Aalborg Universitet

AALBORG UNIVERSITY
DENMARK

Human Capital in the Entrepreneurship Ecosystem

Østergaard, Annemarie; Marinova, Svetla Trifonova

Published in:
International Journal of Entrepreneurship and Small Business

DOI (link to publication from Publisher):
10.1504/IJESB.2018.095907

Publication date:
2018

Document Version
Accepted author manuscript, peer reviewed version

Link to publication from Aalborg University

Citation for published version (APA):
Østergaard, A., & Marinova, S. T. (2018). Human Capital in the Entrepreneurship Ecosystem. *International Journal of Entrepreneurship and Small Business*, *35*(3), 371-390. https://doi.org/10.1504/IJESB.2018.095907

General rights
Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal -

Take down policy
If you believe that this document breaches copyright please contact us at vbn@aub.aau.dk providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from vbn.aau.dk on: October 12, 2024

Human capital in the entrepreneurship ecosystem

Annemarie Østergaard*

Department of Business and Management,
Aalborg University,
Fibigerstræde 11, 9220 Aalborg East, Denmark
Email: aoe@business.aau.dk
*Corresponding author

Svetla T. Marinova

Department of Business and Management,
Aalborg University,
Fibigerstræde 4, 9220 Aalborg East, Denmark
Email: svetla@business.aau.dk

Abstract: Since Smith (1776) took consideration to human capital as an asset of economic value, academic interest has focused on the economic effects of human capital. In 1931, Schumpeter called for a focus on the individual entrepreneur or the creative destructor with his/her motives, wishes, aspirations and activities when dealing with entrepreneurship and entrepreneurs. Along these lines, this paper focuses on an in-depth investigation of the domain of human capital in Isenbergs entrepreneurship ecosystem. It captures the entrepreneurial mindset of the highly complex individual as a requisite for entrepreneurial success and ultimately, for business growth and development. The increasing literature debating human capital confirms the relevance of locating and refining the factors for entrepreneurial success. Consequently, this paper improves the roadmap of entrepreneurship ecosystems by adding the innate skills and conceptualising four generic archetypes, the local entrepreneur, the global entrepreneur, the incremental entrepreneur, and the radical entrepreneur, based on the combination of short/long education and narrow/broad labour.

Keywords: human capital; entrepreneurship ecosystem; labour experience; education; success stories; archetypes; local entrepreneur; global entrepreneur; incremental entrepreneur; radical entrepreneur.

Reference to this paper should be made as follows: Østergaard, A. and Marinova, S.T. (xxxx) 'Human capital in the entrepreneurship ecosystem', *Int. J. Entrepreneurship and Small Business*, Vol. X, No. Y, pp.xxx–xxx.

Biographical notes: Annemarie Østergaard is deeply involved in entrepreneurship research, teaching and development at the Aalborg University. Her experience ranges from positions as a Business and Innovation Officer, Principal of an Education and Business Training School, and as trained psychologist with more than 1,000 psychological sessions and lastly more than 30 years of experience as an entrepreneur. Her research interests concentrate on entrepreneurial activity, personality, context, learning and growth, and as such, her PhD about the entrepreneurial personality took departure in a personality test and a leadership test inspired by previous qualitative, in-depth interview of successful entrepreneurial individuals.

Copyright © 20XX Inderscience Enterprises Ltd.

Svetla Marinova is a Professor in International Business and Marketing at the Aalborg University in Denmark. Her research interests include company internationalisation and the role of institutions, strategy of multinational firms from emerging economies and the management of firms undergoing intensive internationalisation processes. She has published more than 70 papers in scholarly journals, including *International Marketing Review*, *Management and Organization Review*, *Research in Marketing European Journal of Marketing*, *Thunderbird Business Review*, *Journal of East-West Business*, among others. She has edited and co-edited nine books with Palgrave Macmillan.

This paper is a revised and expanded version of a paper entitled [title] presented at [name, location and date of conference].

Comment [t1]: Author: If a previous version of your paper has originally been presented at a conference please complete the statement to this effect or delete if not applicable.

1 Introduction

For decades, practitioners and academics have been attempting to understand, explore and theorise human capital as one of the key input factors stimulating economic growth. The term human capital is used to reflect the stock of knowledge, experience, and personality attributes exemplified in the capacity to work in order to create economic value. Smith (1776) defined human capital as the fourth fixed capital that enables production as, "the acquired and useful abilities of all the inhabitants or members of the society…during…education, study, or apprenticeship… that have costs… [and] a real expense, which is a capital fixed and realized". This idea has later led to the argument that investments in education and the experiences of human capital can lead to better economic performance (Hanushek and Woessmann, 2008). Academic interest has focused on the economic effects of human capital associated with value creation, R&D and innovation, economic growth and firm internationalisation, and entrepreneurial venture emergence and growth.

Mincer (1958) pioneered the analysis of inequality in personal income, and he demonstrates the relationship between the distribution of earnings and human capital, arguing that wage income is a function of schooling and experience. Mincer's earnings function has become one of the most widely used models in empirical economics (Lemieux, 2006). Verified through diverse datasets, Mincer's earnings function confirms the fundamental importance of education and work experience in building up highly qualified human capital. Theoretical analysis of investment in human capital indicates that both earnings and consumption can be affected by human capital (Becker, 1964). Therefore, consumption patterns and a respective increase in consumption is also impacted by individuals' education and training (Becker, 1964). Schultz (1961a, 1961b) continued the research on investment in human capital by examining and explicitly incorporating human resources and education into economic thought. For instance, the growth rate of total, factor productivity is found to depend on a nation's human capital stock level (Benhabib and Spiegel, 1994). Whereas, research by Cooper et al. (1994) argues that initial human and financial capital determine the three performance outcomes: failure, marginal survival or high growth in entrepreneurial ventures.

Human capital is commonly defined as a human's level of general schooling, experience and earnings (Mincer, 1974), as well as work-related education and training (Becker, 1964). Besides the learning importance from formal academic institutions,

families and firms (Heckman, 2000), human capital is also measured by cognitive and non-cognitive skills in producing economic and social success: these skills also relate to social capital (Coleman, 1988). Furthermore, Becker (1964) distinguishes between general and specific human capital, which is related to long-term growth and failure. This indicates that both general human capital and specific human capital mediate growth and that growth and specific human capital are mediators of avoiding failures (Rauch and Rijsdijk, 2013). There have been numerous suggestions for policies that foster human capital. For instance, Heckman (2000) emphasises the benefits of early intervention programmes, mentoring, and teenage motivation programmes. Recently, a new approach for economic policy development has suggested the entrepreneurial ecosystem as a framework for exploring human capital. According to Isenberg (2010), this approach is an essential key in the road map for creating a creative, entrepreneurial economy that is practical, yet far from adopting an exact formula.

The entrepreneurship ecosystem launched by Isenberg (2011) is built upon a long and rich research tradition from diverse scholarly disciplines such as economics, economic geography, and entrepreneurship. It seeks to explain the reasons for and benefits from firm clustering in geographical space (Mason and Brown, 2014). According to Mason and Brown (2014), there are five reasons why Isenberg's entrepreneurship ecosystem offers a new perspective for exploring human capital. It gives a holistic understanding; shifts the unit of analysis from firm towards the entirety of the actual ecosystem; it is linked to the 'economic gardening' approach in a specific environment; de-emphasises the importance of firm-size, and emphasises firm growth and the need for it to be actively fostered.

This paper shed renewed light on human capital in entrepreneurship by use of two means: statements of Danish successful entrepreneurial individuals and an in-depth investigation of the domain of human capital in Isenberg's entrepreneurship ecosystem. The purpose is to enhance the quality of the entrepreneurship ecosystem as a framework and increase its usability as a road map for future entrepreneurial initiatives. The increasing literature debating human capital confirms the relevance of locating and refining the factors for entrepreneurial success. Therefore, this article is prompted to address human capital by considering the entrepreneurial mindset as a requisite for entrepreneurial success and ultimately, for business growth and development.

2 Human capital and entrepreneurship

2.1 Human capital and entrepreneurial success

A meta-analytical review on the relationship of human capital and entrepreneurial success by Unger et al. (2011) integrates results from three decades of human capital research in entrepreneurship. They found a significant relationship between human capital and success. They state that the interest in human capital should be more pronounced, as many scholars have concluded that human capital is related to success (e.g., Bosma et al., 2004; Bruederl et al., 1992; Cassar, 2006; Cooper et al., 1994; Dyke et al., 1992; Van der Sluis et al., 2005).

Unger et al. (2011, p.349) (following Becker, 1964) define human capital as knowledge and skills acquired through schooling, on-the-job-training and other types of experiences. This furthermore stresses the importance of education and experience in understanding what makes human capital. Moreover, they propose that human capital, understood as current task-related knowledge and skills, is decisive in relation to success, with the latter being defined as: "in line with the entrepreneurial and organizational performance dimensions mentioned in the literature (Combs et al., 2005; Eisenhardt and Schoonhoven, 1990): profitability, growth, and size".

In addition, Cooper et al. (1994) argue that measures of general human capital influence both survival and growth, with the exception for gender: where women-owned ventures being less likely to grow, but just as likely to survive.

2.2 Human capital and entrepreneurial performance

Wiklund (2006) uses Miller's original scale consisting of eight items (Miller and Friesen, 1982) to measure entrepreneurial orientation that influences firm performance and found a positive relationship between entrepreneurial orientation and performance that increases over time. Moreover, initial human capital and financial capital are better in determining and predicting the performance of high growth entrepreneurial ventures, as well as the failure and marginal survival of new ventures (Cooper et al., 1994).

Recognising the interdependence of entrepreneurial venture performance with human capital, and building upon his previous findings of ten empirical archetypes, Miller (2015) has called for a focus on identifying significant archetypes of entrepreneurs, characterised by different types of entrepreneurship, situations, challenges, and behaviours that may ensure optimal performance and entrepreneurial success (Miller and Friesen, 1977, 1980). Likewise, Cooper et al. (1994) suggest that the general human capital, seen as the entrepreneur's education, gender, and race, reflect the extent to which the entrepreneur develops relevant skills and contacts that can lead to the success of entrepreneurial ventures.

Hence, human capital tends to be distinctly associated with entrepreneurial success, defined as achieving a favourable result that one strives for.

3 Critical reflections on the foundations of entrepreneurial success

The critical reflections are organised according to Schumpeter's acknowledgement of the individual, the essence of human capital described in the literature, and the influence from scholarly discussion. Statements from Danish Successmakers supplement these, i.e., successful entrepreneurs highlighting the crucial personal qualities that have led them to success, and enable a reflection on the conceptualisation of the domains in the entrepreneurship ecosystem.

In 1931, Schumpeter called for a focus on the individual with his/her motives, wishes, aspirations and activities when dealing with entrepreneurship and entrepreneurs. In entrepreneurship, the entrepreneur drives action and makes things happen. This means that the unit of analysis is the entrepreneur, as he/she creates and moulds the firm, rather than analysing the firm itself.

> "The person we are describing, the entrepreneur or the 'creative destructor' to use Schumpeter's terminology, is a highly complex individual, certainly not the simpleton or automaton which many economists would like us to believe he is." …"On the contrary, we are dealing with an individual often inconsistent and confused about his motives, desires and wishes, a person under a lot of stress who often upsets us by his seemingly 'irrational', impulsive activities." [De Vries, (1977), p.36]

3.*1* *Influences on entrepreneurial behaviour*

Following this line thought, Suresh and Ramraj (2012) identified eight factors that comprise the ecosystem which influences the decisions of an individual: moral, financial, technology, market, social, network, government, and environmental support. The entrepreneur operates influenced by any combination of these factors within a specific point in time. Each factor has a changing degree of influence on the entrepreneur in how tasks are performed, objectives are set and choices the entrepreneur has to face are made. According to a Freudian interpretation (Freud and Strachey, 1964), moral relates to parental and societal common agreement of behaviour, norms and goals that one lives in accordance with. Thereby, *a conscious or unconscious choice* is related to whether the individual wishes to be part of the entrepreneurial society despite the momentary impact of any current surrounding. Hence, the concept of the self, being the engine and the foundation on which entrepreneurship exists, with its manifestations in *self-awareness and self-esteem*, is fundamental in understanding the nature and behaviour of entrepreneurs. The drivers that make entrepreneurs engage in entrepreneurial activities, and which have a social dimension identifying the connection of the person to others within his or others' social spaces, underpin the concept of self. Bloom and Dees (2008) and Dees (1998) refer to the characteristics of the social dimension as the 'four Cs', coalitions, communications, credibility, and contingencies. These are applied to all types of entrepreneurs. In this way, the self is nested in the entrepreneur's social space, characterised by the coalitions, credibility and trust that altogether become crucial factors for the entrepreneur. The statements of entrepreneurs explaining the most important factor in relation to an entrepreneurial mindset, as outlined in Table 1, also confirm these findings.

Comment [JH2]: Author: Please note that Figure 1 has been changed to Table 1. The succeeding figures have been changed and renumbered.

Unger et al. (2011) conducted a meta-analytical review on worldwide human capital and entrepreneurial success in ventures from diverse industries with sample sizes ranging from 26 to 4,637 with a mean on 353. From 70 identified studies, they find that the main categories of human capital investments are in general education (69 studies) and education level (46), start-up/owner experience (31), industry specific experience (22), management experience (21) and general work experience (12). The main categories of the outcomes of human capital investment are entrepreneurial skills (6 studies), competences (6), and knowledge (5). They state that only few articles relate to outcomes. The success indicators are expressed by size, growth, and profitability, and human capital is seen mainly as skills, competences and knowledge. The results of success relationship of human capital (rc = .098) are smaller than those of personality (Rauch and Frese, 2007) or entrepreneurial orientation (Rauch et al., 2009), which presumably is due to the unclear content of human capital and the unclear distinction between skills, competences and knowledge in the preconditions of the measurement. Moreover, identifying

task-related versus non-task-related actions of entrepreneurs is almost impossible in opposition to, for example, bricklayer- or baker-performed activities.

Table 1 Three statements of important factors of the entrepreneurial mindset

Comment [JH3]: Author: Please note that Figure 1 has been changed to Table 1. The succeeding figures have been changed and renumbered.

Statements from the Danish Successmakers Lars Thrane, Lars Larsen and Lars Kolind		
Name	*Theme*	*Statement*
Lars Thrane, founder of Thrane & Thrane	Consciousness	"The most important is the understanding of yourself as a person. One becomes wiser and wiser as one ages. Self-awareness – that I know my problems with self-esteem and with socializing – is extremely important, as well as my competence and knowledge." (p.113)
Lars Larsen, founder of JYSK	Belief in yourself	"Essential is the belief you have in yourself; it is undisputedly the most important ingredient. Courage, honesty, and self-drive, as well as the trust I have created in relation to my environment are key to my success." (p.111)
Lars Kolind, CEO and business investor	Self-confidence	"The fundamental energy – and daring as a consequence of self-confidence. You can be bold, if you feel that you stand on solid ground. Then, you dare to leap in." (p.111)

Source: Østergaard (2003)

The meta-analytically study of Unger et al. (2011) indicates that future research generally should pursue moderator approaches to study the effects of human capital on success, and therefore investigate the processes of learning, knowledge acquisition and the transfer of knowledge to entrepreneurial tasks. In practice, the opportunity discovery, creation and development are ongoing mixed processes towards solving emergent problems by intertwining accumulated knowledge and different experiences with the willpower of not giving up.

3.2 The nature of human capital

Originally, the purpose of human capital theory was to estimate employees' income distribution in relation to the investment in human capital (Becker, 1964; Mincer, 1958). Later, entrepreneurship researchers have adopted the human capital theory for predicting models of entrepreneurial success (e.g., Chandler and Hanks, 1998; Davidsson and Honig, 2003) and effects of human capital and long-term human resource development and utilisation (Rauch et al., 2005).

Thus, Unger et al. (2011, p.343) suggest that prior knowledge is key in understanding the nature of human capital in entrepreneurship, as "prior knowledge increases owners' entrepreneurial alertness (Westhead et al., 2005) preparing them to discover specific opportunities that are not visible to other people (Shane, 2000; Venkataraman, 1997)". The relationship between prior knowledge, human capital and opportunity discovery (here we refer both to opportunity recognition and opportunity creation) accounts for entrepreneur alertness to environmental changes and idea generation. Consequently, entrepreneurial alertness becomes a precondition for opportunity discovery and therefore a major characteristic contributing towards entrepreneurial success developed from accumulated knowledge. Hence, the identification of current, relevant knowledge, skills

and previous experience (Unger et al., 2011; Cooper et al., 1994) become crucial in order to measure, predict or deliberately achieve success.

According to Miller et al. (2015), human capital encompasses the knowledge, skills, and talents inherent in individuals. Moreover, human capital is seen as a valuable resource, especially as a non-tradable asset in labour markets.

Table 2 Three statements of the most important factors of the entrepreneurial mindset

Statements from the Successmakers Søren Ejlersen, Jane Aamund and Marie Poulsen		
Name	*Theme*	*Statement*
Søren Ejlersen, co-founder of Aarstiderne.com	Curiosity	"Curiosity and courage. Determination. When I put my mind into something then I absolutely do it. Do it!" (p.110)
Jane Aamund, novel author	Courage	"It is most important that I am courageous. I dare to resist peer pressure." (p.114)
Marie Poulsen, founder of the largest poultry farm in DK	Stubbornness	"Stubbornness. I want to! All options must be explored. That not to give up must be the most decisive. I have fought for what I've achieved. I have!" (p.113)

Source: Østergaard (2003)

The knowledge, skills and talents of an individual entrepreneur represent the human capital, but this innate human capital should also emphasise, for example, *curiosity*, *courage* and *endurance* according to real-life successful entrepreneurs. Thus, the essential personal qualities to achieve success are outlined in Table 2.

Table 3 Three statements of important factors of the entrepreneurial mindset

Statements from the Successmakers Jacob Jensen, Charlotte Sparre and Peter Lassen		
Name	*Theme*	*Statement*
Jacob Jensen, industrial designer	Intuition	"With intuition, intelligence, energy and belief…this is the way in which entrepreneurial ventures run. Intuition appears to be surprisingly right in many cases." (p.111)
Charlotte Sparre, founder and creative director	Creativity	"Diligence…and I am also creative. I invent things that did not exist before. I create my own universe around my product and what I am enthusiastic about. I try to create something people cannot go without and that I like as well. I have a creative mindset; things dash around me and suddenly they fall into place and become something big."(p.113)
Peter Lassen, founder and CEO of 'Montana'	Responsibility	"It is curiosity, it is energy, persistence, it is 'do never give up', and …responsibility also comes into it. When you have the responsibility, you have the responsibility, this is it. Then there is no point in those fast solutions; get it straight!" (p.112)

Source: Østergaard (2003)

Through an exploration of employment growth of small-scale enterprises in relation to human capital of business owners, of employees, and human resource development and utilisation, Rauch et al. (2005) contend that human resources are important factors predicting growth of small-scale enterprise. While these findings are confirmed, they are

however, suggested to be expanded to cover a general *creative mindset* based on *intuition* as the foundation for sustainable growth, as displayed in Table 3.

Likewise, the existence of a supportive or non-supportive environment for an individual entrepreneur differentiates the entrepreneurial outcome and this is why a renewed focus at the individual level, when dealing with entrepreneurship, articulates another set of regularity and potential causality coupled with own personal *responsibility*. For instance, adding *energy*, *and diligence* in taking action is very important in defining and understanding the behaviour of entrepreneurs.

4 Entrepreneurship ecosystem

4.1 Human capital as one domain in the entrepreneurship ecosystem

Since 2010, when Isenberg launched the entrepreneurship ecosystem analytical framework, scholars have focused on exploring its constituents. Researchers have studied regional ecosystems, emphasising local findings and environmental impact in Canada (Spigel, 2015), the Netherlands (Stam, 2014), Latin America (Kantis and Federico, 2012), Saudi Arabia (Rahatullah Khan, 2013), Chile (Chandra and Medrano Silva, 2012), Brazil (Arruda et al., 2013), Asia and the Baltic region (Kshetri, 2014), the USA (Hechavarria and Ingram, 2014; Kline et al., 2014), and Germany (Fuerlinger et al., 2015). Other scholars have related the entrepreneurship ecosystem, for instance, to evolutionary dynamics (Mack and Mayer, 2015), sustainable innovation (Vogel and Fischler-Strasak, 2014), and education (Brush, 2014).

Mason and Brown (2014, p.5) have explored the meanings and interpretations of the entrepreneurial ecosystem, and based on a synthesis of definitions in the literature, define it as "a set of interconnected entrepreneurial actors (both potential and existing), entrepreneurial organisations (e.g., firms, venture capitalists, business angels, banks), institutions (universities, public sector agencies, financial bodies) and entrepreneurial processes (e.g., the business birth rate, numbers of high growth firms, levels of 'blockbuster entrepreneurship', number of serial entrepreneurs, degree of sell-out mentality within firms and levels of entrepreneurial ambition) which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial environment."

Kline et al. (2014) conceptualise the entrepreneurial ecosystem with elements from rural entrepreneurship, tourism entrepreneurship, as well as regional and local entrepreneurship. They outline three relevant streams in which the elements of the entrepreneurship ecosystem are organised: quality of life and context, governance and leadership, and community culture. The latter, community culture, is apparently related to environment and context. The first aspect contextualises the relationship, and the last topic of governance and leadership exhibits a dominant focus on economic development offices, tax structures, policy regulation, community, and market. Regarding networking, opportunities are mentioned, but only related to places, linkages between suppliers and customers, mentoring programs and diverse services.

Essentially, Isenberg (2011) defines the entrepreneurship ecosystem by four characteristics: firstly, the ecosystem consists of six domains; secondly, regardless of the overall common framework, each ecosystem is considered as being unique; thirdly, any generic root causes have only limited value in practical matters; and fourthly, the

entrepreneurship ecosystems become relatively self-sustaining. Additionally, the six domains within the entrepreneurship ecosystem consists of policy (leadership and government), finance (financial capital), culture (success stories and societal norms), support (infrastructure, support professions and non-government institutions), human capital (labour and educational institutions), and markets (early customers and networks).

Each domain represents a scientific perspective in entrepreneurship, whilst the generic domains of the entrepreneurship ecosystem interact in highly complex and idiosyncratic ways and comprise elements related to the contextual conditions and circumstances under which each ecosystem emerges with its uniqueness.

4.2 Limitations of the current ecosystem domain thinking

Extant studies have identified all elements in the current ecosystem-domain thinking as entrepreneurial, for example, the interconnected entrepreneurial actors, organisations and processes (Mason and Brown, 2014). Nevertheless, in most of the ecosystem research, human capital is disregarded, while research focuses on the contextual and institutional aspects of the six possible domains (e.g., Kline, 2014). Moreover, Unger et al. (2011) emphasise that knowledge is more important than past experiences. Such an argument becomes problematic in cases when the entrepreneur actually has built up valuable knowledge in the form of tacit knowledge during, for instance, previous job experiences. Hence, the distinction between the two, that is, knowledge consisting of accumulated experience and experience from tacit knowledge, becomes blurred. Furthermore, the distinction between firm performance and individual entrepreneurial performance becomes irrelevant to the best performing, successful entrepreneurs due to the intermixture in the entrepreneur's mindset between the human being and the firm.

Comment [T4]: Author: Please provide full reference or delete from the text if not required.

The entrepreneurial orientation in relation to performance is a resource-consuming strategic orientation. Hence, it is important to determine whether a measurement of entrepreneurial activity is sustainable at all, regardless of the findings of Wiklund (2006), which claims an increasing positive relationship between entrepreneurial orientation and performance over time. Instead, Cooper et al. (1994) argue that measures of general human capital influence both the survival and growth of entrepreneurial ventures. However, there are challenges in measuring relevant knowledge and skills that may lead to entrepreneurial success as mentioned earlier.

Although, the entrepreneurship ecosystem is well described in the literature, extant research has not really shown how the importance of focusing on the individual entrepreneur can enhance our understanding and interpretation of the entrepreneurship ecosystem. Consequently, we propose a further validation of the explored and conceptualised findings through statements of successful active entrepreneurs in combination with a development of Isenberg's current definition of human capital. Generally, some regularity in the domains enhances the constitution of a novel and cost-effective strategy for stimulating economic prosperity. However, an initial discussion and further study of the human capital domain is specifically emphasised.

5 Discussions

5.1 Human Capital examined through the combination of labour and education

Isenberg (2011) explains the domain, human capital as; labour: skilled and unskilled, serial entrepreneurs and later generation families; and as educational institutions: general degrees (professional and academic) and specific entrepreneurial training.

These sub-domains are investigated further in view of examining their representativeness of human capital. At first, the literature review above indicates a blurred perception of human capital and what it really consists of. According to Isenberg's definition, human capital is understood as the combination of labour and education, where both concepts need further clarification.

Therefore, we suggest the concept of labour be presented on a scale from unskilled to skilled. Furthermore, we suggested that the concept encompass the knowledge achieved from previous experiences, for instance, being a serial entrepreneur, or the tacit knowledge gained, for example, from upbringing in an entrepreneurial family. In relation to education, the concept actually deals with educational institutions, which deliver knowledge, wisdom or experience.

On the one hand, Isenberg suggests a measurable factor: the obtained degree from a general educational institution with a differentiation between academic and professional educational degrees. On the other hand, Isenberg also introduces specific entrepreneurial qualifications obtained by training, which are intangible in content and in terms of the methods used to achieve them. The overall concept, human capital is then equivalent to labour and education, and concurrently, the equivalence disappears due to the diffusion of the two concepts. Hence, a tangible way to characterise human capital as equivalent with labour and education is to consider short-term education and long-term education, regardless of its direction or specification, and labour with narrow or broad experience regardless of its area and specification.

These conditions are further examined in a matrix (see Table 4) developed with descriptions of the characteristics of human capital achieved in each of the four combinations from Isenberg's two topics, i.e., short and long-term education coupled with narrow and broad labour experience.

We shall further reflect on the outlined characteristics of human capital in the entrepreneurship ecosystem in order to suggest a revised understanding of human capital that can help us improve the roadmap of strategic entrepreneurship.

Following this line of argument, De Vries (1977, p.44) bases his interpretation of entrepreneurs on the writings of Smith (1967), who identifies two types of entrepreneurs: the craftsman-entrepreneur and the opportunistic-entrepreneur. The former is an individual with narrow education and training, low in social awareness and involvement, and limited social skills. The latter is characterised by broad education and training, a high social awareness and involvement, and an orientation toward the future. These entrepreneurial types define two ideal types of firms, i.e., rigid and adaptive, respectively. Thus, the main discriminating factor between these two types seems to be education, but De Vries notes that overlap is likely. He argues that new types might emerge and that "a more in-depth analysis of personal history and non-work environment is necessary to see if there are distinctly different personality patterns. Only then are we on a more solid ground to explore the possibility of two different types".

Table 4 Matrix of labour and education within the domain of human capital in the entrepreneurship ecosystem

Human capital outlined through the combination of labour and education		
	Education – short-term	*Education – long-term*
Labour – narrow	• Specific experience into a well-known area • Experience shared with many others • Short or long-term experience in one to few areas • High probability that the field is known through generational knowledge transfer, which includes special tacit knowledge • Often context/environment characterised by easy access to support, practical knowledge, and possibility to use tacit knowledge when solving problems	• Specialised experience in a specialised area • Expert experience that might not be commonly known • Most often the labour experience is related to the area of education • Network support might be accessible through workplace and education • Often being first in a new field with none or difficult access to help
Labour – broad	• Broad experience in primarily practical issues • Education related to labour experience • Possibility of more than one education where some might not have been finished • Knowledge supersedes the environmental/context-specific knowledge. • Presumable expert status due to diversity with many kinds of experiences • Possible person-related ability to transfer knowledge from one area to another	• Broad experience at different levels in diverse areas • One or more educations related to the diverse labour experiences • Several knowledge-based networks in different areas where support, advice and partnerships are allocated from • The combination of knowledge and practical experience increases the usability of both in problem solving and planning processes • Transferring knowledge from one field to another is automatic at an unconscious level, e.g., from opportunity recognition to the implementation phase

Furthermore, the path decision of entrepreneurship also depends on the individual's innate skills, which are not considered in Suresh and Ramraj's (2012) eight factors of influence. Hence, an overall description is requested that differentiates between *innate* and *learned* key factors of an individual to enhance entrepreneurship in general and also as a precondition for growth-oriented enterprise policies (Mason and Brown, 2014).

5.2 The role of nature and nurture

The arguments of how *nature* and *nurture* impact on entrepreneurial success have been wavering back and forth. Until 1985, the personality was in the lead as an almost causal

determinant of successful entrepreneurship. Afterwards and concurrently with the Brundtland (1985) report by the World Commission on Environment and Development (WCED), the environmental influences increasingly dominated the debate. Coherently, Gladwell associates entrepreneurial success with the environment rather than the personal attributes of the entrepreneur:

> "Biologists often talk about the 'ecology' of an organism: the tallest oak in the forest is the tallest not just because it grew from the hardiest acorn; it is the tallest also because no other trees blocked its sunlight, the soil around it was deep and rich, no rabbit chewed through its bark as a sapling, and no lumberjack cut it down before it matured. We all know that successful people come from hardy seeds. But do we know enough about the sunlight that warmed them, the soil in which they put down the roots, and the rabbits and lumberjacks they were lucky enough to avoid." [Gladwell, (2008) p.8]

However, while the general idea promoted by Gladwell is indisputable, one can argue that the acorn was from an oak and that it was not a hazelnut, from which only a hazel bush would arise. Presumably, a future view on the factors from which entrepreneurial success is derived would largely benefit from including the weighting of both nature and nurture. Unquestionably, the main reasons of success are mainly inherent factors. For this reason, we enter into a revised model of human capital.

In sum, entrepreneurial performance is seen as an accumulation from all domains, including the innate mentality and ambition of an individual entrepreneur in connection with the influence from the personal environment. These findings advocate for the relevance of human capital in accordance with entrepreneurial success and performance, as well as the Entrepreneurship Ecosystem. However, the findings also speak in favour of redefining human capital.

5.3 Advancing the understanding of human capital in the entrepreneurship ecosystem

Extant literature reveals that the major research areas of human capital and thereby the major challenges of human capital are: knowledge – measurements – success and performance – process/accumulation/transfer – skills – alertness – archetypes – prediction/determination – general versus specific human capital.

The essence of the entrepreneurship ecosystem is the problem concerning pre-assigned elements as being entrepreneurial (Mason and Brown, 2014). This is a manifestation of the arguments about generic versus unique and the implicit discussion of too much and too little. Our reflections show that knowledge gained by experience and by education is essential for entrepreneurial success. Knowledge and skills are seen as key elements (Unger et al., 2011; Becker, 1964) associated with task fulfilment, a factor assumed to lead toward success. Human resources with the right knowledge and skills can, in this way, ensure growth. When considering the eight support factors prompting entrepreneurship, suggested by Suresh and Ramraj (2012), it becomes clear that moral support is lacking in the current ecosystem model. However, when one turns to the opinions of the successful Danish entrepreneurs, it seems that support is less important than the individual personal effort. When real-life successful entrepreneurs explain the basics of their entrepreneurial successes, the entrepreneurs focus primarily on *innate abilities*. For this reason, we suggest them to be included in the domain of human capital.

A revised model of human capital is suggested in order to enhance the understanding of the interaction between labour and education in the domain of human capital in entrepreneurship. Furthermore, a recognition of basic dispositions based on the opinions of real-life entrepreneurs are added to shed light on a possible explanations of previous insignificant measurement results and unsatisfying outcomes of policy initiatives.

The basic dispositions, skills and characteristics according to Danish successful entrepreneurs do not include risk-willingness, but consist of: belief in oneself, courage, creative mindset, curiosity, daring, determination, diligence, drive, energy, fighter-will, honesty, intelligence, intuition, never giving up, persistence, responsibility, self-awareness, self-confidence, self-esteem, socialising ability and stubbornness. As some of these mindset characteristics overlap, they are clustered in Table 5 into: courage, determination, diligence, explorative, intelligence, intuition, and self-confidence.

In addition, four different types of entrepreneur are identified in a straight line from the four combinations of short or long education and broad or narrow labour experience in the human capital matrix based on Isenberg's definition.

Table 5 A framework outlining the domain of human capital in the entrepreneurship ecosystem

Human capital (developed)		
Knowledge and experiences explained in the entrepreneurial types, A, B, C, and D, developed by crossing education with labour		*Basic innate and learned skills*
Entrepreneur A	*Entrepreneur B*	*Common mindset*
Specific contextual knowledge with access to support.	Specific unique knowledge being the specialist.	Courage Determination Diligence Explorative Intelligence Intuition Self-confidence
Entrepreneur C	*Entrepreneur D*	
General problem-solving with more developed outcomes.	Specialist with ability to transfer knowledge from one field to another overcoming the challenges.	

To enhance the measurement of human capital, the developed human capital domain in the entrepreneurship ecosystem is based on the matrix of labour and education is complemented with innate and learned characteristics. However, the innate basic skills and dispositions in the developed human capital are more or less important to each of the four archetypes of entrepreneurs A, B, C and D. Further investigation may suggest to what extent the added innate skills should be incorporated in some or all of the archetypes. For instance, intelligence tends to be more important to entrepreneurs B and D than A and C. Likewise, an explorative behaviour tends to be most important for entrepreneurs C and D than entrepreneurs A and B.

5.4 An advanced human capital with four entrepreneurial types predict the form of innovation

In our conception of the human capital in entrepreneurship, the importance of integrating the innate skills has been demonstrated and must be kept in mind in the future. More importantly, the four developed types of entrepreneurs within the domain of human capital in the entrepreneurship ecosystem demonstrate additional relevance and advantages. The entrepreneurial typologies represent four different forms of innovation in

society due to the differences in characteristics of knowledge and experience of the entrepreneurs:

- *Entrepreneur A (the local entrepreneur)*, with a short-term education and a narrow labour experience, is characterised by specific contextual knowledge with access to support and tends to impact society with *generalised incremental innovation*.
- *Entrepreneur B (the global entrepreneur)*, with a long-term education and a narrow labour experience, is characterised by a specific unique knowledge and often being the specialist and tends to impact society with *global radical innovation*, if problem-solving is one of the possessed skills.
- *Entrepreneur C (the incremental entrepreneur)*, with a short-term education and a broad labour experience, is characterised by general problem-solving with more developed outcomes and tends to impact society with well-functioning *incremental innovation or radical innovation*, but the latter mostly by incident.
- *Entrepreneur D (the radical entrepreneur)*, with a long-term education and a broad labour experience, is characterised as a specialist with an ability to transfer knowledge from one field to another and thereby overcome challenges. Entrepreneur D tends to impact society with presumably *affluent radical innovation* due to the possibility of transferring knowledge, where the area of knowledge determines the sort of products.

6 Conclusions

The paper argues for an increased usability of the entrepreneurship ecosystem by greater attention to the revised domain of human capital. However, there is a need for a better differentiation of the constituting elements in order to enhance the value of the human capital domain as it is the basis on which strategies, innovation systems and competitiveness policies emerge to ensure sustainable development. The human capital domain improves the roadmap of entrepreneurship ecosystems by adding the innate skills and conceptualising four archetypes of entrepreneurs based on the combination of short/long education and narrow/broad labour experience thus highlighting the uniqueness of entrepreneurs. The generic archetypes: the local entrepreneur, the global entrepreneur, the incremental entrepreneur, and the radical entrepreneur have a practical value that allows the entrepreneurship ecosystem to recognise the individual as a source of growth.

The literature review concerning human capital demonstrates how pivotal the individual aspect is in the entrepreneurship ecosystem and that scholars agree that human capital affects entrepreneurial success and growth. For instance, Rauch and Rijsdijk (2013) investigate the effects and the role of human capital in long-term entrepreneurial growth (Wiklund et al., 2009) and of failure (Shepherd and Wiklund, 2006) building on a human capital theoretical perspective. They argue that entrepreneurship theory needs to distinguish between successful/unsuccessful closure and survival to select the correct predictors of long-term outcomes. Furthermore, they propose that human capital approaches need to involve the mediating processes and invest in developing knowledge due to the long-term effects of knowledge and information on business outcomes.

However, one can argue that such a distinction seems meaningless, since failures sometimes are the best source of learning.

In line with Unger et al. (2011) and Davidsson and Honig (2003) who state that researchers have paid little attention to the psychological processes and mechanisms that shape human capital in entrepreneurship, this article adds a new sub-theme that comprises the innate and the learned part of the entrepreneurial mindset expressed by innate personality traits and environmentally influenced abilities, habits and motives. We also argue for clarification of the concepts and definitions as a precondition for completing the theorisation and measurement of human capital in the entrepreneurship ecosystem.

This first step enables researchers to distinguish human capital developed during educational courses and labour training that could be shared among a number of entrepreneurs from human capital of completely individually specific innate sources mixed with individually specific contextual influences. Additionally, the level of entrepreneurial ambition and the local entrepreneurial environment vary for each individual entrepreneur. A skilled entrepreneur with weak ambitions and low level of energy might achieve less than an uneducated entrepreneur who strives for perfection or has to cope with challenges to survive. These individually shaped skills compared with the more common knowledge and experiences, differ from the elements of cultural capital that concurrently dominate in the literature and affect entrepreneurship policy.

In conclusion, human capital as we argue can be analysed in terms of labour and educational skills supplemented with an innate and learned entrepreneurial mindset. Based on the developed arguments and in accordance with the defined four types of entrepreneurs, a revisited human capital domain in the entrepreneurship ecosystem is developed (see Figure 1).

Comment [JH5]: Author: Please note that Figure 6 has been changed to Figure 1.

The entrepreneurship ecosystem of Isenberg consists of six main domains within the entrepreneurial system, where human capital is explained by labour and educational institutions. The developed entrepreneurship ecosystem consists of policy (leadership and government), finance (financial capital), culture (success stories and societal norms), supports (infrastructure, support professions and non-government institutions), human capital (labour and educational skills, knowledge and experiences, and an innate and learned entrepreneurial mindset), and markets (early customers and networks). Thereby, the revised entrepreneurship ecosystem still consists of six main domains within the entrepreneurial system, but elements from the original sub-themes are moved to the revised human capital: urgency, crisis, and challenge (from leadership) and ambition, drive, and hunger (from societal norms). These elements are to be integrated in the new sub-theme – innate and learned entrepreneurial mindset.

Consequently, the revised two sub-themes in human capital include the following elements:

Labour and educational skills, knowledge and experiences, including:

- accumulated from organised short-term and long-term educational institutions
- accumulated from formalised narrow and broad labour periods
- accumulated as a tacit source during all labour periods and educational courses

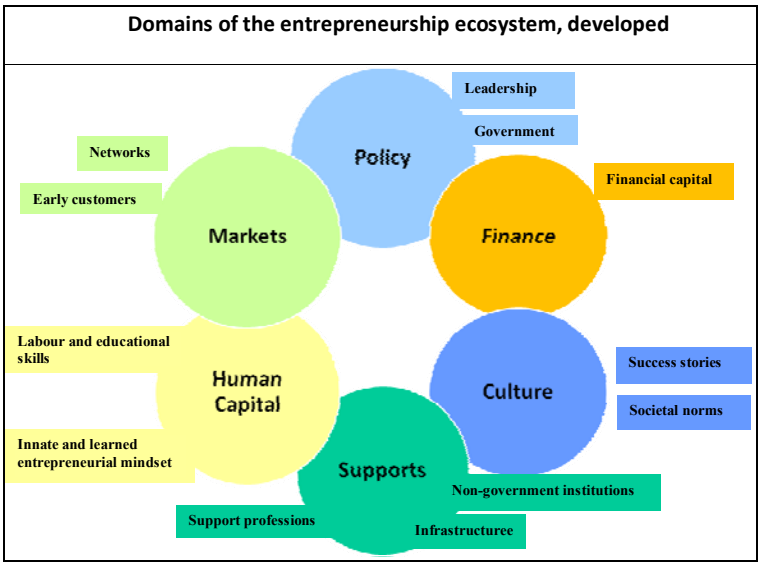
Innate and learned entrepreneurial mindset, including:

- personality traits that display the generational related innate talents and competences

- learned abilities, habits and motives from upbringing, friends and society and additionally to be integrated further:
  - a urgency, crisis and challenge (from leadership)
  - b ambition, drive, and hunger (from societal norms)
  - c courage, determination, diligence, explorative, intelligence, intuition, and self-confidence (from the Danish successful entrepreneurs).

Figure 1 The entrepreneurship ecosystem with a revised human capital domain (see online version for colours)

Comment [JH6]: Author: Please note that Figure 6 has been changed to Figure 1.



Convincingly, the four entrepreneurial archetypes are considered distinct, tangible, and measurable descriptions in defining the entrepreneur in the entrepreneurship ecosystem. However, the distribution of the additional elements between innate and learned characteristics needs to be further explored in future research. In other words, the call is for specifying the innate and the learned part of the entrepreneurial mindset to complete the main domain of human capital.

References

Arruda, C., Nogueira, V.S. and Costa, V. (2013) 'The Brazilian entrepreneurial ecosystem of startups: an analysis of entrepreneurship determinants in Brazil as seen from the OECD pillars', *Journal of Entrepreneurship and Innovation Management*, Vol. 2, No. 3, pp.17–57.

Becker, G.S. (1964) *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education*, Columbia University Press, New York.

Benhabib, J. and Spiegel, M. (1994) 'The role of human capital in economic development evidence from aggregate cross-country data', *Journal of Monetary Economics*, Vol. 34, No. 2, pp.143–173.

Bloom, P.N. and Dees, G. (2008) 'Cultivate your ecosystem', *Stanford Social Innovation Review*, Vol. 6, No. 1, pp.47–53.

Bosma, N., Van Praag, M., Thurik, R. and De Wit, G. (2004) 'The value of human and social capital investments for the business performance of startups', *Small Business Economics*, Vol. 23, No. 3, pp.227–236.

Bruederl, J., Preisendoerfer, P. and Ziegler, R. (1992) 'Survival chances of newly founded business organizations', *American Sociological Review*, Vol. 57, pp.227–242.

Brundtland, G.H. (1985) 'World commission on environment and development', *Environmental Policy and Law*, Vol. 14, No. 1, pp.26–30.

Brush, C.G. (2014) 'Exploring the concept of an entrepreneurship education ecosystem', *Innovative Pathways for University Entrepreneurship in the 21st Century*, pp.25–39.

Cassar, G. (2006) 'Entrepreneur opportunity costs and intended venture growth', *Journal of Business Venturing*, Vol. 21, No. 5, pp.610–632.

Chandler, G.N. and Hanks, S.H. (1998) 'An examination of the substitutability of founders human and financial capital in emerging business ventures', *Journal of Business Venturing*, Vol. 13, No. 5, pp.353–369.

Chandra, A. and Medrano Silva, M.A. (2012) 'Business incubation in Chile: development, financing and financial services', *Journal of Technology Management & Innovation*, Vol. 7, No. 2, pp.1–13.

Coleman, J. (1988) 'Social capital in the creation of human capital James S. Coleman', *American Journal of Sociology*, Vol. 94, pp.94–120.

Combs, J.G., Crook, T.R. and Shook, C.L. (2005) 'The dimensionality of organizational performance and its implications for strategic management research', *Research Methodology in Strategy and Management*, Vol. 2, No. 5, pp.259–286.

Cooper, A.C., Gimeno-Gascon, F.J. and Woo, C.Y. (1994) 'Initial human and financial capital as predictors of new venture performance', *Journal of Business Venturing*, Vol. 9, No. 5, pp.371–395.

Davidsson, P. and Honig, B. (2003) 'The role of social and human capital among nascent entrepreneurs', *Journal of Business Venturing*, Vol. 18, No. 3, pp.301–331.

De Vries, M.F.R. (1977) 'The entrepreneurial personality: a person at the crossroads', *Journal of Management Studies*, Vol. 14, No. 1, pp.34–57.

Dees, J.G. (1998) *The Meaning of Social Entrepreneurship*, pp.1–5, Comments and suggestions in Kauffman Center for Entrepreneurial Leadership.

Dyke, L.S., Fischer, E.M. and Reuber, A.R. (1992) 'An inter-industry examination of the impact of owner experience on firm performance', *Journal of Small Business Management*, Vol. 30, No. 4, pp.72–87.

Eisenhardt, K. and Schoonhoven, C. (1990) 'Organizational growth: linking founding team, strategy, environment, and growth among US semiconductor ventures, 1978–1988', *Administrative Science Quarterly*, Vol. 35, No. 3, pp.504–529.

Freud, S. and Strachey, J. (1964) *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, MacMillan.

Comment [JH7]: Author: Please provide the issue number.

Comment [JH8]: Author: Please provide the publisher and the place of publication.

Comment [JH9]: Author: Please provide the issue number.

Comment [JH10]: Author: Please provide the place of publication.

Comment [JH11]: Author: Please provide the place of publication.

Fuerlinger, G., Fandl, U. and Funke, T. (2015) 'The role of the state in the entrepreneurship ecosystem: insights from Germany', *Triple Helix*, Vol. 2, No. 1, p.1.

Gladwell, M. (2008) *Outliers: The Story of Success*, Hachette, UK.

Hanushek, E. and Woessmann, L. (2008) 'The role of cognitive skills in economic development', *Journal of Economic Literature*, Vol. 46, No. 3, pp.607–668.

Hechavarria, D.M. and Ingram, A. (2014) 'A review of the entrepreneurial ecosystem and the entrepreneurial society in the United States: an exploration with the global entrepreneurship monitor dataset, *Journal of Business and Entrepreneurship*, Vol. 26, No. 1, p.1.

Heckman, J.J. (2000) 'Policies to foster human capital', *Research in Economics*, Vol. 54, No. 1, pp.3–56.

Isenberg, D.J. (2010) 'The big idea: how to start an entrepreneurial revolution', *Harvard Business Review*, Vol. 88, No. 6, pp.40–50.

Isenberg, D.J. (2011) 'Introducing the entrepreneurship ecosystem: four defining characteristics', *Forbes* [online] http://www.forbes.com/sites/danise.

Kantis, H.D. and Federico, J.S. (2012) 'Entrepreneurial ecosystems in Latin America: the role of policies', *International Research and Policy Roundtable (Kauffman Foundation)*, Liverpool, UK.

Kline, K., Hao, H., Alderman, D., Kleckley, J.W. and Gray, S. (2014) 'A spatial analysis of tourism, entrepreneurship and the entrepreneurial ecosystem in North Carolina, USA', *Tourism Planning & Development*, Vol. 11, No. 3.

Kshetri, N. (2014) 'Developing successful entrepreneurial ecosystems: lessons from a comparison of an Asian tiger and a Baltic tiger', *Baltic Journal of Management*, Vol. 9, No. 3, pp.330–356.

Lemieux, T. (2006) 'The 'Mincer equation' thirty years after schooling, experience, and earnings', in Grossbard, S. (Ed.): *J. Mincer: A Pioneer of Modern Labour Economics*, pp.127–145, Springer, New York.

Mack, E. and Mayer, H. (2015) 'The evolutionary dynamics of entrepreneurial ecosystems', *Urban Studies*, DOI: 0042098015586547.

Mason, C. and Brown, R. (2014) *Entrepreneurial Ecosystems and Growth Oriented Entrepreneurship*, Final Report to OECD, Paris.

Miller, D. (2015) 'Archetypes, entrepreneurial', *Wiley Encyclopedia of Management*, Vol. 3, Nos. 1–3, John Wiley and Sons, Chichester, UK.

Miller, D. and Friesen, P. (1980) 'Archetypes of organizational transition', *Administrative Science Quarterly*, pp.268–299.

Miller, D. and Friesen, P.H. (1977) 'Strategy-making in context: ten empirical archetypes', *Journal of Management Studies*, Vol. 14, No. 3, pp.253–280.

Miller, D. and Friesen, P.H. (1982) 'Structural change and performance: quantum versus piecemeal-incremental approaches', *Academy of Management Journal*, Vol. 25, No. 4, pp.867–892.

Miller, D., Xu, X. and Mehrotra, V. (2015) 'When is human capital a valuable resource? The performance effects of Ivy League selection among celebrated CEOs', *Strategic Management Journal*, Vol. 36, No. 6, pp.930–944.

Mincer, J. (1958) 'Investment in human capital and personal income distribution', *The Journal of Political Economy*, pp.281–302.

Mincer, J. (1974) 'Individual acquisition of earning power', *Schooling, Experience, and Earnings*, Vol. 1, pp.5–23.

Østergaard, A. (2003) *Succesmagerne: Ni veje til succes (The Successmakers: Nine paths for Success)*, Børsens Forlag, Copenhagen, DOI: 87-7553-969-1.

Rahatullah Khan, M. (2013) 'Mapping entrepreneurship ecosystem of Saudi Arabia', *World Journal of Entrepreneurship, Management and Sustainable Development*, Vol. 9, No. 1, pp.28–54.

Comment [JH12]: Author: Please provide the access details (date when the site was accessed/visited).

Comment [JH13]: Author: Please provide the page numbers.

Comment [JH14]: Author: Please provide the volume number, issue number and page numbers.

Comment [JH15]: Author: Please provide the volume number and issue number.

Comment [JH16]: Author: Please provide the volume number and issue number.

Comment [JH17]: Author: Please provide the publisher and the place of publication.

Rauch, A. and Frese, M. (2007) 'Let's put the person back into entrepreneurship research: a meta-analysis on the relationship between business owners' personality traits, business creation, and success', *European Journal of Work and Organizational Psychology*, Vol. 16, No. 4, pp.353–385.

Rauch, A. and Rijsdijk, S.A. (2013) 'The effects of general and specific human capital on long-term growth and failure of newly founded businesses', *Entrepreneurship Theory and Practice*, Vol. 37, No. 4, pp.923–941.

Rauch, A., Frese, M. and Utsch, A. (2005) 'Effects of human capital and long-term human resources development and utilization on employment growth of small-scale businesses: a causal analysis1', *Entrepreneurship Theory and Practice*, Vol. 29, No. 6, pp.681–698.

Rauch, A., Wiklund, J., Lumpkin, G.T. and Frese, M. (2009) 'Entrepreneurial orientation and business performance: an assessment of past research and suggestions for the future', *Entrepreneurship Theory and Practice*, Vol. 33, No. 3, pp.761–787.

Schultz, T. (1961a) 'Investment in human capital', *The American Economic Review*, Vol. 51, No. 1, pp.1–17.

Schultz, T. (1961b) 'Education and economic growth', *Social Forces Influencing American Education*, pp.46–88.

Schumpeter, J.A. (1931) *Theorie der Wirtschaftlichen Entwicklung, ee Aufl., München und*, Duncker und Humblat, Leipzig.

Shane, S. (2000) 'Prior knowledge and the discovery of entrepreneurial opportunities', *Organization Science*, Vol. 11, No. 4, pp.448–469.

Shepherd, D.A. and Wiklund, J. (2006) 'Successes and failures at research on business failure and learning from it', *Foundations and Trends in Entrepreneurship*, Vol. 2, No. 5.

Smith, A. (1776) *An Inquiry into the Nature and Causes of the Wealth of Nations Book 2 – of the Nature, Accumulation, and Employment of Stock*.

Smith, N.R. (1967) *The Entrepreneur and His Firm: the Relationship Between Type of Man and Type of Company*, Michigan State University, Graduate School of Business Administration, East Lansing.

Spigel, B. (2015) 'The relational organization of entrepreneurial ecosystems', *Entrepreneurship Theory and Practice*.

Stam, E. (2014) *The Dutch Entrepreneurial Ecosystem* [online] SSRN 2473475.

Suresh, J. and Ramraj, R. (2012) 'Entrepreneurial ecosystem: case study on the influence of environmental factors on entrepreneurial success', *European Journal of Business and Management*, Vol. 4, No. 16, pp.95–101.

Unger, J.M., Rauch, A., Frese, M. and Rosenbusch, N. (2011) 'Human capital and entrepreneurial success: a meta-analytical review', *Journal of Business Venturing*, Vol. 26, No. 3, pp.341–358.

Van der Sluis, J., Van Praag, M. and Vijverberg, W. (2005) 'Entrepreneurship selection and performance: a meta-analysis of the impact of education in developing economies', *The World Bank Economic Review*, Vol. 19, No. 2, pp.225–261.

Venkataraman, S. (1997) 'The distinctive domain of entrepreneurship research', *Advances in Entrepreneurship, Firm Emergence and Growth*, Vol. 3, No. 1, pp.119–138.

Vogel, P. and Fischler-Strasak, U. (2014) 'Fostering sustainable innovation within organizations', in *Sustainable Entrepreneurship*, pp.191–205, Springer, Berlin Heidelberg.

Westhead, P., Ucbasaran, D. and Wright, M. (2005) 'Decisions, actions, and performance: do novice, serial, and portfolio entrepreneurs differ?', *Journal of Small Business Management*, Vol. 43, No. 4, pp.393–417.

Wiklund, J. (2006) 'The sustainability of the entrepreneurial orientation-performance relationship', *Entrepreneurship and the Growth of Firms*, Vol. 7, No. 3, pp.141–155.

Wiklund, J., Patzelt, H. and Shepherd, D.A. (2009) 'Building an integrative model of small business growth', *Small Business Economics*, Vol. 32, No. 4, pp.351–374.

Comment [JH18]: Author: Please provide the volume number and issue number.

Comment [JH19]: Author: Please provide the page numbers.

Comment [JH20]: Author: Please provide the publisher and the place of publication.

Comment [JH21]: Author: Please provide the volume number, issue number and page numbers.

Comment [JH22]: Author: Please provide the complete URL information, and access details (date when the site was accessed/visited).