young people for improved community participation, integration, health and access to and involvement in the labour market.

The target group, consisting of young people with 16-29 years of age, and at risk of being left outside the education system or labour market due to their vulnerable or disadvantaged position are being supported as well as young people affected by long-term unemployment.

One of the key messages of the project is that when pondering between different career options, decisive should be individual features and not gender-related assumptions or other stereotypes. Digital tools designed for young people are being used, such as the individual tool titled NäytönPaikka which enables the users to visualize their life and manage their important data and documentation online.

<http://www.metropolia.fi/tutkimus-kehittaminen-ja-innovaatiot/hankkeet/motiivi/>

<https://www.naytonpaikka.fi/> (service available also in English)

<https://www.xamk.fi/tutkimus-ja-kehitys/motiivi-nuorten-tulevaisuustyoskentelyn-uudet-menetelmat/>

Best Services (Parasta Palvelua), Finland, Omnia is part of a consortium, creating practices related to work-based learning and learning contracts

Omnia is a member in the consortium developing and tailoring Work-Based Learning over the period November 2017 – December 2019.

The project titled the Best Services (Parasta palvelua), led by Keuda Group, creates operational practices related to apprenticeships and prepares and revises the learning related contracts. The processes are streamlined and harmonized with an aim to enable the education service providers carry out the VET reform in an efficient way. Through four regional networks, this development

programme supports education service providers in introducing and implementing new operational models.

The project focuses to develop such working methods and service processes that the clients - students and the business community - will find them clear, efficient and serving the purpose. The project is part of a Set of Projects under the heading 'the Best' within which digital guidance, digital support and competence development are being addressed to support the education service providers in reforming their work. New and closer ties with the working life are being strived for to assure high quality VET and communication will be used in a determined way to share the development results.

<https://www.oppisopimus.fi/parasta-palvelua-kehittamisohjelmalle-okmn-rahoitus/>

<https://www.omnia.fi/tietoa-omniaasta/hankkeet/osaamisen-kehittaminen/parasta-palvelua>

German Production Schools for Unemployed Young People

The German Productions Schools, or social enterprise companies for unemployed young people, provide both training in a supported training environment, and work through delivery of real products in a live commercial environment. Young people learnt that if they do not correctly plan, prepare and deliver, their restaurant or shop cannot open, and their contract to tend a hotel's gardens or to paint the front of a house would be lost. They learn real team, project, marketing and production and customer service skills while training. All trainees work for a year, many for much longer, retaining their social benefits and usually receiving a small sum from profits, to make the move into fully-paid work.

This model provides:

- training and experience of real work for young people entrenched in unemployment
- local small scale provision to capture specific local market sales opportunities through a social enterprise.

Student Enterprise Programme (Ireland)

- Awards programme run by Local Enterprise Offices across Ireland for secondary students.

The Student Enterprise Programme sponsored and managed by Ireland's Local Enterprise Office network (a government sponsored local community initiative) is Ireland's biggest student enterprise competition. Each year over 22,000 secondary students from 620 schools take part in this Programme by setting up and running their own student business.

Students get to do everything a real life entrepreneur does when setting up a business – from coming up with the idea and business name to making and supplying a product or service and dealing with customers. Students taking part get to attend workshops, receive in-school talks from business mentors, benefit from visits out to local businesses and take part in a County Final to be in with a chance of representing their region at the National Final in Croke Park (national sport stadium).

The Programme is open to all second level students from 1st year to 6th year and runs from September to May each year.

Yong Social Innovators (Ireland)

Young Social Innovators (YSI), which was established in 2001 by Rachael Collier and Sister Stanislaus Kennedy, provides education and training to help young people engage effectively with social issues. It runs two flagship programmes for teachers and students, specifically, a Junior programme (for 12-15 year olds) and Senior Programmes (for 15-18 year olds), using team-based 'pathway' reflective models of practice.

In 2018, over 200 schools (400 teams) participated in the Senior Schools programme, culminating in an awards ceremony in April, for best team/ ideas across a spectrum of social issue headings. YSI also runs a Den-style programme, where student teams pitch for mentoring and support.

<https://www.youngsocialinnovators.ie/>

Junior Entrepreneur Programme (Ireland)

The Junior Entrepreneur Programme for Primary School children, was established in 2016 by Jerry Kennelly, CEO of Tweak.com (and previously founder/ owner of Stockbyte and Stockdisc). Based in Killorglan, County Kerry, the programme has been adopted by 400 primary schools across Ireland, culminating in an awards ceremony in June each year (In Dublin, 2018). The programme provides teacher training materials, support, and mentoring, and has plans for further outreach activities and expansion in 2019.

<http://www.juniorentrepreneur.ie/>

Chapter 4. **SURVIVAL**
TOOLKIT

Overview

This Chapter utilises the research and information gleaned in the previous chapters in the form of a student entrepreneur tool-kit (or 'survival-kit' as described in the chapter title). It is intended that this toolkit description will benefit both students and teachers in Vocational Education and Training.

The toolkit is based upon three tools or modules which together strive to inspire or transfer the key skills and behaviours of entrepreneurs from Chapter 2.

These modules are:

- a) How to create a business canvas.
- b) How to use Design Thinking to engender entrepreneurial perception.
- c) How to run a hackathon.

Moreover, these ideas have been structured in terms of the other areas of innovative practice addressed in the IV4J study, to facilitate a holistic understanding of entrepreneurial education best practice.

Recap of key skills and behaviours of entrepreneurs from Chapter 2

In Chapter 2 of this Intellectual Output, a number of key entrepreneurial skills and behaviours were proposed from the research gleaned.

The **core** entrepreneurial skills proposed are-

1. Entrepreneurial perception
2. Empowered autonomy
3. Financial Acumen.

The **desirable** entrepreneurial skills proposed are-

1. Wilful determination to follow a Vision
2. Sales and Marketing
3. Ability to raise finance
4. Financial Management
5. Negotiation
6. Emotional Intelligence
7. Managerial ability

The competence ladder for VET students and teachers proposed for graduated attainment of the skills and attributes outlined above are:

1. Cultured ability to see
2. Empowered ability to take action
3. Ability to define and attract appropriate resources
4. Ability to develop and refine a business/ contextual model of practice
5. Ability to persist and grow business/ concepts sustainably.

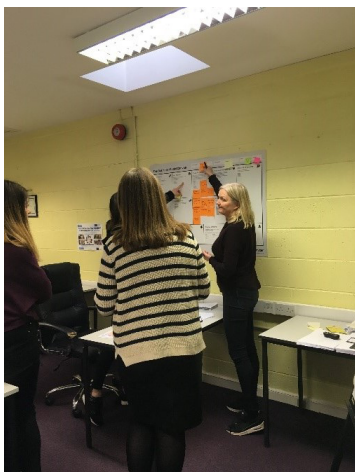
Given the breath of material the above proposals encompass, it is envisaged that the remaining content of the following section will focus on the teaching processes and materials pertaining to the three core entrepreneurial skills and the first two rungs of the entrepreneurial ladder.

Entrepreneurial Perception

The first rung on the entrepreneurial competence ladder is ‘the cultured ability to see.’ Few, it seems, have the innate creative ability to identify opportunity in the midst of normalised patterns of work-life behaviour and conventional business trends and practices. Thinking ‘outside-the-box’ for ideas, distinctions and innovations, while normal for some, it creatively a challenge for starter students of enterprise and entrepreneurship.

The starting point proposed to facilitate the underlying skill of ‘entrepreneurial perception’ is design-thinking/ business canvas. Design thinking is a method of creative problem-solving that strives to put the end-user’s (i.e. customer’s) views and perceptions as a lens or guiding focus for the subsequent development of problem solutions (i.e. products or services).

Module A - How to create a business canvas



The Business Model Canvas concept was developed by Alexander Osterwalder and Yves Pigneur, two researcher/ academic consultants working out of the University of Lausanne, Switzerland, while authoring their text on ‘Business Model Generation’ (Wiley, 2010). The Canvas is described as ‘a shared language for describing, visualising, assessing and changing business models.’ In this context, the authors propose ‘a business model describes the rationale of how an organisation creates, delivers, and captures value.’

Within a classroom/ training room environment, a wall-chart with the proposed component elements of a business model is used as the focal point of small group-activity to define and review the features and sub-component elements of the business model.

Post-it notes are assembled, arranged and re-arranged on the canvas as the creative process of establishing the business model evolves.

Further guidance for students using the Business Canvas approach for developing the underlying skill of 'entrepreneurial perception' is as follows:

- The student should take a lead role in defining the value proposition of the entrepreneurial venture (in terms of time, cost or performance)
- The entrepreneurial student should bring market understanding and research to the 'right-hand side' of the canvas, addressing factors such as customer segments, revenue streams, channels of distributions and means for building customer relationships (online and off-line)
- The student should use his/product or service knowledge to creatively determine the 'left-hand side' of the canvas, detailing matters such as production activities, key supply/ sales partners, cost structure and definition of resource requirements.
- The entrepreneurial student should also take a lead role in defining and re-defining the value-add of the venture, given the broader context of the business trends, niches, and the competitive environment of the product or service.
- The student also needs to creatively reassess the canvas in terms of the students' skills, ambitions and resources.

The photograph at the top of the page shows a group of students from the WEBNET programme completing a business canvas (see Chapter 5).

Module B - How to use Design Thinking to engender entrepreneurial perception

Service Design is a method used to develop a new service offering or to improve an existing service offering. The goal is to develop a service that meets the needs of both the users and providers of the service, in an effective and efficient a manner as possible. A service offering created from design practice is based on several core values:

- People are central;
- Solutions result from collaborations;
- Full context is worth examining;
- Design techniques ensure concrete and solution-oriented thinking
- It is a step-by-step process that is regularly tested and evaluated.

The Service Design Toolkit created during the EU, S.P.I.D.E.R. (Supporting Public Service Innovation using Design Regions) project, advocated the following 8 stage design process:

1. Framing
2. User Insights

3. Personas
4. Design Scope
5. Ideation
6. Service Concept
7. Prototype and Test
8. Feasibility.

Undertaking each of these stages can help develop the opportunity and evaluation skills of the student entrepreneur. Using the Service Design toolkit, questions and issues emerge concerning items such as:

- What do you want to achieve as an organisation with this venture?
- To whom will you offer this service?
- Which trends support your service? What are the underlying drivers, frustrations and motivations today?
- What value-add will you offer the target group?
- How typical are users? What motivates them? Through their eyes, what are the key issues?
- What service or element of a service do you wish to improve most? What is the greatest design challenge?
- What are ideas for possible solutions?
- How will users feel when having this service experience?
- What will you pilot devise and test?
- What works well? What could be better?

Other sources of information and materials for using Service Design for development of student entrepreneurial thinking, include toolkit material from Artssquarelab.net (an Entrepreneurial Education company based in Luxembourg, who specialise in Design-Thinking/ Business Canvas), the Business Academy of Entrepreneurship, a VET School in Denmark and Paul Thurston (Design Thinking).

Empowered Autonomy

A key difference in the orientation and attitudes of the entrepreneur and non-entrepreneur is the self-empowering ability to take initiative and grow a business through wilful-determination. This is reflected in the second in the second of the rungs in the competence ladder and the core skills of the entrepreneur.

As noted in Chapter 2, a contemporary start-up approach, popular with first-time entrepreneurs and students is 'boot-strapping', which seeks to commence/ trial a business idea without external capital or support.

Typical features of the boot-strapping approach are:

- Owner/ founders personally involved in running/ providing the business service
- Reliance on web-based means of promoting/ delivering the business, rather than a 'bricks and mortar' facility and associated investment/ cash-flow requirement
- A preference for co-working and collaboration-business, that minimises the need for fixed payment of rents, salaries, other outgoings. Initially, service provision between start-ups may be bartered and exchanged rather than traditional pay for service/ product arrangements, to facilitate cash outgoings
- A disliking for traditional business-planning methods which place emphasis on protracted market-research process and financial forecasting, rather than 'dipping the toe in the water', taking action and forming relationships
- Re-structuring the business opportunity as a short-term project/ contract, rather than development of 3-5 year business-strategic plan. For example, in the retail-world, the growing trend towards seasonal or event-based 'pop-up shops.'
- A financial focus on monthly/ weekly cash-flow management rather than profit or return-on-investment processes or programmes.

In addition, work-based learning is now perceived at educational policy and operational level as desirable best practice. Previous reference to the Dual education system practiced throughout VET in Europe makes reference to this policy.

Modul C - How to run a hackathon

A hackathon is a team-based creative problem solving activity, typically, involving a range of technical and non-technical team participants, end-users, consultants and stakeholders. Classic hackathon events typically involve a competitive team-element (with a potential prize of funding and/ or mentoring support), taking place over 48 hours with an associated solution/ presentation deadline, to a team of hackathon evaluators/ judges. Some presentations may including a working prototype of a website and/or physical product that evaluators can assess in light of the presenting challenges/ issues.

Much has been writing on the best-practice implementation of a hackathon event, including <https://hackathon.guide/>

In the context of a VET hackathon event, and the related entrepreneurial skill development of 'empowered autonomy', the following guidelines might be added:

- Entrepreneurial student should be requested to provide the problem-definition, explaining the evidence and context for the difficulties or challenges facing the end-user/s.
- The student should control the participant list of the hackathon, to facilitate the development of solutions pertinent to an entrepreneurial vision.
- The student should assume ultimate responsibility for the project design and project management of the project outputs. If there are disagreements in the team, the Entrepreneurial student must assume responsibility for addressing these problems and lead and influence the team through the presenting challenges.
- The student should take a lead in defining the financial requirements of the solution and the sustainability of the business case pertaining to any solution prototype. Typically, including in this assessment, the student should propose a research plan, including if possible, direct research engagement with end-users.
- The student should take lead responsibility for presenting the solution to the vent/ competition judges.
- The student should define what additional resources (financial, human and technical) are required to scale production of the solution to meet market demand.
- The student should define and guide the creative process by which the student manages the problem-solving process from issue to solution to plan.

Financial Acumen

The third core skill of the entrepreneur is financial acumen, meaning the ability to effectively and efficiently determine the requirements and viability of the proposed business venture.

Given the practical technical and practical nature of financial matters, the majority of business financial topics are best explained using traditional teacher-student pedagogical approaches (i.e. for knowledge transfer of financial ratios, preparation of cash flows, definition of terms, accounting processes and preparation of accounts). However, given the importance of underlying financial viability as a cornerstone skillset in the area of financial acumen, a proposed teaching process and student exercise are outlined below.

The exercise asks students to calculate the break-even volume of the proposed business venture.

- a. To calculate the fixed costs of the enterprise i.e. the annual, allocated cost of non-variable fixed elements such as rent, heat and light, insurance, accountancy fees etc. Salaries, wages and related taxes (of the entrepreneur and staff), are to be classified under fixed costs.
- b. To calculate the gross margin per unit of key product or service (i.e. sale price less variable costs, being costs which vary directly with the amount sold).

- c. Divide the fixed costs estimated in a. by the gross margin or contribution in b., to determine the number of units/ product/ services necessary to make and sale, to break-even in the year ahead. To facilitate management of subsequently sales focus this can be further broken down into month, week and daily targets.
- d. Where the break-even volume, is unattainable in terms of forecast sales projections (based on market research), then costs must be reduced or sales price/ projection adjusted until the overall business model indicates sustainability from all reasonable perspectives.
- e. A further adjustment may be made for the production and sales of multiple products/ services, typically reducing the requirement to sell main products and yet achieve projected costs. The business model can also be evaluated in terms of facilitating growth (through extending markets or products) and estimating the related costs of growth.

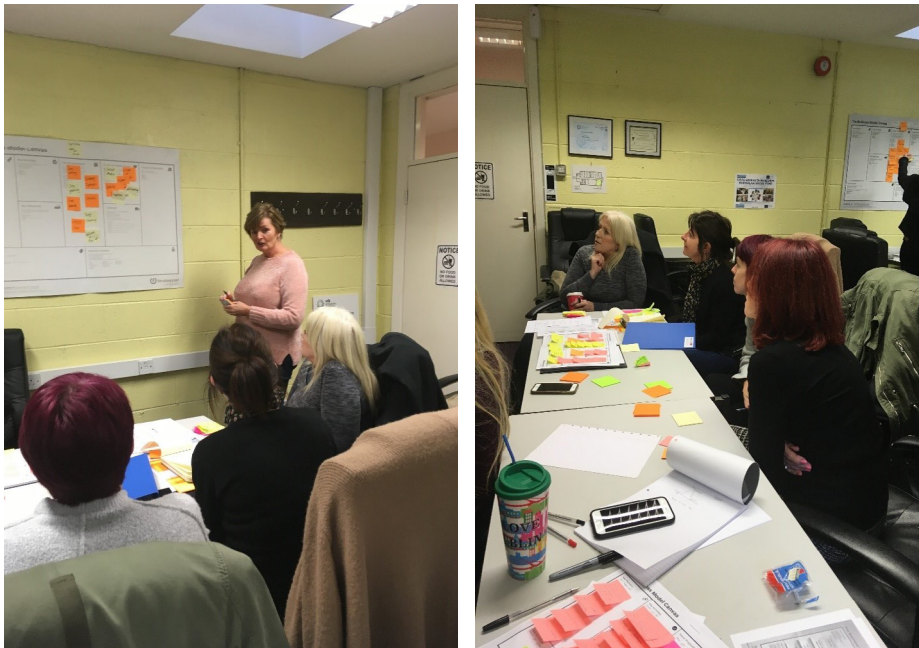
Chapter 5. **PRACTICAL
TIPS & PROJECTS**

Overview

- Network Creation/ Social Learning (WEBNET)
- Work-Based Learning/ Empowered Autonomy (Me and My City)
- Competency Development (Vet4Start-Up)
- Gamification (TOMPIM Start-Up)
- Using OER Resources (e-Omnia)

WEBNET - Female Entrepreneurship (Ireland)

Partas, a leading Irish Social Enterprise, is currently delivering a three-year female entrepreneurship project over three-years of behalf of the Irish Government Department of Justice and Equality (Irish Government), to support and train approximately 100 female entrepreneurs to start their own business and/or achieve self-employment. The purpose of this initiative is to address gender inequality issues relating to the percentage of females starting a business in Ireland and is measured in terms of both hard (students who start a business and/or finding business-related employment) and soft outcomes (confidence, networking skills, communication skills, financial acumen).



<http://www.partas.ie/Projects/WEBNET.aspx>

<https://www.facebook.com/Webnet-Partas-173263689870039/>

Interviews with students of the WEBNET programme, at an onsite meeting with the IV4J partners, in Dublin in 2018, is available at the link below:

<https://youtu.be/JpvXrKeywCw>

The WEBNET (Women Entering Business Network) programme will be delivered six-times, each session lasting six months (with some overlap of courses). Within each session, there are three Quality and Qualifications Ireland (QQI) accredited modules:

- Level 4 Career Planning
- Level 5 Start Your Own Business
- Level 6 Sales and Marketing.

Each accredited module has a knowledge transfer, skill development and work-based learning component i.e. during the Level 5 Start Your Own Business module, participants were asked to prepare a three year business plan and one-year financial cash-flow financial forecast. During the Level 4 Career Planning module, students are required to lead a market research focus group. The Level 5 module required preparation of a Sales and Marketing Plan and a 'Dragon's Den' style presentation to a panel of external entrepreneurs, and financial personnel.

During the Evaluation and Review components of the Programme, the course leaders identified a series of learning/ developmental challenges that students faced, along with appropriate learning strategies and tips they applied to overcome the barriers described.

Challenge	Learning Strategy	Tips
Loss in motivation, missing class, course drop-outs	Creating time for relationship forming, networking	Introducing networking exercise and extend social interaction time
Business idea unsustainable	Module on break-even analysis	Mentoring, reminders of the "Busy Fool"
Sales forecasts unrealistic	Module on market research	Mentoring, use the group for research purposes
Lack of confidence in sales and marketing	Module on selling and creating a marketing plan	Role play selling during sales training
Lack of confidence in academic abilities	Set attainable goals and sub-divide assignments into easy pieces	Mentoring, managing academic performance
Competing priorities (home-life, children, financial concerns)	Module on time management and a focus on sustainability	Developing the network, encouraging peer-to peer support
Multiple competing ideas, frequently poorly researched, unsustainable	Writing a business plan built around one sustainable idea	Mentoring, tailoring advice to suit the learner (creative versus practical)
Students making poor progress at implementing their ideas	Creating assignments that facilitate implementation of ideas	Guiding students towards the sales and marketing aspects of business launch
Females seeing business world as predominantly male oriented	Introducing a male tutor on the programme to promote gender balance	Have a male-female tutor balance
Concerns regarding Social Welfare (i.e. Government) financial support	Module on eligibility for Social Welfare benefits	Mentoring regarding start timing of the business and eligibility for Social Welfare benefits.

Lack of familiarity with Business-To-Business selling environments	Module on B2B selling environments	Create dragons den exercise where students must pitch their business to other businesses
Concerns with Taxation and Accounting Regulations and Procedures	Module on Tax and Accounting	Mentoring around any specific tax or accounting concerns.
Few female role models to draw upon in their home and work life.	Introduce female entrepreneur role models as external speakers and as examples during the course	Organise female guest speakers.

Me&MyCITY (Finland)

- aimed at ninth graders – dealing with business and global economy, covering society, working life and entrepreneurship

Me&MyCity is a learning concept, aimed at sixth-graders and ninth-graders, covering society, working life and entrepreneurship.

The concept is an internationally recognized education innovation and it reaches over 60 000 students in a semester, covering 8 different regions in Finland. The learning concept consist of teacher training, ten lessons under the director of the students' own teacher and a visit to the Me&MyCity learning environment.

The Me&MyCity learning environment for sixth-graders is a miniature city where students work in a profession and function as consumers and members of the society. The Me&MyCity for ninth-graders is a learning concept within which students form teams to run a business subject to changes within the global economy and learn about economy, working life and the cross-cutting themes. Lessons in history, social studies and career counselling are given.

The concept culminates to a game in the Me&MyCity learning environment. The game system is digital but the game forces the students to interact with each other intensively. The environment is thoroughly planned and pedagogically of high quality; each task has a learning objective. The Me & My City activities are coordinated by the Economic Information Office (TAT).

<https://yrityskyla.fi/en>

<https://yrityskyla.fi/en/me-mycity>

<https://yrityskyla.fi/en/for-schools/>

<https://yrityskyla.fi/en/way-mycity-immigrant-youths-miniature-society/>

<https://yrityskyla.fi/mika-yrityskyla/>

VET4Start-Up (Italy)

- a Euro-Net MOOC to improve the level of student skills and competences

www.vet4startup.eu The project aims to educate and train anyone interested in start-up thanks to an e-learning platform MOOC (Massive Open Online Course) and other useful and tailored materials and resources. VET4Start-UP seeks to improve the level of key competences and skills of student VET

entrepreneurs, through online basic, advances and sectoral programmes. Topics covered include Creativity, Business Model Canvas, Creation of Value, Networking and Sectorial Analysis.

TOPSIM-Startup” – business simulation game, run by German Universities

The computer supported business simulation game „[TOPSIM-Startup](#)“ represents the complexity and the relevant variables in different start-up situations, and covers all stages of a start-up business from collecting information, checking the business idea to transforming the business idea to a successful company in a competitive situation (Auchter, 2003; Auchter & Keding, 2004).

„[TOPSIM-Startup](#)“ is a strategic entrepreneurship simulation which was jointly developed by the University of Applied Sciences Regensburg, TATA Interactive Systems and the Hans Lindner Institute, a foundation established by a successful entrepreneur to support the start-up idea. The modular set-up of the simulation scenarios offers a wide variety of uses in different businesses ([www.TOPSIM.com](#)): Trade (e-Commerce), Service (Fitness studio), Production (High-tech sport goods). A strong emphasis is put on a realistic simulation of the start-up phases within the first 2 years of a new venture.

https://www.researchgate.net/profile/Alex_Maritz3/publication/298257445_Effects_of_personality_trait_on_perceived_risk_and_travel_intention_in_tourism_industry/links/57be00ab08ae2f5eb32de277/Effects-of-personality-trait-on-perceived-risk-and-travel-intention-in-tourism-industry.pdf#page=39

EOmnia

- digital platform - offers students the opportunity to undertake part of their studies online

While digital learning tools and skills form an essential part of VET curricula, in Omnia digitalization is seen as a mean to implement the pedagogical strategy, emphasizing the pivotal need to intensify the use of digital tools and methods, reinforcement of interactive and social processes in producing and distributing information, systematic documentation of the products, free access to information and a culture of knowledge and information sharing. This concept is critical also in entrepreneurial learning. The project titled eOmnia aims to offer in 2018 for all Omnia students an opportunity to conduct at least part of the studies online. The current online study options include courses of liberal adult education, general upper secondary education, upper secondary vocational education and training and further training.

<https://www.omnia.fi/hae-oppimaan/verkko-opetus>

<https://www.omnia.fi/hae-oppimaan/espoon-aikuislukio/tietoa-opiskelusta/lukion-verkko-ja-monimuotokurssien-opiskeluohjeet>

<https://oppiva.omnia.fi/wp-content/uploads/2016/04/Digiloikka.pdf>

<https://oppiva.omnia.fi/>

Chapter 6.

Implementation and implementation notes

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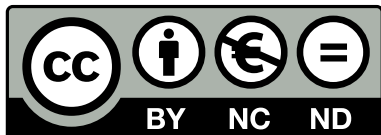
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