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## Project management and entrepreneurship competences

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### Abstract

Competence frameworks are increasingly used in several practice fields and have been an object of research. A typical development trend has been encapsulation into a particular field, not considering the developments in related fields. Similarly, in research, learning from neighbouring disciplines has been rare. Yet, during the past decade, there have been several attempts at linking essentially related disciplines in practice, such as entrepreneurship and project management. This is a reaction to the trends in the labour market – a growing demand for people with diverse competences. In this context, converging different fields via competences deserves more attention. This paper compares the competences required for project managers and entrepreneurs; in addition, it explores the possibilities for mutual enrichment, contributing to further linking of project management and entrepreneurship conceptually. The cross-examination of competences for entrepreneurs (The Entrepreneurship Competence Framework or EntreComp) and for project managers (International Project Management Association's Individual Competence Baseline [IPMA-ICB]) reveals some quite significant, but also weak, correlations. The linguistic approach used has natural limitations, as different terms have been used to convey the same concepts. Thus, a relational linguistic analysis and conceptual analysis have also been applied. The main implication is the recommendation to integrate core project management competences into competence models for entrepreneurs. A natural progression of this work is to build a common competence model for entrepreneurs and project managers.

### Keywords

competences | entrepreneurship | linking | project management

### JEL Codes

L26, J24, M54

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## 1 Introduction

The world is constantly changing, adding speed to some areas. The contemporary paradigm is characterised by keywords such as digitalisation and abbreviations such as VUCA (volatility, uncertainty, complexity and ambiguity), signalling the radical changes taking place (cf. Bennett and Lemoine, 2014). Another keyword to add to this list could be projectification – an ongoing development, challenging and changing the traditional institutions, from laws to mindsets (Lundin, 2016), including both institutions of work life (Ekstedt, 2019) and entrepreneurship (Auschra, Braun, Schmidt & Sydow, 2019). Examination of linkages between projects and entrepreneurship (cf. Kuura, Blackburn & Lundin, 2014) indicates that links exist chiefly between the two practice fields. For instance, at certain stages of typical entrepreneurial processes (such as starting,

renewal, closure, transfer and so on) entrepreneurs act as project leaders. Thus, the two academic disciplines – entrepreneurship and project management – should be related as well. However, scrutinisation (Kuura et al., 2014) demonstrates that, factually, the disciplines have developed in vaguely parallel but quite separate paths.

Nearly three decades ago, Sieli (1991) proposed an idea about managing projects as processes, hence calling to redefine traditional project management approaches, seeing projects as unique. Taking advantage of process management has led to significant paradigmatic shifts, particularly recognising that despite the possible uniqueness, some processes might be reused in several projects (Artto & Turkulainen, 2018). Currently, most organisations balance projects and non-projects (Nesheim, 2019). Further developments led to linking processes and projects to entrepreneurship, which is explored in Section 2.

Immense, and even growing, importance of entrepreneurship in all economies is generally accepted most attention is usually paid to small- (including micro-) and medium-sized businesses, especially start-ups. Most public bodies (including the European Union [EU]) implement accordant policies via support systems, using significant resources (Kuura et al., 2014). In contrast, project management has received very little attention and almost no public support (only a few exceptions exist); most developments have been achieved by strong professional organisations (Kuura et al., 2014). Yet, the importance of projects in current economies is also substantial and even growing, as up to a third of the global economic activity takes place as projects, even more in emerging economies. Projects and project management support the achieving of strategic objectives of organisations and coping with increasing complexity, uncertainty and ambiguity in the contemporary socioeconomic environment (Bredillet, 2010). Projects are especially important in intrapreneurship (this aspect will be scrutinised in Section 2).

Proceeding from a proposition that some typical entrepreneurial processes are essentially projects, it can be assumed that most entrepreneurs also need project management competences. This leads to the rationale of this paper – to fill the research gap, comparing the competences that are required for project managers and entrepreneurs, as well as enlighten possibilities for mutual enrichment, hence contributing to further linking of project management and entrepreneurship on the conceptual level. The main practical outcome will be ‘project’ competences to be integrated into competence models for entrepreneurs.

The next section (Section 2) scrutinises the most significant developments of linking entrepreneurship and project management, focussing on recent advancements, particularly links via competences. Section 3 brings out the relevance of competences and developments in the competence models, relying mainly on the literature of education. The focal section (Section 4) investigates and juxtaposes competences, which is necessary for entrepreneurs and project managers. The last section (i.e. Section 5) discusses the main findings and proposes the ways for further advancements, including the development of more general competence profiles, corresponding to the current trends in career development, such as T- or II-shaped persons and dual career.

## 2 Project Management and Entrepreneurship: Still Separated but Linking

According to emerging understandings, core processes in entrepreneurship (exploration and exploitation of opportunities) can be treated as projects (cf. Geldhof, Weiner, Agans, Mueller & Lerner, 2014). The latter research belongs to educational sciences, but process view is becoming a mainstream also in entrepreneurship literature (cf. George, Parida, Lahti & Wincent, 2016). A focal keyword, ‘process’, emerges from the previous review of literature on entrepreneurial opportunity, whereas ‘project’ appears only on one occasion. This can be taken as a sign of the times, as the most recent cited sources date back to 2014. But the latest developments indicate that options for linking project management and entrepreneurship are increasingly used. For instance, scrutinising the developments towards a project society, Lundin et al. (2015) noted several interesting theoretical and practical matters that enable the convergence of entrepreneurship and project management, such as effectuation. Lindkvist and Hjorth (2015) exemplified how a cultural project was legitimised in adverse environments and gathered momentum, as typical of an entrepreneurial organisation-creation process. Furthermore, Kiznyte, Welker and Dechange (2016) investigated the usability of project management for the creation of a business plan, as well as the management system for the business, including the supporting of teamwork culture in a dynamic start-up organisation. Per contra, Huff (2016) considered entrepreneurship as the base for the management of an innovative project in complex and uncertain environments. Martens, Carneiro, Martens and Silva (2015) proposed a conceptual model relating entrepreneurial orientation to project management maturity. Further, Belfort, Martens and de Freitas (2016) related entrepreneurial orientation to a typology of project management systems (ad hoc, classic, innovation and entrepreneurship/intrapreneurship). Martens, Machado, Martens, Quevedo-Silva & de Freitas (2018) claimed that entrepreneurial orientation affects project success significantly.

A milestone in linking entrepreneurship and project management research is a special issue of *International Journal of Managing Projects in Business*: ‘Exploring Processual and Critical Avenues at the Crossroad of Entrepreneurship and Project

Management'. The guest editors (Germain & Aubry, 2019) identified three conceptual movements: from project management to entrepreneurship; from entrepreneurship to project management; and the intersection of the two fields. The above-mentioned special issue included several 'linking' contributions. Following the rising processual approach, Kuura and Lundin (2019) demonstrated how different business processes in different (even entrepreneurial) projects can be coordinated through orchestration and/or choreography. Notably, alongside with positive views on the convergence of the two fields, this special issue contained also hesitant opinions. For instance, Fonrouge, Bredillet and Fouché (2019) discussed whether entrepreneurship and project management should stay separate or converge and suggested that both paths could be useful. If the two fields develop in their own ways, it may create a fruitful creative tension, although building on shared issues and deeper (re)conceptualisation may allow better tackling of grand societal challenges and the fostering of development in both fields. Moreover, 'export' and 'import' between the fields may lead to 'conceptual colonization and epistemological emptying', as Rehn (2019) warned. Auschra et al. (2019) scrutinised the developments in an entrepreneurial (Berlin start-up) ecosystem and noticed a multitude of project-like practices, especially in a new venture creation, both in science- and non-science-based ventures. They developed a model, explaining how the entrepreneurial ecosystem shapes new venture creation towards project-like organising. In the context of this article, it is important that the project-like character of organising new ventures remain stimulated by the professionalisation of project management, which endorses the necessity of project management competences, especially for entrepreneurs but also for other actors in the ecosystems, such as investors and the whole community.

Considering the rationale of this paper, it is worth noting that the necessity (or at least usefulness) of project management competences in entrepreneurship has been pointed out already some time ago. For instance, Nogeste (2010) proved how programme management can be used for strategic initiatives, including specific entrepreneurial initiatives such as mergers and acquisitions. Noppel and Kuura (2011) examined the need for project management competences in the reconstruction of companies and detected that the appropriate 'set of competences' for a reorganisation adviser resembles the competences of a programme manager. Further, Ramirez-Portilla (2013) developed a

conceptual model, elucidating the influence of a project manager's competences (including personality traits) on a typical entrepreneurial process – exploration (discovery) and exploitation of opportunities. Dzansi, Rambe and Coleman (2015) also stressed the usefulness of project management competences, particularly accurate resource estimation, which is vital in resource generation (or acquisition), which is – in turn – topical in entrepreneurship. Laursen and Killen (2019) elaborated the link between temporary (just programme) organisation and entrepreneurship, paying attention to a specific resource – competences. Sonta-Draczkowska and Mrozewski (2019) found product development to be both project based and entrepreneurial and, thus, requiring specific competences, especially when adapting *lean* and/or *agile* practices. Specific needs for competences in the process of agile transformation (changes in work routines from project teams [organisations] to whole organisations) were confirmed by Paterek (2019).

It is worth noting that within the past few years, attempts to link entrepreneurship and project management seem to be quickened. This could be related to a wider, more general trend of cross-fertilisation and collaboration between different disciplines. For one, Davies, Manning & Söderlund (2018) indicated how interdisciplinary research can be more effective in the case of innovation and project management. Innovation is often seen as a mainstream feature in the linking of projects and entrepreneurship (Kuura et al., 2014; Geldhof et al., 2014; Belfort et al., 2016; Edwards-Schachter, Garcia-Granero, Sanchez-Barrioluengo, Quesada-Pineda & Amara, 2015). In turn, innovation relates to creativity, bricolage and improvisation, which are considered increasingly important in both fields (Germain, Aubry & Bonnemains, 2019; Kuura & Sandoval, 2019).

Importantly, most recent efforts in linking project management and entrepreneurship tend to concern competences. For one, Cook (2017) targets on changing the mindset of typical project managers who behave as employees rather than as entrepreneurs. Bushuyev, Murzabekova, Murzabekova and Khusainova (2017) stressed that competence in managing projects and programmes is not sufficient for breakthrough projects, where 'entrepreneurial spirit (energy)' is also needed. Mota and de Castro (2019) treated new business formation as a cumulative process of relating the new business to the existing business network, where different but complementary types of inter-organisational projects have crucial roles

in the embedding process. This approach is in line with recent developments in the understanding of entrepreneurship, perceiving it as network creation, rather than as organisation creation (Sydow, Schmidt & Braun, 2015). In turn, this may lead to another opportunity for linking entrepreneurship and projects via applying the perspective of process management, particularly orchestration and choreography (Kuura & Lundin, 2019). Moreover, Tolfo, Wazlawick, Ferreira and Forcellini (2018) specified a set of agile practices that promote entrepreneurial skills. As expected, they studied software developers; however, nowadays, the principles of agility are applied elsewhere, and the overall trend (cf. Cooper & Sommer, 2016) seems to be towards hybrid methods, combining traditional (or 'waterfall') and agile approaches.

This examination of the mutual relationships between project management and entrepreneurship affirmed a continuous and seemingly quickening convergence between still-quite-separate fields of research, as well as practice. In this context, the trend to converge these fields via competences deserves more attention. Characterisation of the development of the project management profession, notably the transition from amateurism to professionalism in the mid-1970s, is strikingly alike the characterisation of entrepreneurship as a profession (Kuura et al., 2014). Therefore, there are probably still unused possibilities for mutual learning and enrichment via competences, which are explored and discussed in the following sections.

## 3 Entrepreneurial and Project Management Competences

### 3.1 Relevance of competences

Competences have been an object of research and debate for decades; a considerable body of literature has grown up around the theme, yet there is some terminological confusion. In the 1990s, *competence* generally referred to functional areas and *competency* to behavioural areas (Le Deist & Winterton, 2005). However, several sources do not differentiate between them and use the two terms interchangeably (cf. Khan & Ramachandran, 2012). Among the 100 key terms of the European education and training policy (proposed by the Centre Européen pour le Développement de la Formation Professionnelle or the European

Centre for the Development of Vocational Training [CEDEFOP]), the term *competence* means the ability to apply learning outcomes adequately in a defined context (education, work, professional and/or personal development). Nowadays, competence is not limited to cognitive elements (involving the use of theory, concepts or tacit knowledge); it also encompasses functional aspects (involving technical skills) as well as interpersonal attributes (e.g. social or organisational skills) and ethical values. (CEDEFOP, 2008) Le Deist & Winterton (2005) argued for a multidimensional, holistic competence approach, reflecting the unity of competence and the difficulty of separating cognitive, functional and social dimensions. This paper espouses the (almost) common consensus acceptable for most contemporary scholars, seeing *competences* as more than just skills, behaviour or knowledge, i.e. as an integration of learnable components required for effective performance in certain contexts (Lans, Hulsink, Baert & Mulder, 2008; Mets, Kozlinska & Raudsaar, 2017). Bolden and Gosling (2006) compared competency profiles to sheet music, which is just a diagrammatic representation of music, but the addition of arrangement, playing and performance turns it into real music. They (Bolden and Gosling, 2006) put forth an example of classical musicians who might be not able to transfer their talents to different genres, especially jazz, where improvisation is expected. This metaphor leads to consideration of the proportion of pre-learned and improvised knowledge, including the competences to improvise, but this topic is out of the scope of this paper.

Another popular matter of discussion has been what the components of competences are. In general terms, the most characterising keywords in the current paradigm seem to be *work-readiness* or *work-preparedness* or *employability* of graduates, accompanied with common current notions such as 'transferable skills', 'key competencies' and so on, and 'graduateness' (Prikshat, Kumar & Nankervis, 2019). The major idea is that students should graduate in a 'work-ready mode' with demonstrable employability (Clarke, 2018). Further, Prikshat et al. (2019) proposed an integrated competence model, involving intellectual, personality, meta-skill and job-specific resources. They build on the resource-based view, which is the basis for the competence-based view (cf. Tetik, 2017). Clarke (2018) developed a framework on broader employability literature, expounding on the role of capital (human and social), individual (attributes and behaviours) and context (the labour market factors). A corollary from the resource-based view is that

all processes in an organisation must be covered by pertinent competences – otherwise, a process should be outsourced (cf. Serrano, Ramírez & Gasco, 2018).

Employability is a wide phenomenon where competences are firmly established. A high-level division of competences is specific (or occupational) versus general. General competences include problem-solving, critical thinking, team skills and so on. These reflect the higher thinking skills that are associated with occupational expertise, particularly for highly specific professions such as medicine, teaching and so on (Clarke, 2018) It is worth noting that general competences are firmly related to interdisciplinary competences, which are needed to foster innovative potential in collaboration with the representatives of different disciplines (Claus & Wiese, 2019). Even though several viewpoints argue for increasing the importance of general competences, in highly specific fields (cf. Hokkanen et al., 2019), in general (cf. Claus & Wiese, 2019) and even in both (cf. Kregel, Ogonek & Matthies, 2019), there is still a constitutive place for specific competences. Both general and specific competences are increasingly needed because more competent people are better motivated and happier at work (cf. Salas-Vallina, Alegre & Guerrero, 2018). Thus, all employers should consider the development of competences of all staff members to be essential. Following the rationale of this paper, the main trends in the competence models of entrepreneurs and project managers will be examined.

### 3.2 Entrepreneurial competences

Entrepreneurship, as a profession, is quite special – as entrepreneurs are not employed by somebody else, nobody will ask for their qualification or certificate. As employability is not an issue in entrepreneurship, there has been no need to define the competences for entrepreneurs. However, resulting from changing societal needs, development and supporting of entrepreneurship has become increasingly important. So, promoting entrepreneurial attitudes and developing entrepreneurial capacity is nowadays one of the key priorities all over the world. For instance, the EU proposed eight key competences for lifelong learning, one of which was a *'sense of initiative and entrepreneurship'* (European Commission [EC], 2007). Entrepreneurship is also a key competence in the Rethinking Education Commission Communication (EC, 2012a). Entrepreneurship, as a key competence,

is the composition of an entrepreneurial attitude, entrepreneurial skills and knowledge of entrepreneurship. Entrepreneurial competences reveal themselves in the entrepreneurial process through opportunity identification or creation, decision-making and the exploitation of opportunities (EC, 2012b). The role of entrepreneurship in improving employability levels is stressed in the Entrepreneurship Action Plan 2020 (EC, 2013).

The generally recognised increasing importance of entrepreneurship has led to serious attempts to define entrepreneurial competences. After intensive research and long debates for finding consensus on distinctive competence elements of entrepreneurship, 'The Entrepreneurship Competence Framework' (EntreComp) was issued in 2016. According to the EntreComp concept, entrepreneurship is a transversal competence, which applies to all spheres of life and all the 15 interrelated competences should be treated as a whole (Bacigalupo, Kampylis, Punie & Van den Brande, 2016). According to the authors of EntreComp, it *'¼ could inspire the reform of curricula in the formal education and training sector, the design of practical entrepreneurial experiences in non-formal learning contexts, or the development of tools for citizens to self-assess their entrepreneurial proficiency'* (Bacigalupo et al., 2016: 5). EntreComp is a broad-based tool, reflecting the complexity of the entrepreneurship competence domain; it can be used as a multi-purpose reference guide. It can be tailored to the context and to different needs, and it allows initiatives that tackle entrepreneurship as a competence to be compared, facilitating a common understanding of what being entrepreneurial means. It focusses on the development of competences through the actual creation of entrepreneurial value (Bacigalupo et al., 2016).

Although EntreComp appeared relatively recently, it comprises ideas that appeared already some time ago. For one, Lans et al. (2008) stressed that focussing on competence in entrepreneurship education should make potential entrepreneurs aware of the importance of certain entrepreneurial competences and provide direction for competence development. Robles and Zarraga-Rodriguez (2015) reviewed entrepreneurship literature in order to obtain a set of entrepreneurship-related individual competences. Their results indicated that if entrepreneurial competences were commonly developed, it would improve entrepreneurship behaviour and, thus, the competitiveness of the organisation, and even the whole economic system. Mets et al. (2017) investigated

self-assessed entrepreneurial competences in higher education institutions. They suggested that entrepreneurial competences support the efficient application of professional competences by graduates as entrepreneurs and as employees. They argued that the development of individual-level entrepreneurial competences through entrepreneurship education should precede socioeconomic outcomes of learning in real life, such as employability or business and social venturing.

The importance of entrepreneurial competences has grown in the light of recent trends of a competence-based approach. Entrepreneurial competences are critical in today's world where not only entrepreneurs but also project managers, who often act as intrapreneurs, are constantly trying to adapt to the changes to stay cutting edge. This is in line with recent findings about the importance of entrepreneurial orientation (Martens et al., 2015; Belfort et al., 2016; Martens et al., 2018). Entrepreneurial competences undergo development through various interpretations and will definitely be elaborated over time in order to address the particular human capital needs.

### 3.3 Project management competences

Project management, as a profession, has some similarities with entrepreneurship: up to mid-1970s, both were considered amateurish; afterwards, both developed into professionalism. Yet, because of the 'project management movement', development of special techniques for effective project work, professional bodies, practice and competence standards and certification systems, as well as an exponentially growing number of (notably certified) professionals, project management has left entrepreneurship behind (Kuura et al., 2014). Just voluntary certification systems render project managers *being good, feeling good and looking good* (Blomquist, Farashah & Thomas, 2018). Because of the existence of several professional bodies, a multitude of practice and competence standards and certification systems developed. Formation of professional bodies started at the turn of the 1960s and 1970s, chiefly to facilitate the exchange of information (via conferences, seminars, journals and magazines). In the mid-1970s, the US-based Project Management Institute (PMI) and, later, the UK-based Association for Project Management started developing their certification systems, ensuring that professionals met their standards of

distinctive knowledge. As certification required a knowledge basis, PMI established the first version of its (*Guide to the*) *Body of Knowledge* in 1976 (first published in 1983). Further, several other national professional bodies developed their own versions, and several upgrades followed (Crawford, 2004; Morris, Crawford, Hodgson, Shepherd & Thomas, 2006). Such a situation caused both competition and collaboration among the professional associations, as their practice and competence standards tended to differ from each other. It led to the formation of the Global Alliance for Project Performance Standards (GAPPS), targeting on the bridges between different standards. This initiative resulted in the devolvement of a new, truly international standard – International Organization for Standardization (ISO) 21500: 'Guidance on Project Management' (Crawford, 2013), which serves as a global practice standard. The generally recognised global project management competence standard is Individual Competence Baseline, version 4, developed by the International Project Management Association (IPMA-ICB 4.0, Vukomanovic, Young & Huynink, 2016), which '*¼ defines the competences required by individuals working in the fields of project, programme and portfolio management ¼ (for) educators, trainers, practitioners, HR professionals, and assessors*' (IPMA, 2015: 5). Ongoing developments have led to more research on the topic – for instance, the work of Alvarenga, Branco, Guedes, Soares and Silva (2019) on the core competencies of project managers, providing clear evidence of the linkage with entrepreneurial competencies (Mbiru, Wickham & Ayentimi, 2020).

## 4 Comparison of Entrepreneurial and Project Management Competences

### 4.1 Research setting and methodology

To explore the possible concurrences in competences for entrepreneurship and management of projects, it is necessary to carry out cross-examination of competences, defined for both fields of practice. As clarified in previous sections, the competences for entrepreneurs are less defined, but there has been a significant attempt – the 'Entrepreneurship Competence Framework' (hereinafter termed 'EntreComp'; Bacigalupo et al., 2016), which is taken as a framework of the competences necessary

for entrepreneurs. On the project management side, the situation is different – several respected professional associations (such as PMI, IPMA and others) have defined competences that are necessary for management of projects. Thus, recognising the existence of alternatives, the IPMA's *Individual competence baseline for project, programme & portfolio management* (2015; hereinafter referred to as the IPMA-ICB) is taken as the definition of competences necessary for management of projects. This choice can also be reasoned by a claim that the IPMA-ICB is a standard that is dedicated to the competence development of people working in the project environment, whereas most other standards tend to be process oriented (Vukomanovic et al., 2016).

A relational linguistic analysis and a conceptual analysis – two qualitative methods, both of which aim at clarifying terminological and conceptual issues – were chosen to find the concurrences of competences for entrepreneurship (EntreComp) and management of projects (IPMA-ICB). According to Kosterec (2016), a linguistic analysis aims to allow a deeper view on how a term is used within a specific domain, and the conceptual analysis aims to gain an understanding of a concept in the conceptual network. The research question in relational linguistic analysis is simple – what kind of terms are used and how often they occur in different parts of competence definitions. The relational linguistic analysis started with the coding of the terms and proceeded with the calculation of the correlation in the occurrence of the terms across different subunits of EntreComp and IPMA-ICB.

Bolden and Gosling (2006) consider this kind of analysis appropriate because it enables the grasping of the semantic content and the meanings of competencies. A number of scholars make use of computational tools and methods of concordance and collocation analysis (Luz & Sheehan, 2020; Claus & Wiese, 2019; Nuopponen, 2010b) to identify a relationship between interdisciplinary competences. Although the analytical work done is more of qualitative nature, such methods are chosen to provide an objective and relevant technique for exploring the concepts (Luz & Sheehan, 2020). Nuopponen (2010b) argues that in multidisciplinary research, an agreement on similar concepts belonging to different concept systems has to be reached.

According to Nuopponen (2010b), the main reason for using conceptual analysis is to understand the meanings of the terms, to identify how they are related and to compare these concepts in different domains.

The conceptual analysis was carried out by discerning competence threads in EntreComp and IPMA-ICB, coding them and then searching for coincidences. The underlying methodical approach is 'chunking', originating from the classics of cognitive psychology (Miller, 1956), meaning the grouping of similar pieces of information and processing them as single, meaningful units. Nowadays, chunking is used in several fields, such as machine translation (Wu & Chang, 2006; Wu, He, Zhou, Xiao & Luo, 2017; Tait & Wilks, 2019) and elsewhere, and is, importantly, seeping into research (Wilson, Bell, Wilson & Witteman, 2018).

Similar methods have been used, such as the Jaccard score (comparing travel reviews; Park & Kim, 2017) and Word Count (comparing consumer-produced product reviews; Kostov, Bécue-Bertaut & Husson, 2014). Chunking is an essential technique in machine learning and is the basis for the respective software (software in biomedical texts has been compared; Kang, van Mulligen & Kors, 2011). Various techniques for comparing texts have also been identified in the development of machine learning (Sieg, 2018; Elia, 2020), and although a simple counting of words at the machine learning level is not adequate, it is sufficiently accurate to compare the substantive overlap between the different parts of the specific two texts.

In research, chunking means chiefly applying the agile, iterative approach, which in turn relates to the grounded theory approach, where agility is treated as a holistic and complex phenomenon (Hoda & Noble, 2017). In this paper, the principles of chunking are used in combination with the iterative approach.

## 4.2 Data processing

Each thread of the EntreComp framework (60 rows in a table) was separately copied to the word count tool ([http://www.writewords.org.uk/word\\_count.asp](http://www.writewords.org.uk/word_count.asp)). The list of words was then copied to the MS Excel model, where the words and counts of the word occurrences were separated. All words of very short lengths were deleted. After the words of each thread in EntreComp had been joined and after removing duplicates, 1,214 words were left (also different cases and turns at that time). The same procedure was carried out with the IPMA-ICB competences (28), including all the key performance indicators, the lists of knowledge and so on. After joining the IPMA-ICB words and removing duplicates, 3,049 words were left (also different cases and turns at that time), with 3,443 words in total for



EntreComp and IPMA-ICB. Then, the stem words were separated as terms for coding. In total, 1,878 terms (keywords) were coded. The procedure for identifying the frequency of coded terms in the EntreComp threads and the IPMA-ICB competences was carried out (from the word count results). As a result, a database of the frequencies of terms was produced (1,878 term frequencies, by (60+28) columns). Then, the correlation analysis between the EntreComp threads (60) and the ICB competences (28) was carried out (Appendix 1). Besides, a concise database of terms on EntreComp competences (15) was prepared, and a correlation analysis between them and the IPMA-ICB competences was carried out (Appendix 2).

### 4.3 Results and preliminary relational analysis

On the high level, EntreComp distinguishes 15 competences in three groups: *'Ideas and opportunities'*, *'Resources'* and *'Into action'*. Each competence is specified in a different number of thread (numbers 2–6) and in an eight-level progression model. So, in total, 442 learning outcomes are defined in a matrix, validated through iterative stakeholder consultations. IPMA-ICB divides the defined 28 competence elements in the domain of projects into three areas: *'Perspective'*, *'People'* and *'Practice'*.

The full correlation analysis (see Appendix 1) indicates insignificant linguistic connections between these 'environmental' areas, except for some EntreComp threads in the *Ideas and opportunities* group with the IPMA-ICB competence *Culture and values* (0.38 between *Recognise the value of ideas* in EntreComp and *Culture and values* in IPMA-ICB; see Table 1). It may be caused by the frequency of the term 'value' in these threads, but it may also reveal a more significant link (discussed in the next section). Moreover, some IPMA-ICB competences in other areas are linguistically connected to EntreComp threads in *Ideas and opportunities*. For example, the IPMA-ICB competence *Resourcefulness* is somewhat connected to all the threads of EntreComp (correlation: 0.1–0.35; see Appendix 1), whereas the average correlation in the EntreComp competence level is 0.23. The IPMA-ICB competences that appeared well connected with overall entrepreneurial behaviour (and competences in EntreComp) are *Relations and engagement* (average correlation: 0.24), *Change and transformation* (0.23), *Stakeholders* (0.21), *Leadership* (0.21), *Personal*

**Tab. 1.** Strongest correlations between EntreComp threads in the group *Ideas and opportunities* and the IPMA-ICB competence *Culture and values*

EntreComp: Ideas and opportunities	IPMA-ICB: Culture and values
Identify, create and seize opportunities	0.20
Analyse the context	0.29
Design value	0.23
Recognise the value of ideas	0.38
Behave ethically	0.22
Think sustainably	0.16
Assess impact	0.20

EntreComp, The Entrepreneurship Competence Framework; IPMA-ICB, International Project Management Association's Individual Competence Baseline.

*communication* (0.20) and *Self-reflection and self-management* (0.20) (see Appendix 2).

The maximum (strongest) linguistic correlations between IPMA-ICB competences and EntreComp threads (see Table 2) appeared between slightly different areas of competences. The competence group *Resources* in EntreComp slightly describes behavioural competences, which is naturally connected to the competence in *People* area in IPMA-ICB. But the highest scores of linguistic correlations are between the competences *Resources* in the area of *Practice* in IPMA-ICB and the thread *Manage resources* in the group *Resources* in EntreComp (0.62); moreover, the competence *Teamwork* in the area *People* in IPMA-ICB and the thread *Team up* in the group of *Into action* in EntreComp (0.57) are highly correlated. This set of high correlation values across areas leads to an understanding that the concepts behind determining the competence areas are slightly different in EntreComp and IPMA-ICB as the focus of the competences is different. EntreComp is mostly focussed on behavioural competences both in the groups *Resources* and *Into action* as correlation numbers are >0.2 in most relations to competences in the area *People* in IPMA-ICB (see Appendix 2). Notably, all the competences in the area *People* in IPMA-ICB are connected to all EntreComp threads and competences (average correlation is 0.22, when the others are 0.14 and 0.17; see Table 3) more than the others.

**Tab. 2.** Strongest linguistic correlation between EntreComp threads and IPMA-ICB competences<sup>1</sup>

		IPMA-ICB areas and competences	IPMA-ICB areas					
			People	Practice				
			Relations and engagement	Teamwork	Resources	Plan and control	Risk and opportunity	Change and transformation
EntreComp competences and threads	Resources	Manage resources (material and nonmaterial)	0.17	0.18	0.62 (**)	0.18	0.12	0.15
		Use resources responsibly	0.09	0.09	0.48 (*)	0.10	0.10	0.15
	Into action	Plan and organise	0.15	0.12	0.16	0.41 (*)	0.16	0.33
		Be flexible and adapt to changes	0.17	0.15	0.19	0.33	0.14	0.63 (**)
		Calculate risk	0.14	0.07	0.06	0.09	0.48 (*)	0.19
		Manage risk	0.15	0.13	0.09	0.13	0.43 (*)	0.16
		Team up	0.36	0.57 (*)	0.14	0.13	0.07	0.25
		Expand your network	0.43 (*)	0.32	0.12	0.12	0.07	0.20

EntreComp, The Entrepreneurship Competence Framework; IPMA-ICB, International Project Management Association's Individual Competence Baseline.

1 (\*) – significant correlation

(\*\*) – strong correlation

**Tab. 3.** Correlation between EntreComp and IPMA-ICB areas

EntreComp groups	IPMA-ICB areas			
	Perspective	People	Practice	Average
Ideas and opportunities	0.17	0.20	0.19	<b>0.19</b>
Resources	0.14	0.23	0.18	<b>0.19</b>
Into action	0.12	0.23	0.15	<b>0.17</b>
<b>Average</b>	<b>0.14</b>	<b>0.22</b>	<b>0.17</b>	

EntreComp, The Entrepreneurship Competence Framework; IPMA-ICB, International Project Management Association's Individual Competence Baseline.

The group *Into action* in EntreComp and the area *Practice* in the IPMA-ICB are linguistically not very well connected on an average (correlation: 0.15; see Table 3) and, despite some high scores (Table 2), the median value is rather low (0.11). On the contrary, the group *Into action* in EntreComp is more connected to the area *People* in IPMA-ICB (median value: 0.17).

The linguistic analysis revealed not only some quite significant, but also weak, correlations (not to say

incoherencies). However, such a linguistic approach has natural limitations. It is commonly known that sometimes both practitioners and researchers in different areas use different words to denote the same or a similar substance; moreover, some words may have quite a different meaning for them (cf. Mills et al., 2020). Thus, a more substantial discussion is carried out in the next section.

## 5 Discussion, Implications and Concluding remarks

Inspection of both the examined competence frameworks shows several similarities. First, all competences are grouped into three high-level categories, labelled *areas* in the IPMA-ICB and *groups* in EntreComp. The first in the IPMA-ICB is 'Perspective', denoting the environment around projects; the first in EntreComp, 'Ideas and opportunities', also represents the environment around an entrepreneur, which raises the question whether there is any significant difference. EntreComp defines entrepreneurship as 'when you act upon opportunities and ideas and transform them into value for others. The value that is created can be financial, cultural, or social' (Bacigalupo et al., 2016: 5). The IPMA-ICB defines a project as 'a unique, temporary, multidisciplinary and organized endeavor to realise agreed deliverables within predefined requirements and constraints' (IPMA, 2015: 29). These definitions reveal one main difference, confirmed by the study: the value that projects usually deliver starts from a more organised environment than 'classic' entrepreneurial opportunities, because, in most cases, projects have predefined outcomes and requirements. Obviously, there is a difference. Yet, looking at the global practice standard ISO 21500 (ISO, 2012), one can note several 'entrepreneurial' aspects – for one, depiction of a value creation framework includes opportunity recognition, which is essential in entrepreneurship (cf. George et al., 2016). This example also illustrates the uncertainty of the linguistic approach – ISO 21500 does not use the lexis of entrepreneurship; thus, similar cross-examination of practice standards (if there was a counterpart in entrepreneurship) would indicate no correlation. However, there are essential links, concerning both entrepreneurial orientation of projects and the role of projects in entrepreneurship, particularly in intrapreneurship (cf. Belfort et al., 2016).

Stated in IPMA-ICB and ISO 21500, the term 'project logic' fits better with intrapreneurship, as dominant 'classic' views on entrepreneurship presume realisation of opportunities by establishing new (small) organisations, whereas intrapreneurship considers the same in established, mature and bigger organisations. As pointed out before (see Table 1), a significant linguistic correlation appeared between *Recognise the value of ideas* in EntreComp and *Culture and values* in the IPMA-ICB. It may be caused by the frequency of the term 'value' in these threads, but there may be a

more substantial reason. Like an entrepreneur creates value in culture or on a social level, a project manager needs to understand and act within the frame of cultural and social values of a given environment. It may also indicate the need for a project manager to cooperate mostly with stakeholders to understand their values behind the given strategies, structures and standards.

Moreover, linguistic analysis evinced that EntreComp is mostly focussed on behavioural competences, both in the groups *Resources* and *Into action*, as the correlation values are  $>0.2$  in most relations to competences in the area *People* in the IPMA-ICB. An exception – *Negotiation* competence, needed for a project manager but not much for an entrepreneur – can be also explained by differences in environments. Traditionally, an entrepreneur is almost independent in turning his/her ideas into action, whereas a project manager (as an intrapreneur) must get approval from important stakeholders, especially the project owner (sponsor). However, recent trends in understanding the entrepreneurship process place it within a complex institutional context, labelled as an entrepreneurial ecosystem, which is increasingly a more collective (or network) effort rather than individual action (cf. Auschra et al., 2019). Under changing circumstances, including ongoing projectification of entrepreneurial ecosystems (Auschra et al., 2019), the situation is changing, and the ability to negotiate becomes increasingly important for entrepreneurs too. Still, some competences in the area *Perspective* in IPMA-ICB (except *Culture and values*) are less linked to any of the EntreComp threads and competences, with some exceptions. The EntreComp thread *Plan and organise* is naturally connected to almost all IPMA-ICB competences (average correlation: 0.21; see Appendix 1). This relates to a well-known dilemma in project management practices – the intercourse of leadership and administration (cf. Crevani, 2018). Administration is needed to respect the permanent need of the organisation for compliance, whereas leadership is more connected to entrepreneurship or is just as an entrepreneurial behaviour.

Surprisingly, the group *Into action* in EntreComp has not much in common with the area *Practice* in IPMA-ICB but is more connected to *People*. This suggests that entrepreneurship is more related to social and cultural values than acting by certain procedures or 'best practices'. Indeed, as already mentioned, there are several practice standards (ISO 21500 and similar ones) in project management, but no counterparts in

entrepreneurship. Not only *Scope*, but also *Quality* and *Procurement* in the IPMA-ICB, on an average, are not connected to EntreComp threads (average correlation: 0.08; see Appendix 1). This may be explained by the nature of goal setting and the measuring of success in an entrepreneurship, which are slightly different from the project management viewpoint. According to the common view, the success of an (also entrepreneurial) organisation depends on the success of its project portfolio, but understandably, single projects contribute to the portfolio and thereby to the success of the whole permanent organisation (cf. Martens et al., 2018). The competence *Organisation and information* in the IPMA-ICB has also a maximum correlation as low as 0.21 with the thread *Cope with uncertainty and ambiguity* in EntreComp. These are naturally related to a true property of project management – risk management. The same refers also to *Project Design* in the IPMA-ICB (maximal correlation: 0.23), which is quite a project-specific competence.

A more detailed feature about the threads in EntreComp is the ability to find finances for the ideas (thread *Find funding* in EntreComp has maximum correlation 0.19); project managers may rely more on the project owner's responsibility of finding funding than entrepreneurs. The smallest relation to the EntreComp threads is for *Think strategically* (maximum correlation: 0.17; with *Strategy and Change and transformation* in IPMA-ICB), which actually should also be more important to a project manager. However, understandably, an entrepreneur develops the strategy on his/her own, but a project manager must look for existing strategies in the given organisational environment. This is also indicated in the maximal correlation of the EntreComp threads *Be innovative* (0.20; with *Change and transformation* in IPMA-ICB) and *Think sustainably* (0.22; with *Resourcefulness* in IPMA-ICB).

Some indication of the differences between an entrepreneur's and a project manager's world can also be seen in the low maximum scores of the EntreComp threads *Reflect*, *Learn to learn* and *Learn from experience*. It is commonly accepted that entrepreneurs may fail, and failures are a good source of learning, but most project managers must manage their projects to success at minimal acceptable risk level and must not fail. So, their learning process is probably different, but learning is a must for both entrepreneurs and project managers. Thus, orientation towards learning and the ability or competence to learn is needed for both entrepreneurs (cf. Tittel & Terzidis, 2020) and project managers. Unfortunately, unlike the IPMA-

ICB, EntreComp does not include such a competence. Namely, the group *People* includes a competence *Self-reflection and self-management*, and one (of the five) indicator, *Take responsibility for personal learning and development*, contains a precise measure – *Uses mistakes or bad results as an impulse for learning activities*.

The last example denotes just one of many possibilities for mutual learning and enrichment for both entrepreneurs and project managers. Project managers are increasingly expected to act as entrepreneurs or intrapreneurs, so they can use and empower all their behavioural (area *People* in IPMA-ICB) abilities, which are well correlated with EntreComp competences. Moreover, project managers can use some advantages of practical competences (area *Practice* in IPMA-ICB), necessary for entrepreneurs more than represented in the EntreComp framework at present, although some competences from that area are well correlated (see Table 2). If a project manager wants to make a career as an entrepreneur, he/she should improve his/her competences in two groups of EntreComp: *Ideas and opportunities*; and *Taking the initiative* in the group *Into action*, which are much less related to an ordinary project manager's work. Hence, an entrepreneur should '¼ be open-minded to perceive opportunities, putting in practice creativity, innovation and risk-taking, as well as the ability to plan and manage projects in order to achieve objectives' (Edwards-Schachter et al., 2015: 29). Perhaps it is difficult to formulate it better. Yet, notably, paraphrasing of 'A Good Man is Hard to Find', Gartner (2019: 114) pronounced another linkage between projects and entrepreneurship – serendipity: 'So the unplanned path becomes the project. ¼ Accidents happen.' This quote points to the natural relationship of both projects and entrepreneurship to the unexpected – namely, events, behaviours and so on. Unexpected is not usual in 'business-as-usual'; this tends to happen in the context of innovation, which, in turn, involves creativity. Under such circumstances, very often, the pre-planned does not work; thus, improvisational behaviour and pertinent competences will be needed. Against this background, it is surprising that improvisational competences are distinctly represented neither in the entrepreneurs' nor in the project managers' competence models. Nonetheless, both fields can learn from services, adopting the construct of improvisation competence (Secchi, Roth & Verma, 2019).

This study contributes to linking two neighbouring disciplines – entrepreneurship and project management – chiefly through competences.

Furthermore, this is a response to a call by Davies et al. (2018) to learn from other disciplines. With regard to competences, entrepreneurship can learn and/or take over (if necessary, adopt) several aspects from project management, and vice versa. Yet, the role of competence models and professional standards in entrepreneurship differs from that of project management. One advantage of certified professionals (Blomquist et al., 2018) *looking good* is not relevant for entrepreneurs, because nobody will employ them and ask for a certificate. Moreover, *feeling good* is not so relevant, as entrepreneurs have more of other opportunities for self-actualisation and so on. However, the third – *being good* by improving one's competence – should be relevant also for entrepreneurs. In entrepreneurship, competence models (and professional standards, if existent) serve mainly for educational and training purposes.

The main implication of this study is a simple recommendation – to incorporate core project management competences into competence models (and standards) for entrepreneurs. As the study indicates, the task is not difficult due to the fact that the project competences are already there; however, a more comprehensive approach is needed. In general, the necessity and usefulness of entrepreneurial competences have already been accepted almost everywhere; therefore, enriching the range with crucial project competences may be attractive for students in universities, as well as in K-12 and earlier levels. It is known that not all students completing an entrepreneurship course will become 'classic' entrepreneurs who will establish and run their own companies. Thus, increasing the employability of graduates through combined competences can play an important role. A good project manager in the current society is like an intrapreneur or just an entrepreneurial project manager. At the same time, ongoing projectification of entrepreneurial ecosystems (cf. Auschra et al., 2019) will create a need for project-oriented entrepreneurs, possessing corresponding competences, or at least understanding of the professional language of project people. Entrepreneurship (entrepreneurial ecosystems) supports innovativeness and regional development (respective ecosystems), which also undergo projectification (cf. Kovach & Kucherova, 2006). In such ecosystems, a focal role belongs to clusters (Mackiewicz, 2020), wherein both entrepreneurial and project competences are increasingly relevant. Thus, project management is increasingly seen as a general competence, necessary for everybody and applicable

everywhere. The education system must think years ahead to meet the expectations of the graduates entering the labour market in the future. According to Susskind and Susskind (2015), standardisation is an essential stage in the development of a profession, leading to the next stage – systematisation, where the main ambition is identifying the shortcomings in knowledge and making enrichments. Linking the accumulated knowledge across disciplines will probably be contributory, especially if combined with other possibilities.

This study has obvious limitations – the linguistic approach mentioned here and a limited choice of analysed sources (EntreComp and IPMA-ICB). There are not many alternatives in entrepreneurship, but a considerable amount of choices in project management provides a possibility for further analysis. A wider avenue for further research could be a qualitative examination of the competences required in the examined professions, as well as in other related professions. Not much is currently known about competences in the context of linking different disciplines, thus providing a potential opportunity to address these research gaps. Realising this potential may accelerate learning and adapting from related disciplines and advancing both research and practice. Moreover, comparison of different competence models and standards in the profession (cf. Mills et al., 2020) may add value. And finally, as mentioned earlier, the improvisational aspect in competences was left out of the scope of this paper, but this is a promising avenue for further research. The influence of an unexpected crisis due to the Corona pandemic has demonstrated the necessity to respond rapidly using improvisation. Quite probably, this will remain the 'new normality' in the VUCA-world.

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# Appendix 2

EntreComp Areas and Competences		IPMA-ICB Perspective										People										Practice										Average for EC area																							
		Strategy		Governance, structures and processes		Compliance, standards and regulation		Power and interest		Culture and values		Self-reflection and self-management		Personal integrity and reliability		Personal communication		Relations and engagement		Leadership		Teamwork		Conflict and crisis		Resourcefulness		Negotiation		Results orientation			Project design		Requirements and objectives		Scope		Time		Organization and information		Quality		Finance		Resources		Procurement		Plan and control		Risk and opportunity		Stakeholders
Correlation between stemmed word counts																																																							
Ideas and opportunities	Spotting opportunities	0.12	0.09	0.13	0.11	0.23	0.14	0.12	0.20	0.12	0.14	0.11	0.10	0.17	0.12	0.12	0.08	0.14	0.08	0.07	0.14	0.07	0.08	0.10	0.06	0.08	0.34	0.15	0.16	0.13	0.13																								
	Creativity	0.12	0.10	0.10	0.08	0.18	0.12	0.08	0.18	0.16	0.12	0.14	0.15	0.34	0.11	0.15	0.08	0.11	0.09	0.12	0.08	0.11	0.09	0.11	0.08	0.10	0.12	0.19	0.21	0.13	0.13																								
	Vision	0.17	0.05	0.05	0.07	0.15	0.12	0.16	0.15	0.26	0.18	0.17	0.13	0.17	0.09	0.13	0.06	0.09	0.07	0.12	0.07	0.07	0.08	0.06	0.05	0.09	0.09	0.16	0.23	0.12	0.12																								
	Valuing ideas	0.11	0.08	0.09	0.13	0.28	0.17	0.20	0.24	0.23	0.18	0.12	0.17	0.25	0.13	0.13	0.08	0.13	0.08	0.14	0.08	0.09	0.10	0.08	0.11	0.09	0.11	0.23	0.22	0.14	0.14																								
	Ethical and sustainable thinking	0.11	0.10	0.13	0.13	0.24	0.20	0.24	0.22	0.19	0.17	0.14	0.18	0.23	0.10	0.19	0.11	0.13	0.07	0.18	0.10	0.09	0.11	0.07	0.09	0.11	0.15	0.25	0.26	0.15	0.15																								
Resources	Selfawareness and selfefficacy	0.18	0.14	0.17	0.27	0.18	0.27	0.17	0.19	0.31	0.25	0.22	0.21	0.27	0.20	0.25	0.14	0.21	0.09	0.15	0.15	0.13	0.14	0.23	0.14	0.12	0.16	0.27	0.28	0.20	0.17																								
	Motivation and perseverance	0.14	0.09	0.08	0.13	0.13	0.26	0.15	0.17	0.30	0.21	0.24	0.17	0.25	0.14	0.21	0.10	0.17	0.08	0.15	0.08	0.10	0.10	0.17	0.09	0.10	0.04	0.19	0.23	0.15	0.15																								
	Mobilising resources	0.16	0.20	0.13	0.09	0.19	0.19	0.16	0.19	0.18	0.18	0.18	0.15	0.25	0.08	0.21	0.11	0.12	0.12	0.30	0.12	0.13	0.18	0.49	0.15	0.16	0.12	0.22	0.20	0.18	0.18																								
	Financial and economic literacy	0.11	0.18	0.11	0.08	0.17	0.14	0.13	0.16	0.15	0.13	0.12	0.13	0.18	0.08	0.16	0.09	0.11	0.08	0.25	0.11	0.08	0.32	0.16	0.10	0.12	0.07	0.18	0.20	0.14	0.14																								
Into action	Mobilising others	0.09	0.12	0.08	0.15	0.19	0.17	0.19	0.34	0.35	0.25	0.27	0.19	0.27	0.14	0.21	0.12	0.13	0.08	0.19	0.11	0.09	0.11	0.15	0.11	0.10	0.06	0.29	0.21	0.17	0.17																								
	Taking the initiative	0.05	0.07	0.06	0.07	0.25	0.19	0.28	0.15	0.26	0.28	0.18	0.13	0.19	0.06	0.14	0.07	0.07	0.07	0.20	0.08	0.08	0.08	0.08	0.10	0.08	0.11	0.11	0.16	0.13	0.13																								
	Planning and management	0.24	0.17	0.15	0.10	0.22	0.22	0.16	0.15	0.19	0.18	0.19	0.16	0.19	0.11	0.25	0.17	0.20	0.17	0.31	0.16	0.20	0.20	0.17	0.13	0.29	0.13	0.27	0.40	0.19	0.19																								
	Coping with uncertainty, ambiguity and risk	0.12	0.09	0.11	0.12	0.15	0.16	0.19	0.15	0.18	0.26	0.11	0.15	0.21	0.10	0.15	0.10	0.08	0.10	0.16	0.14	0.07	0.10	0.09	0.13	0.13	0.45	0.16	0.18	0.15	0.15																								
	Working with others	0.11	0.13	0.12	0.17	0.23	0.28	0.28	0.30	0.43	0.32	0.42	0.26	0.34	0.16	0.27	0.13	0.12	0.18	0.23	0.15	0.12	0.13	0.13	0.13	0.13	0.08	0.23	0.26	0.21	0.21																								
Learning through experience	0.11	0.10	0.12	0.15	0.15	0.28	0.16	0.15	0.25	0.23	0.24	0.20	0.21	0.11	0.17	0.21	0.11	0.05	0.16	0.10	0.11	0.11	0.10	0.12	0.13	0.12	0.19	0.23	0.16	0.16																									
Average for ICB Competence over EC Competences		0.13	0.11	0.11	0.12	0.20	0.20	0.18	0.20	0.24	0.21	0.19	0.16	0.23	0.11	0.18	0.11	0.13	0.09	0.18	0.11	0.10	0.13	0.15	0.11	0.12	0.14	0.21	0.23	0.16	0.16																								
Average for ICB Comp. Group		0.13										0.19										0.14																																	