



Literature Review

Changing a university towards entrepreneurialism: Inspiring transformation in higher education institutions

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1. Introduction

In recent years a considerable body of publications on the entrepreneurial university and implementing the entrepreneurial agenda in higher education has evolved. A quick search on Google Scholar finds around 1.65 million references related to the term 'entrepreneurial university'. Searches in academic literature databases result in more than 4,400 articles. Scanning the titles reveals that a wide variety of topics have been studied. These include topics such as the implementation of entrepreneurship education, as well as the creation of spin-offs and incubators, the entrepreneurship attitudes of students, regional engagement of higher education institutions, strategies and incentives to make lecturers engage in entrepreneurship education, and didactical approaches for aligning curricula more to the skills demanded by employers. In other words, the research addressing the creation of (more) entrepreneurship in higher education has institutionalised and diversified, becoming a research area of its own. While this development leads to more detailed evidence, the complexity of the research field is a challenge for executives, managers and policy-advisors in higher education institutions who seek advice on how to develop their institutions more towards embracing the entrepreneurial agenda.

Higher education institutions planning to strengthen their entrepreneurial agenda need to make numerous choices concerning the ends and means of this change processes towards becoming more entrepreneurial. Making the right choice is a tremendous challenge for leaders, policymakers, and advisors in higher education institutions; there is no simple or single best practice. Plans for change are always context-dependent. The HEInnovate¹ platform (i.e. its website and resources) provides several case studies, user stories and videos in which practices and experiences around encouraging entrepreneurship and innovation are shared. These are valuable resources supporting change-makers; they can be used to inform actions and change plans.

The HEInnovate website currently provides a search menu with filters and the opportunity to search for keywords and expressions in the documents, so that users are provided with those documents that best match their information needs. However, for some users, accessing knowledge in this way is time-consuming, as they must sequentially read a set of case studies and extract the information they are after. Also, users interested in the practical interventions that may be considered when implementing change processes will have to make a considerable effort to identify the possible interventions and decide on which interventions are relevant for them.

¹ HEInnovate (www.heinnovate.eu) is a self-assessment tool for Higher Education Institutions (HEIs) that wish to explore their institution's entrepreneurial/innovative nature. It guides HEIs through a process of identification of strengths and weaknesses, prioritization, and action planning. It does so across eight key areas/dimensions, ranging from Leadership & Governance to Entrepreneurial teaching & learning and Knowledge Exchange & Collaboration. HEInnovate can provide inspiration and guidance to HEIs on the actions to undertake for pushing forward their institutions' entrepreneurial agenda. The actions may include the HEI's internal stakeholders (e.g. students, academics, managers) as well as its external stakeholders (e.g. local business, regional authorities, SMEs).

The accompanying research that is part of the EU-funded BeyondScale project² aims to make the existing academic and HEInnovate knowledge base on entrepreneurship in higher education more easily accessible to managers and practitioners in higher education who seek inspiration on how to push forward the entrepreneurial agenda in their institutions. Against this background, this document introduces the ‘Inspiration fiche’, as a new tool to support action plans in higher education institutions. The fiches (akin to cards) provide a condensed overview of possible interventions, potential barriers and other aspects related to the change processes in higher education. The fiches are based on a systematic literature review (SLR). SLRs provide comprehensive and rigorous overviews of published empirical research. They follow methodological guidelines to ensure the reliability, validity and replicability of the findings (Craciun & Orosz, 2018; Grosemans, Coertjens & Kyndt, 2017).

HEInnovate covers eight dimensions of organizational activity. This document presents the prototype of an inspiration fiche for the HEInnovate dimension “Entrepreneurial Teaching and Learning”. The HEInnovate description of entrepreneurial teaching and learning is as follows: Entrepreneurial teaching and learning involves exploring innovative teaching methods and finding ways to stimulate entrepreneurial mindsets. It is not just learning about entrepreneurship, it is also about being exposed to entrepreneurial experiences and acquiring the skills and competences for developing entrepreneurial mindsets.

This report provides insights from the systematic literature review that feeds the inspiration fiches. It also presents the framework used to extract insights from the literature and the HEInnovate resources. This document therefore will be limited to the question: “how can higher education institutions implement entrepreneurship education?” Answers to this question will be found with the help of an analytical framework that relates change processes around entrepreneurial teaching and learning to a diverse set of drivers and support mechanisms, as well as some context variables. We will focus on what factors play a role when implementing entrepreneurship education from an organisational and managerial perspective. Our major objective is to identify the factors that the outcome of the change process and make the process work.

² BeyondScale is a Forward-Looking-Cooperation Project, funded under the European Commission’s Erasmus + scheme. One of its major objectives is to strengthen the organisational capacity of higher education institutions through identifying barriers and drivers for their so-called inbound and outbound activities that play a role in their entrepreneurial transformation. BeyondScale also aims at enhancing the use and usefulness of the HEInnovate tool through systematically analysing the project partners’ experiences when employing the HEInnovate self-assessment tool and the accompanying resources provided through the HEInnovate online platform.

2. Understanding Entrepreneurial Transformation as an Organisational Change Process

In the literature (e.g., Clark, 1998; Etzkowitz, 1998) different concepts of the 'entrepreneurial university' have been presented. These concepts frequently describe the very nature of such a university but seldom reveal the change processes needed to drive the transformation towards an entrepreneurial university. Most publications address factors at the system level and how they push institutions to change, but hardly provide knowledge about achieving change at the work floor level. The HEInnovate platform presents the dimensions and characteristics of an entrepreneurial university rather than highlighting the interventions and change processes that make a university entrepreneurial. This becomes clear when studying the self-assessment statements that HEInnovate provides for users that wish to evaluate the entrepreneurial nature of their institution. The statements encourage users firstly to compare their institution with an idealised entrepreneurial institution, using a five-point scale. Then, after completing this self-assessment, the users of the HEInnovate platform that are interested in learning from other institutions are provided with a selected number of case studies and user stories to inspire them when preparing to change their institution towards that ideal. Currently, the HEInnovate case studies are not based on a common framework that identifies goals, characteristics and actions but rather they describe the interventions that were carried out by the case study institutions in a more story-like fashion, without a uniform structure that allows users to see how the institution navigated through its change process. An analysis of the experiences of the eight partners in the Beyond Scale project revealed that the HEInnovate case studies and user stories are a bit limited in terms of giving inspiration for interventions and change processes, because the resources do not always provide a clear picture of what (and how) actions were implemented to achieve the wished-for result. Thus, it often remained unclear from the case studies how the building of a more entrepreneurial institution was achieved.

Nonetheless, when addressing institutional change, we do find many scientific publications dealing with work floor level processes and using theoretical frameworks. However, these publications frequently (and necessarily) address only selected aspects of the change process and not all its dimensions. For example, some are about how to address the participants' motivation, and which stakeholders to involve, or what resources are important to achieve a successful change. However, most publications do not address the interplay of these aspects. Disregarding this makes it difficult for institutional practitioners to understand what needs to be considered when planning an institutional transformation towards entrepreneurship. For many practitioners these studies are often too abstract and theoretical, and therefore not matching their concrete challenges and demands for managerial support.

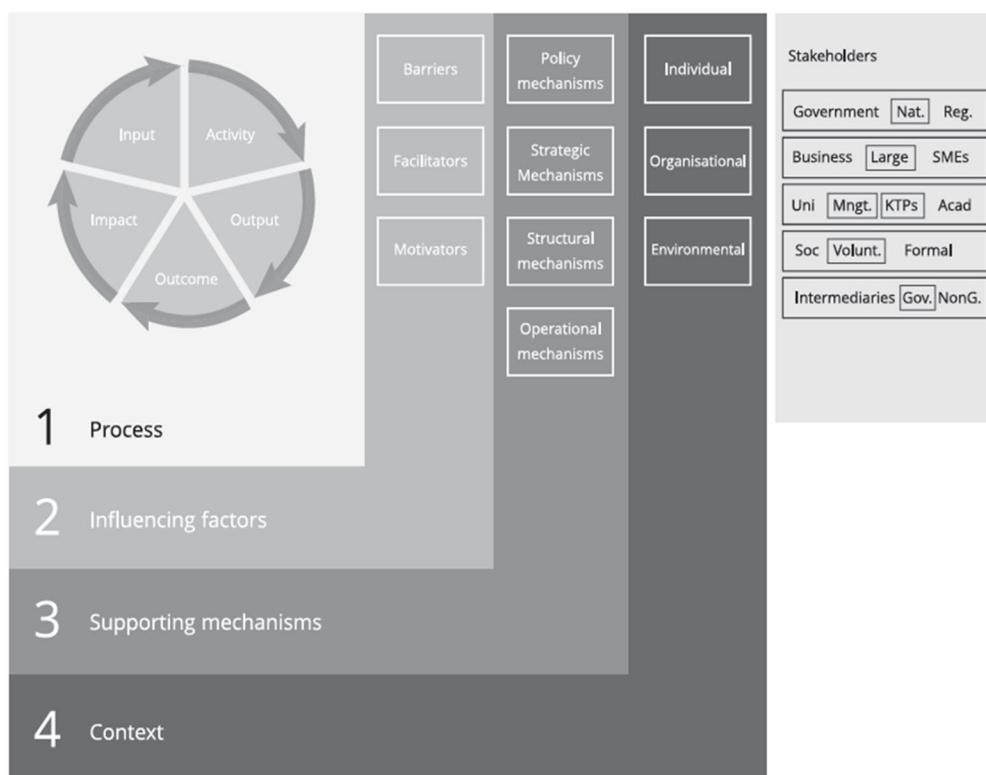
Against this background, participants in the BeyondScale project were in need of a more generic framework to better understand transformation processes in higher education institutions. Besides covering the different dimensions of change, this framework should not focus merely on a theoretical approach but set out some key relationships between interventions and outcomes and it should identify the factors that affect this relationship. The framework should therefore generate

advice to support management decisions, as it helps identify and highlight the factors that support change processes.

The university-business collaboration model of Davey and colleagues (Davey, Meerman, Galan Muros, Orazbayeva, & Baaken, 2018) in our view matches best with all these requirements. Their framework works with some broad generic categories that cover the basic elements and dimensions of institutional change processes. Due to its general character, it does not only help understand university-business collaborations but also can be used for analysing other challenges around implementing the entrepreneurial agenda in higher education institutions.

Central to the analytical framework is the process dimension, which relates to the change process. This process is operationalised as a simple activity chain. It distinguishes between inputs, activities, outputs, outcomes and impact. The process can be regarded as a cycle, because organisational change is usually not just a sequence of different activities, but often its actual outcome and impact leads to further action in the institution. This dynamic process is embedded in three further dimensions, or layers as shown in Figure 1: the influencing factors at the second level, the supporting mechanisms on the third level, and the context - on the fourth level. The second layer of influencing factors signifies the immediate environment in which the process takes place. At this level, various barriers, facilitators, and motivators influence the activity chain and pull it in one or the other direction. The (third) level of supporting mechanisms relates to the institution's enabling environment, that includes the policies that frame rather than directly influence the steps in the change process. Finally, the fourth dimension stands for the wider context in which the process is situated. It includes factors that are not under the institution's direct control, such as the individual characteristics and preferences of the actors involved or the circumstances in of the socio-economic environment of the institutions. In addition, the framework also looks at different sorts of stakeholders that can have a role in the change process. Stakeholders are linked to very different organisations in the institution's environment, say its ecosystem. Figure 1 below presents the framework.

Figure 1: Analytical Framework



Source: Davey, T. et al. (2018): *The state of university-business cooperation in Europe. Final report.* Luxembourg: Publications Office of the European Union, p. 26.

Our systematic literature review makes use of this analytical framework to extract evidence from the available scientific papers that deal with entrepreneurial transformation processes in teaching and learning. To this end, we operationalised the framework's elements to analyse the publications we identified. The operationalisations of the elements distinguished in Figure 1 are included in Table 5 in the appendix. With this approach, we populate the framework with relevant information from literature to identify the typical elements that make up change processes around implementing entrepreneurial teaching and learning. To find these typical elements we applied a systematic literature review, in which we condensed – in an iterative process – frequently mentioned interventions (for example, the integration of entrepreneurial skills in curricula) and classified them as typical interventions. For these interventions, we also identified similarities with regard to the process, influencing factors and other elements of the framework.

Through analysing a selected set of publications we aim to deliver a thick description of change processes linked to embedding entrepreneurship education in the institution. A thick description of a process does not just provide information on a number of process characteristics, but it also describes its context, and how the actors involved in the process are engaged in the process and how they interpret it. These thick descriptions do not aim to identify the causal relationships between interventions and their impacts but they also show the factors that play a

role in the change process. We will present descriptions in a format that is easy to access and digest by practitioners in higher education institutions. Table 1 below provides details on the elements that make up the thick descriptions of actions/interventions towards embedding entrepreneurship.

Table 1: Template for thick description

Process	Name/title of the intervention – describing the essence of the intervention
Description of process	This section will provide a detailed description of the change process in terms of typical activities, goals, inputs, outputs, outcomes and impacts.
Influencing Factors	This section will investigate what factors ('drivers') play a role in the process. What motivators or facilitators are important, what barriers have to be considered, and how to deal with them?
Supporting Mechanisms	What else is important to make the processes successful in the HEIs? What 'logic' underlies their functioning? What other enabling policies, structures and strategies have to be employed to support the implementation of the process
Context	What characteristics, attitudes, perspectives, or regulations at the individual, institutional, national or even supranational level play a role?
Stakeholders	What internal and external stakeholders participate in the process?
Further Reading	Link to HEInnovate case studies Link to selected literature

3. The Inspiration Fiches

The thick descriptions of possible interventions constitute the inspiration fiches that can serve as a tool to stimulate change processes in higher education institutions. The inspiration fiches aim to enhance the usefulness of the HEInnovate self-assessment tool, and will support higher education institutions in deciding on an action plan that responds to the challenges that were identified by the institutions. In its current set-up, the HEInnovate tool provides higher education institutions that completed a self-assessment with a selection of case studies that follow-up on the results of their self-assessment. The selection of case studies offers examples of successful change processes undertaken by institutions that faced similar challenges. The experiences of the institutions involved in the BeyondScale project revealed that the majority of them downloaded

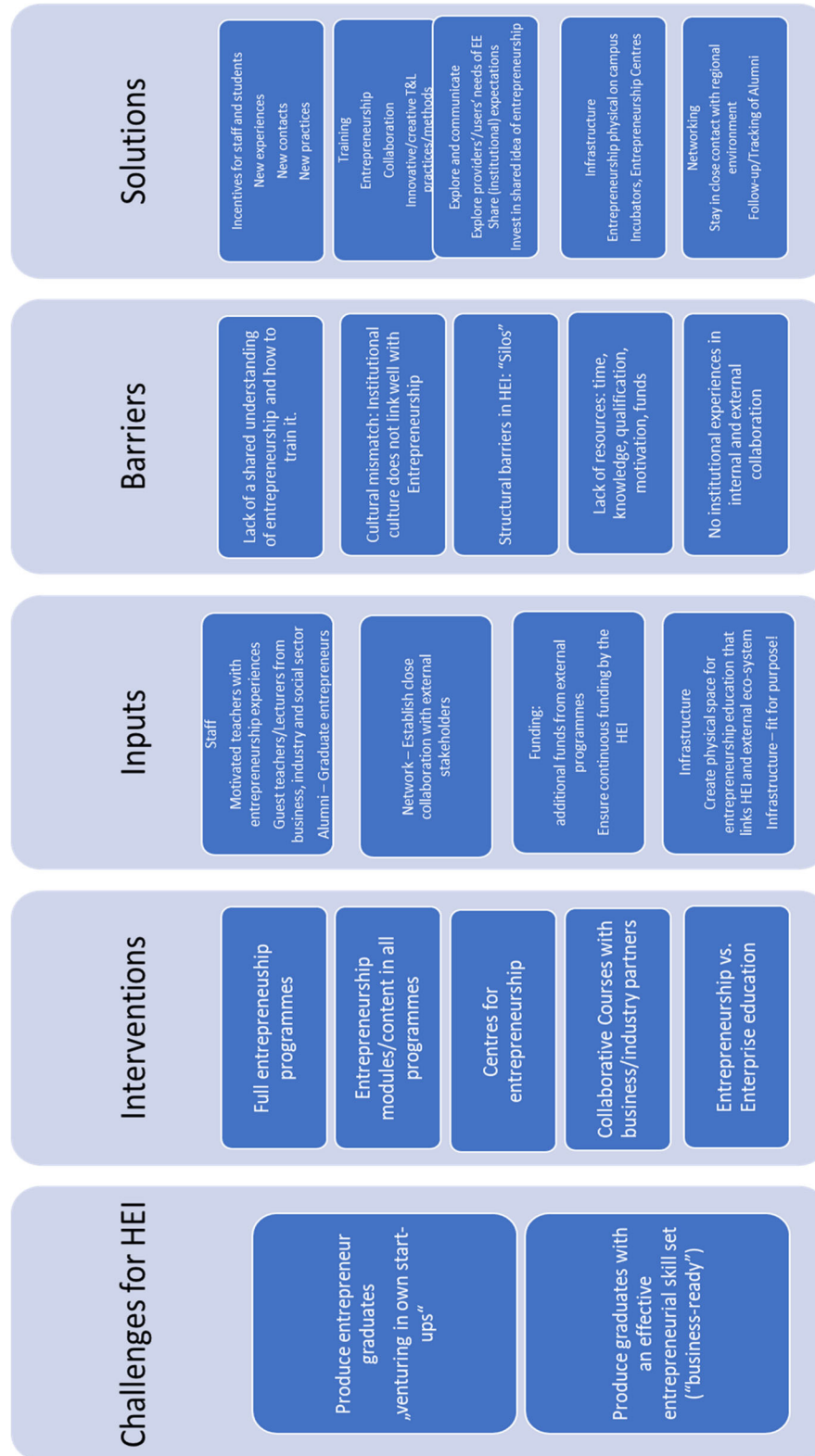
the suggested case studies, but that they found it difficult to extract the relevant information on the interventions that might be relevant for them.

Some of the BeyondScale partners were critical about the format of the HEInnovate case studies, as they would need to read several reports sequentially to find what they are looking for. Other project partners reported that they did not always find the case studies' contents convincing. Their critique mainly concerned the positive bias of the case studies and the quality of the information. The users of the case studies also reported that it remains unclear how the interventions exactly were designed and what their outcomes and impacts have been. Case studies that highlight good practices often do not pay attention to the institutions' learning processes, i.e., how they dealt with barriers, and what factors supported the change processes. The BeyondScale project partners were doubtful whether the current case studies stimulate learning among their users and can provide the inspiration to develop their own action plans.

The inspiration fiches aim to address these problems. The inspiration fiches will be a digital tool that can be understood as the top layer – an entry point – of a body of knowledge that already exists on topics related to the HEInnovate dimensions – in this case: entrepreneurial teaching and learning. The fiches provide different entry points for institutional practitioners searching for evidence to guide and inspire institutional change: users can search for inspiration based on challenges, interventions or barriers. The fiches condense knowledge into information-rich and inspiring keywords for some of the essential features of institutional change processes. The essential features that we selected are the typical *challenges* that motivate higher education institutions to engage in the selected HEInnovate dimension, and the typical *interventions* higher education institutions have used to respond to or deal with these challenges, the *inputs and resources* institutions employed to implement the interventions, and the typical *barriers* institutions had to overcome during the change process. Finally, the inspiration fiches include the element *solutions*. This element refers to what higher education institutions have done to overcome barriers, thus showing their learning journey. The inspiration fiches do not include all elements that are addressed by the analytical framework (Fig 1), but instead focus on those elements deemed essential for informing the selection of potential interventions that can be useful for institutions wishing to develop action plans after completing the HEInnovate self-assessment. As stated by their name, their major purpose is to inspire these processes with a quick overview of potential actions and other relevant issues to consider when implementing a change programme.

Figure 2 below shows an example of the inspiration fiche that was developed as a prototype. It covers the HEInnovate dimension "Entrepreneurial Teaching and Learning". Being a digital tool, it links users to the evidence underlying the keywords in the fiche. For example, a user interested in the intervention "Centre for Entrepreneurship" will be provided with a pop-up window that includes a presentation or definition of such a centre and provides links to other issues that are related to implementing these centres, such as the resources and inputs, potential barriers and motivators, etc. In addition, the pop up-windows will include links to the most relevant publications underlying the evidence that is summarised in the texts.

Figure 2: Inspiration fiche prototype representing the HEInnovate dimension Entrepreneurial Teaching and Learning



All texts underlying the inspiration fiches are based on the data extracted from the systematic literature review. Before we present details and the results of this analysis, we will in the next section first explain how we identified the relevant papers we included in our knowledge base.

4. The knowledge base of the inspiration fiches: The Systematic Literature Review

We identified the relevant papers around entrepreneurial teaching and learning with a systematic literature review (Petticrew & Roberts, 2006; Siddaway, Wood, & Hedges, 2019). In the following, we will shortly outline the steps we took and present the major outcomes.

As already stated above, quick searches in text databases reveal a vast literature around entrepreneurship in higher education. Searching Google Scholar with the term ‘entrepreneurship education’ results in more than 1.8 billion hits. In the first half of 2021, already more than 29.000 entries are listed. These references cover a broad range of disciplines, types and levels of education, and different aspects of entrepreneurship education. However, for the BeyondScale project we were only interested in a subset of these publications, because our focus is on organizational transformation processes.

The focus on organisational capacity and barriers and drivers for institutional transformation determined the scope of the systematic literature review: the implementation of entrepreneurial teaching and learning is understood as an organisational change process. Thus, the more pedagogical and didactical aspects as such were not considered relevant to support institutions in their organisational change process, but rather our focus is on the managerial dimensions. Against this background, the basic research question that guided the systematic literature review was: “What evidence is there on effective managerial support for implementing entrepreneurial teaching and learning in a higher education institution?”

The key terms from the research question provided the keywords for the search we executed on three literature databases: EBSCO ECONlit, ERIC and Web of Science. Table 2 below shows the key terms used, their synonyms (sometimes as ‘wildcards’) and how they were combined in search strings. In the research question, the term ‘implementing’ points to *change*. We also included this term and its related alternatives. In addition, we limited the search to publications that were published since 2010.

Applying the search term to the databases mentioned above resulted in 1,017 unique publications. In the search, only journal articles were considered. Both peer-reviewed and non-peer-reviewed articles were included. In the next step, the quick scan of title and abstract, we identified 120 articles eligible for a full-text review. In the quick scan, all publications that apparently did not address the managerial side of implementing entrepreneurial teaching and learning were excluded from the sample.

In the next stage, the full-text review, we applied a more comprehensive set of inclusion and exclusion criteria (see table 3) to identify the publications that can answer the research question. In total, 29 articles were selected for analysis in the full-text review.

Table 2: Terms and combinations used for the literature search.

	And....				
Or...	Manag*	Entrepren*	Innovat*	Teach*	“higher education”
	Administrat*	Corporate	Transform*	Learn*	Universit*
	Governance	Business	Change	Educat*	
	Polic*			Instruct*	
				Train*	
	Search 1	Search 2	Search 3	Search 4	Search 5
	manag* OR administrat* OR governance OR polic*	entrepren* OR corporate OR business	innovat* OR transform* OR change	teach* OR learn* OR educat* OR instruct* OR train*	“higher education” OR universit*

Table 3: Inclusion- and Exclusion criteria applied

Inclusion criteria	Exclusion criteria
<p>Population:</p> <ul style="list-style-type: none"> – Higher education students – Higher education teachers – Higher education institutions <p>Intervention:</p> <ul style="list-style-type: none"> – Any institutional action to implement entrepreneurial teaching and learning – Any approach to measure the impact of entrepreneurial teaching and learning on graduates – Context: – higher education institutions <p>Outcomes:</p> <ul style="list-style-type: none"> – - change of teaching 	<p>Studies not addressing populations mentioned</p> <p>Studies not analysing interventions</p> <p>Studies that do not zoom in on the level of higher education institutions</p> <p>Studies that do not address the intervention studied as (organisational) change</p>

Table 4 lists these articles and some selected characteristics.

Table 4: Papers included in the analysis

Study ID	Countries covered	Study design	Intervention or process studied
(Bin Yusoff, Mohd Nor Hakimin, Zainol, & Bin Ibrahim, 2015)	Malaysia		
(Bridge, Hegarty, & Porter, 2010)	Northern Ireland	Narrative report/case study of establishing a Centre of Entrepreneurship at a research university	Establishment of a Centre of Entrepreneurship
Clements, 2012	United Kingdom (England)	Narrative report	Implementation of experiential-based learning model for entrepreneurship education.
(Coleman, Hamouda, & Cormican, 2010)	Ireland	mixed method approach: document analyses, literature review and four different surveys among students, staff, and other stakeholders of entrepreneurship education	examines a collaboration of five Irish higher education institutions that engage in educating more entrepreneurial graduates. Special focus of the paper is on understanding how bottom-up and top-down approaches contribute to developing entrepreneurship education.
(Dinning, 2019)	United Kingdom	Document analysis and semi-structured interviews	Studying the outcome of including entrepreneurial competences in curricula. Special attention was paid to how the skills training was integrated in the curricula.
(Fenton & Barry, 2011)	Ireland	20 in-depth interviews with former participants of an entrepreneurship education programme	studies the contribution of entrepreneurship education and further experiences of entrepreneurship during study periods on the later entrepreneurial engagement of graduates.
(Ghina, Simatupang, & Gustomo, 2014)	Indonesia	Literature review, case study based on interviews and document analysis	Several interventions addressing students and staff to improve their ability, opportunity, and incentive to teach and learn.
(Gilbert, 2012)	Australia	Longitudinal follow-up of students participating in the Innovation Fast Track Programme	Impact of the Innovation Fastrack Programme (IFP) on labour market outcomes for students
(Hyclak & Barakat, 2010)	United Kingdom	Mixed design. Narrative report of entrepreneurial activities, policies and educational initiatives at a university including outcomes.	Several entrepreneurship modules and their outcomes.

Study ID	Countries covered	Study design	Intervention or process studied
(Jones, Pickernell, Fisher, & Netana, 2017)	United Kingdom	Tracking/Tracing survey among graduates	Studies how graduates evaluate the experience of entrepreneurship education during their study for their later career.
(Lackus & Williams Middleton, 2015)	Ten educational programs at universities in Europe, North America and Asia Pacific	Literature review and qualitative study	The study focuses on 'venture creation programs' and how they bridge the gap between entrepreneurship education and technology transfer.
(Lam, 2010)	United Kingdom	Comparative study, qualitative interviews	Studying the impact of an entrepreneurship fellowship programme on funded students. Comparison to non-funded students.
(Maritz & Brown, 2013)		Conceptual paper based on literature review	identifies factors that are important for establishing successful entrepreneurship education programmes.
(Maritz, 2017)	USA, United Kingdom, Europe, Asia, Africa, Australia and New Zealand	Collaborative / participative action research	Studying the impact of a framework for entrepreneurship education on teachers and entrepreneurship programs.
(Mets, Kozlinska, & Raudsaar, 2017)	Estonia	Survey among students and graduates	Studying factors that play a role in building entrepreneurship competences, inside and outside the classroom
(Mkimurto-Koivumaa & Belt, 2016)		Literature study and observations	Exploring the different stages of developing an educational programme in engineering.
(Murray, 2019)	Scotland	Literature review and qualitative case study	Implementation of a range of enterprise modules in curricula

Study ID	Countries covered	Study design	Intervention or process studied
(O'Connor, Fenton, & Barry, 2012)	Ireland	No specific study design reported, narrative report	Description of several educational interventions such as knowledge transfer activities, academic spin-offs, spin-ins, the commercialisation of R&D, campus incubators, and networking and training initiatives.
(Ofsted, Iakovleva, & Foss, 2018)	Norway, Finland, Sweden, UNITED KINGDOM and US	Conceptual paper based on a survey among 196 students in entrepreneurship education	explores the impact of the university context on students' entrepreneurial intentions and behavioural characteristics looking in particular at opportunity-recognition competence. It develops a concept of a supporting university context.
(Ortiz-Medina et al., 2016)	Spain	Survey among teachers, in-depth interviews with teachers	Development of an external ecosystem that supports entrepreneurship in the institution in a collaborative project
(Smith, 2015)	United Kingdom	Secondary analysis of existing databases	Testing whether there is a link between institutional entrepreneurship education and other institutional measures to strengthen entrepreneurship and the creation of new companies respectively new business start-ups.
(Teixeira, Aurora A. C. & Davey, 2010)	Portugal	Survey among Portuguese higher education students	examining factors and interventions and how they contribute to creating entrepreneurial attitudes towards venture creation in students
(Terzaroli, 2019)	Italy	Literature review and description of a two-day workshop.	focused on the development of entrepreneurship as a special pathway to boost employability
(Thom, 2017)	United Kingdom, Germany	Literature review, cross-sectional surveys among fine art lecturers	No particular intervention studied, but the perceptions of lecturers of student employability in the Fine Arts. Also investigates how the institutional context impacts on these perceptions.
(Vorley & Williams, 2016)	United Kingdom	Comparative user study, testing the use of smart phones in entrepreneurship education, data collection through user reports and surveys	compares experiences of students in different entrepreneurial learning settings when using smart phones to guide their learning.
(Watts, Wray, Kennedy, Freeman, & Trainer, 2010)	United Kingdom	Narrative report, short analysis of self-evaluations of students	Implementation of a module into the bioscience curriculum at a Faculty of Medical Sciences.

Study ID	Countries covered	Study design	Intervention or process studied
(Watts & Wray, 2012)	United Kingdom	Overview of existing toolkit uses in a higher education institution, - Analyses of educators' and students' feedback on the use and its outcomes	Use and outcome of the toolkits Xing, Ketso and World Café in five education modules.
(Williams & Fenton, 2013)	Ireland	Semi-structured interviews among three different groups: graduate entrepreneurs, academic staff, and enterprise enablers at universities	Studying how entrepreneurship education programmes enable graduates to start their business.
(Woodier-Harris, 2010)	United Kingdom	Qualitative research design: Interviews with students using the critical incident technique	Identify the impact of an entrepreneurship programme on the students and their subsequent career choices.

5. Sample Description

The sample of selected papers presents a colourful extract of current research around entrepreneurship education. There is a variety in terms of the topics or interventions under review, the research methods applied, and the countries covered. In terms of geographical spread, the sample foremost presents European countries, with several papers from the United Kingdom and Ireland. Also, southern European countries such as Italy or Portugal are included. There also are a few papers addressing North America, Australia, or Asia. With regard to the study design, the primary unit of analysis is a single higher education institution. Frequently, authors report on their home institution and the implementation of an intervention in which they were involved (for example, Fenton & Barry, 2011; Watts et al., 2010). A few papers cover more than one institution or use an internationally comparative design (Lackus & Williams Middleton, 2015; Oftedal et al., 2018). Also, quite diverse methods are applied, but most studies use a qualitative approach or a mix of methods. A few studies can be considered narrative reports that present the experiences of the authors (Bridge et al., 2010; Coleman et al., 2010). Surprisingly, many studies were not guided by an analytical or theoretical framework. Also, some papers do not build on a research question or hypotheses; they mostly are structured reports describing experiences from the authors' point of view. In the sample, we also included conceptual papers that build on literature reviews as evidence base (Maritz, 2017; Maritz & Brown, 2013; O'Connor et al., 2012). These papers also condense knowledge on organisational factors that play a role when implementing entrepreneurship education.

Regarding the contents of the papers, the sample includes various topics around implementing or strengthening entrepreneurship education in higher education institutions. The publications address two major aspects of interventions. The first relates to getting entrepreneurship education underway. The second zooms in on outcomes of this type of education, particularly addressing how to achieve good outcomes and skills training for graduates (Fenton

& Barry, 2011). Several interventions are presented in the sample, such as the form of delivery of entrepreneurship education (Mets et al., 2017; Murray, 2019; Terzaroli, 2019), entrepreneurship programs (Woodier-Harris, 2010) and fellowships funding students venturing into business upon graduation (Clements, 2012; Coleman et al., 2010; Gilbert, 2012) or implementing technology-enhanced teaching (Lackus & Williams Middleton, 2015; Lam, 2010; Vorley & Williams, 2016; Watts & Wray, 2012) to mention a few. Also, building or enhancing a network of internal and external stakeholders – an ecosystem – and involving them in teaching and learning has been studied.

This variety of interventions thus provides a representative overview of what higher education institutions do to enhance or strengthen entrepreneurship education.³ However, the common denominator of these papers is that they list organisational factors that play a role in making the intervention work, even if this was not their primary concern. In the next section we present the typical interventions we found in the literature review, how these interventions were implemented, and what factors played a role in these processes.

6. Major Results of the Systematic Literature Review

In the following, we present the major results of the literature review. The presentation of outcomes is based on the structure of the inspiration fiches (Fig 2). Therefore, we will in the following summarise the evidence that underlies some selected keywords shown in the boxes of the inspiration fiche presented in figure 2.

6.1 Challenges

The majority of papers we included in our sample start from the major challenges higher education institutions have faced in the recent decade. Due to the economic crisis, the increasing global competition and the changing role of higher education in societies, many institutions were forced to strengthen entrepreneurship and entrepreneurial skills in their graduates. In some countries, it was hoped that this would enhance the institutions' contributions to strengthening their countries' competitiveness and their innovation capacity, as more entrepreneurial graduates would be more likely to venture into business after their graduation or exploit their innovate ideas.

However, while this rationale seemed to be largely accepted, starting the actual implementation of more entrepreneurial teaching and learning in the institutions often turned out to be difficult, due to a lack of a shared understanding among staff and students of what entrepreneurship (and entrepreneurial teaching & learning) means. Some papers report that the term entrepreneurship even had a negative connotation (Bridge et al., 2010). This lack of a shared understanding of entrepreneurship frequently led to a situation that made it difficult for the institution to develop an institutional strategy and conclude or implement concrete interventions to drive the entrepreneurial agenda (Williams & Fenton, 2013). Higher education institutions that were aware of the lack of a shared understanding and first defined entrepreneurship education

³ Limitations of the study are described at the end of the paper.

were more likely to create such a shared understanding and a more positive attitude of staff and students towards entrepreneurship (Teixeira, Aurora & Davey, 2010; Williams & Fenton, 2013).

Results of institutions that were able to achieve such a shared understanding make clear that these institutions had to clearly define and communicate the intended outcome of entrepreneurship education to secure the support of staff and students (Fenton & Barry, 2011; Lam, 2010). In our synthesis, we discerned two major aims: Institutions that regard entrepreneurial teaching and learning as a means for creating entrepreneurial graduates who venture into business in their later career; and institutions that want to instil entrepreneurial skills in students to increase their employability. Institutions do not need to select one option above the other. It seems more important that they communicate the intended effects of their plans to implement entrepreneurship education.

These two basic findings from the literature point to the major challenges for higher education institutions. They must first decide if they want to educate entrepreneurship-oriented graduates or create entrepreneurial competencies (or even combine both objectives). In any case, the institutional choice determines strongly how the change process will develop and proceed.

Challenge 1: Educating entrepreneurship graduates

Higher education institutions that choose to educate entrepreneurship graduates as the rationale for their engagement in entrepreneurial teaching and learning often focus on establishing academic programmes or modules that support students close to graduation to venture into their own business (Mets et al., 2017). In some higher education institutions, these programmes or modules are funded by national initiatives that sometimes also provide fellowships and seed money to the participating students (Clements, 2012; Woodier-Harris, 2010). An important external motivator is a societal expectation that the higher education institution engages in its region and contributes to value creation, innovation and innovative competitiveness. The challenge for higher education institutions engaging in this type of entrepreneurship education includes capacity building and developing adequate human resources in the teaching staff, providing the basic infrastructure for students, and having at least a basic external entrepreneurial ecosystem in which student businesses can be embedded. Introducing this form of training and supporting sustainable start-ups can be very demanding (Lackus & Williams Middleton, 2015; Teixeira, Aurora & Davey, 2010). In terms of internal communication and achieving a shared understanding of entrepreneurship education, this type of education does not always result in creating institution-wide support of entrepreneurship but can lead to more decentralized and local initiatives with modest impact.

Challenge 2: Creating entrepreneurial skills in students

Higher education institutions wishing to work on building entrepreneurial skills in their students often will promote entrepreneurship as a value in their institution and create a more entrepreneurial culture. These institutions are often trying to enhance their graduates' employability and labour market-readiness (Bridge et al., 2010; Williams & Fenton, 2013). From the selected publications, we identified two major forms in which entrepreneurship training takes place. Either the training becomes integrated into the already existing curricula (frequently as new learning objectives), or institutions develop entrepreneurship modules that act as electives or become mandatory modules in some study programmes. In the selected publications, we frequently find that students develop a business idea in entrepreneurship modules and start their virtual company based on this idea (Coleman et al., 2010). The integration of skills training requires the higher education institutions to develop these competences in their teaching staff, make investments in building the infrastructure (such as a physical centre for entrepreneurship education), and create or enhance their entrepreneurial ecosystem with regional economic partners. The latter will support them in collecting information about skill demands and achieving a stronger collaboration with employers (Williams & Fenton, 2013). Internally, these higher education institutions will face the challenge of creating a general and shared understanding of entrepreneurship education (Dinning, 2019). Frequently, ideas about entrepreneurship education differ strongly between the technical or natural sciences on the one hand and the arts, humanities, and social sciences on the other. For the latter disciplines, the literature also reports less acceptance or sometimes a less positive image of entrepreneurship education. Also, when integrating the build-up of entrepreneurship competencies in existing curricula, teachers report that they often don't know how to do this or how to combine it with academic skills training. Due to the differences in perception of value and content of entrepreneurial education, institutions often face the challenge to stimulate and nurture motivation among their staff and students. Also, measuring the impact, i.e., how students benefit from the training in their later professional careers, is mentioned as a challenge.

6.2 Interventions

Table 4 lists the interventions that were analysed in the publications selected in the systematic literature review. The interventions can be condensed into three major categories, representing the area or target group for which the interventions want to achieve an effect: for students, staff, or structural changes.

Interventions for students

Student-oriented interventions are the most frequent type of intervention reported in the selected papers. They include implementing programmes that support students in starting their businesses, education modules that aim to build or strengthen entrepreneurship competencies, internship programmes or collaboration initiatives with regional business and other partners to deliver collaborative programmes (Lackus & Williams Middleton, 2015; Ortiz-Medina et al., 2016). Their common feature is that they aim to create entrepreneurial competencies or nurture

entrepreneurial attitudes in students. Their objective is to enhance students' employability or to support them in starting their own businesses. There are various kinds of this intervention type, including implementing comprehensive entrepreneurship programmes, agreeing on the definition of entrepreneurial competencies to be integrated into curricula, or the establishment of entrepreneurial modules offered as electives or minors (Dinning, 2019; Maritz, 2017). Besides large-scale interventions, some of the papers also present measures on a smaller scale, such as specific didactical methods or tools that might enhance classroom experiences (Gilbert 2012; Watts et al., 2010). However, these publications often address whether the interventions achieved their objectives, i.e., students developing entrepreneurial skills that are useful in their later careers, or students creating a sustainable start-up or business (Mets et al., 2017).

Interventions for Teaching Staff

Staff-oriented interventions include measures to train teaching staff, familiarizing them with entrepreneurship competencies in their disciplinary area. This training can include a twofold approach: first, it can create entrepreneurship competencies in teachers and, second, it refers to enhancing their capacity to integrate entrepreneurial training in their teaching. Compared to interventions for students, these interventions are studied less frequently, and some of the interventions appear to be more self-initiated by staff rather than planned by the institution (Murray, 2019; Thom, 2017). Interventions that aim to train teaching staff take place through informal learning (for example, in peer learning or professional learning communities) as well as in formal learning (for example, in mandatory didactical courses for young teachers (Terzaroli, 2019)). These learning opportunities aim to raise awareness and create a shared understanding of the need to train entrepreneurial skills and build capacity and competencies in the teachers. Surprisingly, when comparing the interventions for staff to interventions for students, the studies less frequently attempt to measure the interventions' impact and outcomes for teachers. It therefore remains a bit unclear whether teachers actually achieved the entrepreneurial competencies themselves.

Structural Interventions

Structural interventions refer to those activities that aim to alter the organisational structure of higher education institutions. More particular, these are attempts to alter existing roles or to establish new roles, positions or even departments in higher education institutions. At first sight, one would not assume that these interventions would contribute to the enhancement of entrepreneurial teaching and learning, as they do not offer teaching and learning opportunities. Rather, these structural changes often aim to support or enable this kind of teaching. Frequent examples are the establishment of a "Centre for Entrepreneurship Education" or of a business incubator (Maritz, 2017; O'Connor et al., 2012; Thom, 2017). Thus, these interventions can be regarded as a further structural differentiation and proliferation in which specialised positions and entities support the strengthening of the entrepreneurial nature of the higher education institution (Ortiz-Medina et al., 2016). Often these are large-scale interventions, which include long-term planning, setting clear objectives or require significant investments. Also, when altering existing or creating new organisational structures, institutions have to legitimise this change internally and

seek approval among staff and students. This legitimization helps to support those new structures to become better integrated into the institution, ensuring that its services are used (Maritz, 2017; Maritz & Brown, 2013). However, in the literature we reviewed, the outcomes and impacts of these structural interventions are hardly measured (Smith, 2015).

6.3 Inputs

From the papers we analysed, we identified four major categories of inputs that higher education institutions employ to facilitate their interventions. These are inputs in staff, funding, networks/ecosystems and infrastructure (Bin Yusoff, Mohd Nor Hakim et al., 2015). The papers also clarified that higher education institutions do not use only one of these inputs, but they combine them. In the following, we will highlight these inputs and discuss what to consider when using them productively.

Staff

When it comes to teaching staff, the interventions did not only refer to teachers employed by the higher education institutions but also to guest teachers, in particular professionals from business, industry and the social or not for profit-sector (Bin Yusoff, Mohd Nor Hakim et al., 2015; Ghina et al., 2014). Also, alumni – especially graduate entrepreneurs – are considered an important group of teachers. No matter from which group the teachers come from, it is crucial that they have experience in entrepreneurship, for example, through their professional work outside academia. A second requirement is the motivation of teachers. Several publications point out that teachers who are not motivated to integrate entrepreneurial aspects in their teaching are less effective in motivating students and eventually creating entrepreneurial attitudes and skills. Frequently, these studies mention a relationship between the lack of motivation among teachers and the low priority placed on entrepreneurship in the institution (Dinning, 2019; Ortiz-Medina et al., 2016).

Ecosystems

Entrepreneurship ecosystems are social networks that are linked to a higher education institution. These networks can develop in very different formats, either as external ecosystems, i.e., involving partners and stakeholders that are not members of the institution, and internal ecosystems, which involve the institutions' members. A shared characteristic of the ecosystems is that these networks are not formal structures but are mostly informally organised. As an ecosystem, the networks support cultivating entrepreneurship in a higher education institution and its closer (regional) environment.

The establishment, maintenance and extension of internal and external entrepreneurship ecosystems is another input that is crucial for entrepreneurship education. External networks bring relevant information on skill demands and opportunities for collaboration to higher education institutions (Ortiz-Medina et al., 2016). External networks create a closer link between the institution and its region (Lackus & Williams Middleton, 2015). Some entrepreneurship education formats are also dependent on involving external stakeholders, as they can provide students with more practical experiences than the experiences collected from virtual learning experiments

(Gilbert, 2012). Also, teachers with entrepreneurship experiences can be recruited from these networks. Internal ecosystems, such as professional learning communities of teachers, can also provide value to the institution (Ghina et al., 2014). These networks can strengthen the teachers' motivation, support their development, and promote educational innovations to enhance entrepreneurship education. However, while ecosystems are an important input to entrepreneurship education, their establishment and maintenance require resources such as staff, funding and infrastructure (Ortiz-Medina et al., 2016).

Funding

Besides staff, funding is an essential input for entrepreneurship education. In the studies we analysed, two major forms are mentioned. First, the funding includes institutional funds (i.e. its general resources), and second, funding from subsidies, project grants and seed money from funding agencies or other (governmental) bodies. Irrespective of the source of funding, studies addressing funding as crucial input point out that recurrent funding is essential for the sustainable impact of entrepreneurship education. While supplementary grants are an essential factor for starting entrepreneurship education projects, they also bear the risk that interventions do not continue once they run out.

Papers also mention that entrepreneurship education involves more than staff costs and expenses for learning materials. The indirect costs related to infrastructure and the maintenance of ecosystems also have to be considered (Bridge et al., 2010; Maritz, 2017; Maritz & Brown, 2013).

Infrastructure

Finally, infrastructure is a less frequently mentioned, but also important input that supports interventions. Infrastructure relates to material input such as buildings and spaces. A few papers highlight that creating a physical space such as a Centre for Entrepreneurship provides a strong message that entrepreneurship education is part of the institution. These physical manifestations can also provide space for the HEI and the external ecosystem. Also, for those institutions supporting students to venture into business, these centres can provide affordable office space and help students create their network within the institution and its external ecosystem. Building physical infrastructure for entrepreneurship centres may require substantial investments for the institutions. Therefore, it is crucial to assess whether the investment will create benefits for the institution. That means, when planning such centres or similar, the location (on-site or close to campus), size and (technical) equipment must be considered carefully (Bin Yusoff, Mohd Nor Hakim et al., 2015; Hyclak & Barakat, 2010).

6.4 Barriers to Entrepreneurial Teaching and Learning and Institutional Solutions

Barriers are defined as those factors that can hinder interventions from achieving their objectives. In the analysed publications, we find five major barriers that can hinder the successful implementation of entrepreneurship education: (1) a lack of a shared understanding of entrepreneurship education, (2) a cultural mismatch where the institutional culture does not fit well with entrepreneurship values, (3) a lack of resources and inputs, (4) little experience of the institution in building internal and external ecosystems or networks, and (5) structural barriers in the institutions such as departmental silos, that make it difficult to communicate or identify specific needs and understandings of entrepreneurship education. Most of the studies that mention barriers also report how the institutions managed to overcome them. Therefore, in this section, we will address the barriers and typical solutions the institutions applied.

Lack of shared understanding of entrepreneurship education; cultural mismatches; structural barriers

As already mentioned above, from the analysed papers, it is clear that a shared understanding of the content and purpose of entrepreneurship education is crucial, as it secures motivation and support of staff and students. Especially for teaching staff, the objectives of entrepreneurship education must fit well with their professional values. Sometimes institutional efforts to integrate entrepreneurship training in the teaching are not well-accepted by staff. There can be a mismatch between the teachers' perceptions of what skills should be built and the entrepreneurial skill sets defined in the institutional vision. This mismatch may result in teachers who only superficially address entrepreneurship.

The papers suggest several solutions for this problem. First, they point out that defining and communicating the value of entrepreneurship training is fundamental. As for any organisational change, the involvement and support of leadership is crucial for creating commitment among staff and students (Bin Yusoff, Mohd Nor Hakim et al., 2015). However, as higher education institutions frequently host several disciplinary cultures, institutional leadership needs to address this cultural diversity in a sensitive manner. Describing entrepreneurial skills should avoid being dominated by one discipline. Rather, institutional definitions should be either general or diversified to accommodate the cultural diversity. The involvement of the staff when defining entrepreneurial values also helps to secure their support (Clements, 2012). Concerning the students and further users of entrepreneurship training, such as business partners in the regions, some papers report that the design of entrepreneurship curricula should also consider their demands to stimulate their interest (Mets et al., 2017).

Concerning the motivations of teaching staff (and students), the papers suggest a few incentives. While the time and financial incentives can be helpful, it turned out that gaining new experiences is a strong motivator. Interventions that gave teachers and students new to entrepreneurship training the opportunity to learn about it and to continue in this area were very effective. Here, it is argued that the novelty of the knowledge, experiences and contacts is the

incentive (Ghina et al., 2014; Mkimurto-Koivumaa & Belt, 2016; Thom, 2017). However, we note that this incentive is particularly strong in well-organised learning environments.

This finding leads to another solution or factor that can support the motivation of teaching staff. Some studies suggest that the teachers are sometimes not well prepared for teaching entrepreneurial skills. The provision of training can then be beneficial for those teachers, especially when it includes new or innovative teaching practices or the opportunity to collaborate with other teachers (Terzaroli, 2019).

Lack of resources and inputs

The implementation and enhancement of entrepreneurial teaching and learning require institutional investments. As already mentioned above (in the section on inputs), institutions need to critically assess how many resources in terms of staff, funding, infrastructure, and network support need to be dedicated.

A frequently mentioned barrier for entrepreneurial teaching and learning projects is that no further funding is available once the project has ended. Sometimes promising initiatives then come to an end. Securing resources and continuing projects is often dependent on whether the project can show it has achieved the set goals (Bin Yusoff, Mohd Nor Hakim et al., 2015; Ghina et al., 2014; Maritz & Brown, 2013). Often, projects that monitor their outcomes and impact from their very start are more likely to display their added value for the institution. Their proven impact might also increase their chances for continuation.

Lack of experience in building internal and external networks

Having an external and internal entrepreneurial ecosystem is a crucial factor for implementing and strengthening entrepreneurial teaching and learning (Lackus & Williams Middleton, 2015). From the publications studied, it becomes clear that higher education institutions with no external ecosystems or only very few of these networks face problems in achieving good outcomes of entrepreneurial teaching and learning. The lack of external networks often coincides with a lack of knowledge about what potential employers need in terms of entrepreneurial skills. Further, these institutions are less able to provide their students with internships or collaborative education. It is also more difficult to attract guest teachers with professional experience or provide students and graduates who want to start their own business with contacts in these sectors. The absence of these networks might thus diminish the entrepreneurial learning outcomes for students and affect their later careers.

From the analysed papers, we can conclude that a key to overcoming this barrier is that institutions that plan to engage in entrepreneurial teaching and learning assess their performance in the dimension “knowledge transfer and exchange” (with their immediate environment). They also need to evaluate if these networks are sufficient for their plans, or if they eventually need to be extended. Compiling an inventory of existing contacts, including contacts of staff, can be a first step here. Some institutions also report that they have specialised and institutionalised professional positions or have established special departments such as knowledge transfer offices and centres

for entrepreneurship that maintain and extend these networks. Thus, investing in the creation of inhouse capacity will embed the institutions more firmly in their regions (Clements, 2012; Fenton & Barry, 2011; Williams & Fenton, 2013).

7. Conclusion

Our systematic literature review produced an overview of challenges, interventions and factors that play a role in institutional change processes aiming to implement or strengthen entrepreneurial education. The analysis took a specific perspective: it was mainly interested in organisational and managerial aspects that contribute to the success of these educational interventions. From the analysis, it becomes clear that the successful implementation of educational interventions depends on a number of typical factors. We may conclude that educational interventions succeed because they are designed with didactical and pedagogical expertise and because the higher education institution provides a context in which the interventions can thrive and bring about fruitful results.

The results of the systematic literature review have been presented as separate factors. The analysis did not establish relationships between the factors that play a role in producing the interventions' success as it is hard to identify such relationships that would constitute a general model of institutional change towards entrepreneurial teaching and learning. On the one hand, there is so far not enough reliable evidence to condense all of this in all-encompassing, general models. On the other hand, we feel that such a general model is not useful, because of the great diversity of higher education institutions, each operating in their own specific context. However, the systematic literature review and the inspiration fiches help practitioners in higher education institutions to access the evidence on challenges and interventions towards entrepreneurial teaching and learning.

In the BeyondScale project, the inspiration fiches are operationalized as a digital information tool on the BeyondScale website. To this end, we have summarised the extracted data and condensed it into thick descriptions that underlie the links embedded in the inspiration fiches' elements. In collaboration with the project partners in BeyondScale, the usefulness of the fiches for inspiring plans for organizational change will be tested.

8. Limitations of the research

There are two major limitations to this research:

First, the evidence base is necessarily limited and biased. Not all available evidence on the implementation of entrepreneurship education was included. Also, grey literature and other publications that were not included in our literature databases might have added more evidence to the literature review. Therefore, the list of organisational factors that we identified as relevant for the implementation of entrepreneurship education might be incomplete. In further research, additional resources such as grey literature can be included. The geographical coverage of the selected (English-language) publications is biased toward Western European countries. Also, in our analysis, the role of specific country contexts or disciplinary contexts has not yet been considered. In future work, one could try and achieve a more balanced representation of these contextual factors.

Second, we must point to the limited external validity of the findings. So far, the literature review results have not been cross-checked with other research on change processes in higher education institutions.

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Appendix

Table 5: Operationalisation of the analytical framework

Element	Operationalisation
The process	<p>Goals/Intended outcomes <i>What did the HEI want to achieve?</i></p>
	<p>Activity - in detail <i>What actions have been undertaken? <u>Examples</u> (on the areas of Education, Research, Valorisation and Management) include: Mobility of students, Dual education programmes; curriculum co-design; curriculum co-delivery; lifelong learning; joint R&D; consulting; mobility of staff; commercialisation of R&D; academic entrepreneurship; student entrepreneurship; governance; shared resources; industry support</i></p>
	<p>Activity - in categories <i>Please select what HEInnovate Dimension(s) apply to the activities.</i></p>
	<p>Inputs <i>What resources have been employed/utilised to undertake the activities?</i> <u>Examples</u>: infrastructure, personnel, equipment, funds invested</p>
	<p>Outputs <i>products, services or other properties that are delivered as a direct result of the activities. <u>Examples</u>: Number of students and staff members trained; research contracts signed; events organised; courses offered</i></p>
	<p>Realised outcomes <i>Results (financial, non-financial) that flow from the outputs of the Innov & Entr activities and that directly affect stakeholders. <u>Examples</u>: research commercialisation; disclosures of inventions; patents; licenses; academic entrepreneurship (spin-offs and start-ups); student entrepreneurship</i></p>
	<p>Impact <i>social, economic, civic and/or regional consequences or changes resulting from the Entr & Innov outcomes, intended or unintended. <u>Examples</u>: stimulating regional innovation, increasing living standards; employability of graduates; labour market relevance of study programmes</i></p>
Influencing factors	<p>Barriers <i>Generally, a barrier provides a hindrance or obstacle to do something. <u>Examples</u> are: lack of awareness, funding & resource barriers; internal university barriers; result barriers</i></p>

	<p>Facilitators <i>Drivers that enable or ease the process of starting an activity and are often related to the expected outcome(s). <u>Examples</u>: Relationship drivers (distance; trust; shared goals; prior relationship; mutual commitment) and Orientation drivers (mission of HEI; scientific orientation of external partner; existence of funding for collaboration; interest of HEI in accessing external partner's R&D facilities)</i></p> <p>Motivators <i>Drivers that encourage partners to do the activity and are often related to the expected outcome(s). <u>Examples</u> are: promotion incentives; usefulness of research; gaining new insights; improvements in teaching and graduate employability; contribution to society/SDGs; obtaining funding/financial resources</i></p>
<p>Supporting mechanisms</p>	<p>Policy <i>Regulations, funding, organisations or information created by regional, national and international governments to maximise the long-term economic performance, welfare or other policy objectives of a region with a focus on, or relation to, innovation & entrepreneurship. <u>Examples</u>: funding, grants and subsidies, taxation; public seed capital; normative appeals</i></p>
	<p>Strategy <i>Drafting and implementation of cross-functional high-level plans, methods, or series of manoeuvres at a HEI that will enable it to achieve its long-term objectives with respect to innovation & entrepreneurship (Innov & Entr). <u>Examples</u>: paper strategies (documented mission embracing Inn & Entr; commitment of HEI's leadership; coordinated communication approach for Innov & Entr) and Implementation strategies (e.g. business experience considered in recruitment of academics; recognition of academics for their Inn & Entr activities; dedication of resources for Inn & Entr; assessment of Inn & Entr performance; recruiting business professionals into knowledge transfer area; reduction of teaching time for undertaking collaboration/Innov & Entr) activities)</i></p>
	<p>Structure <i>Constructions, personnel and institutional programmes created as a result of top-level strategic decisions within (or related to) a HEI that enable Innovation & Entrepreneurship. <u>Examples</u>: Bridging structures (agencies/offices dedicated to Innov & Entr; board member or vice-rector positions for Innov & Entr); Employability and career services (alumni networks; career offices); Infrastructure (co-working spaces accessible for business; joint research institutes; incubators; Science / Technology Park); external integration structures (lifelong learning programmes involving business people; dual appointments available for business people)</i></p>

	<p>Operational <i>Actions or events of a practical nature undertaken by a HEI to create and support Innovation & Entrepreneurship. <u>Examples:</u> networking (academic networks dedicated to Innov & Entr; student networks dedicated to entr and interaction with business; meeting for academics to interact with business); external communication (information sessions about Innov & Entr; featuring of Innov & Entr on HEI's website) Entrepreneurship Education (entr courses offered to academics; entr courses offered to students)</i></p>
Context	Individual
	Organisational
	Environmental
	National
	Supranational
Stakeholders	<p>Internal stakeholders <i>List the internal stakeholders mentioned</i></p>
	<p>External stakeholders <i>List the external stakeholders mentioned</i></p>

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