



Teemu Tuomisalo

**LEARNING AND ENTREPRENEURIAL
OPPORTUNITY DEVELOPMENT WITHIN
A FINNISH TELECOMMUNICATION
INTERNATIONAL NEW VENTURE**



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Abstract

Teemu Tuomisalo

Learning and entrepreneurial opportunity development within a Finnish telecommunication International New Venture

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This dissertation investigates the development of entrepreneurial opportunity in a Finnish International New Venture (INV) operating in the telecommunication sector by applying a learning-based approach. Despite decades of research, our knowledge about opportunities is still limited. Prior research has not investigated opportunity in depth but has rather focused more on the ontological debate about its nature or investigating its implications for organizational development and internationalization. Thus, it has been proposed that we go deeper into the phenomenon by focusing on individuals' perceptions of opportunity and the daily activities related to those. Here, it has been suggested that we should investigate the longitudinal development of opportunity and consider contextual features that influence this, in to advance our understanding of the phenomenon.

A learning-based perspective seems to be a suitable approach because opportunity development seems to primarily be an information-seeking behavior. It has been also suggested that a cognition-based perspective would enable us to observe how individuals interpret market gaps on which entrepreneurial opportunities are largely based. This study focuses on an INV whose key function and strength is learning.

This qualitative study conducted an in-depth and longitudinal investigation of entrepreneurial opportunity development by applying a social learning theory. Consequently, special attention was paid to observing the individual and collective levels of learning and how this learning process contributes to the development of entrepreneurial opportunity. The data analysis followed processual and narrative strategies, which revealed the dynamics and complexity of entrepreneurial opportunity phenomenon and the resulting inductive findings that support the scientific contribution of this dissertation.

This study delved deep into the learning process of individuals and found that this had a significant impact on the development of entrepreneurial opportunity throughout the observation period. In this study, it was found that the initial opportunity discovery and the first steps of its development dated back to the pre-launch period. The discovery and development during this phase were driven by individual characteristics and individuals' understanding of the customer demand. Moreover, this was driven by contextual features. Similar development continued after the spin-off. Here, the central

feature that individuals increasingly realized was the technological use and the commercial benefit of the opportunity to customers. This learning process influenced opportunity in such way that individuals began to realize precise uses for opportunity that matched the real-life demand.

This study contributes to the fields of entrepreneurship and international entrepreneurship by providing a longitudinal and in-depth description of entrepreneurial opportunity discovery and development. Specifically, the individual perspective that contributes to our understanding of entrepreneurial opportunity was emphasized in this dissertation. Moreover, the use of a social learning-based approach provides accurate insights into what and how individuals learn. In doing so, this dissertation provides a comprehensive description of how the learning process contributed to the development of entrepreneurial opportunity. Additionally, this study also provides conclusions that can be applied to the Social Learning Theory.

Keywords: international entrepreneurship, international new ventures, entrepreneurial opportunity, learning, social learning

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Teemu Tuomisalo
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*If you waste your time a talking
To the people who don't listen
To the things that you are saying
Who do you thinks gonna hear?
And if you should die explaining how
The things that they complain about
Are things they could be changing
Who do you thinks gonna care?*

Kris Kristofferson, To Beat the Devil (1970)

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Abstract

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List of publications

This dissertation is based on the following papers. The rights have been granted by publishers to include the papers in dissertation.

- I. Tuomisalo, T and Leppäaho, T. (2019). Learning in International New Ventures: A systematic review. *International Business Review*, 28(3), pp. 463-481.
- II. Tuomisalo, T. (2019). Emergence of an entrepreneurial opportunity: A case within a Finnish telecommunication International New Venture. *Journal of International Entrepreneurship*, 17(3), pp. 334-354.
- III. Tuomisalo, T. and Hannibal, M. (2018). The evolution of entrepreneurial opportunity within a Finnish Telecom International New Venture. Conference article. In: *Proceedings of 22nd McGill International Entrepreneurship Conference (Halmstad)*.
- IV. Tuomisalo, T. (2019). Learning and entrepreneurial opportunity development within a Finnish Telecom International New Venture. Conference article. In: *Proceedings of 23rd McGill International Entrepreneurship Conference (Odense)*.

Author's contribution

Teemu Tuomisalo is the principal author and investigator in papers I-IV.

List of abbreviations

Abbreviations

BG	Born Global
IB	International Business
IE	International Entrepreneurship
INV	International New Venture
LAN	Learning Advantage of Newness
MNE	Multinational Enterprise
OL	Organizational Learning
SME	Small and Medium-Sized Enterprise
SO	Strategic Orientation

1 Introduction

1.1 Background of the research

Entrepreneurship has been studied since the 1970s from several different perspectives (Mason & Harvey, 2013; Moroz & Hindle, 2012). The most recent addition is the investigation of the discovery, evaluation and exploitation of opportunities, and in this context, the individuals who perceive and exploit them (Mason & Harvey, 2013), which has become one of the most significant perspectives on entrepreneurship research (George, Parida, Lahti & Wincent, 2016; Hayton & Cholakova, 2012). In principle, this perspective has focused on investigating the discovery, evaluation and exploitation of products or services that respond to a market need or create one (Eckhardt & Shane, 2003). Thus, entrepreneurial opportunity seems to reflect profit-seeking behavior aimed at responding to market demand through the provision of new products and services (Ramoglou & Tsang, 2016). Here, it has been suggested that entrepreneurial opportunities arise from changes, whether they are the development of new knowledge by the individuals and organizations, changes in behavior of different actors in the economy, or wider changes in the macroenvironment (Grégoire, Barr & Shepherd, 2010). However, to recognize an opportunity, individuals need to detect these signals of change and perceive that they can generate profit (Grégoire et al., 2010). Hence, opportunity recognition has been characterized as “...*being alert to potential business opportunities, actively searching for them, and gathering information about new ideas on products or services.*” (Kuckertz, Kollmann, Krell & Stöckmann, 2017, p. 92).

Opportunity is also a key concept in the field of International Entrepreneurship (IE) (Oviatt & McDougall, 2005). As with entrepreneurship research, this field focuses on studying the discovery, evaluation and exploitation of opportunities, with the exception that this is done across national borders (Oviatt & McDougall, 2005). A significant portion of this research has focused on companies that internationalize almost immediately after their establishment (Servantie, Cabrol, Guieu & Boissin, 2016), referred to as International New Ventures (INVs) (Oviatt & McDougall 1994) or Born Globals (BGs) (Knight & Cavusgil, 2004; Rennie, 1993). This study utilizes IE literature to comprehensively introduce the entrepreneurial opportunity phenomenon. Thus, various types of ventures have been highlighted in the text. However, the key concept for the doctoral thesis is INV, which is a phenomenon addressed in this study. Also, for INVs, which are the target group for this study, opportunity is a key feature (Phillips-McDougall, Shane & Oviatt, 1994). Hence, opportunity is associated with entrepreneurs and their competencies, enabling them to realize opportunities by establishing new international ventures (Oviatt & McDougall 1994). More specifically, the reason entrepreneurs are “*alert*” to recognizing the benefits in the international market is their personal competencies, namely, their knowhow and networks originating in their earlier activities (Phillips-McDougall, et al., 1994). Consequently, intangible capital is the core strength of these ventures (Andersson & Evers, 2015; Autio, George & Alexy, 2011; Phillips-McDougall, et al., 1994; Zahra, 2005; Zahra, Matherne & Carleton, 2003), which

is also linked to entrepreneurs' ability to recognize opportunities (Kraus, Niemand, Angelsberger & Mas-Tur, 2017). However, it seems that experience alone is not sufficient to fully explain the strengths of these ventures, as they must be ready to learn as soon as they enter the international arena (Prashantham & Floyd, 2012). This is what these ventures seem to do better than others. INVs have the cognitive and organizational flexibility that helps them learn the competencies required to support successful internationalization (Autio, Sapienza & Almeida, 2000).

However, it seems that in both fields, entrepreneurship and IE, there is plenty of work to be done to the opportunity-related research. Thus, although the study of how individuals discover and create opportunities has been a key topic in entrepreneurship literature for the last three decades, it seems that this is still a highly fragmented and empirically underdeveloped phenomenon (George et al., 2016). The same applies to the field of IE, which has focused more on how opportunities impact on organizational development and internationalization than the opportunity itself (Mainela, Puhakka & Servais, 2014). Additionally, one of the main debates in opportunity-related research is between the discovery and creation perspectives of opportunities (George et al., 2016; Suddaby, Bruton & Si, 2015). We have spent a great deal of time and effort in investigating the ontological nature of opportunity (George et al., 2016; Suddaby, et al., 2015). However, it has been suggested that this is not necessary and that we should, in turn, move in a more epistemological direction. That would mean investigating how individuals perceive the environment and recognize opportunities in it (Dimov 2007; 2011). The individual perspective is also one of the key features that has been suggested for improving our understanding about IE in general (Coviello, 2015). In-depth understanding about opportunities seems to require us to focus on the micro-foundations of entrepreneurial action (Shepherd, 2015) and daily practices, exchanges and joint acts linked to the opportunity (Mainela et al., 2014).

Additionally, there are a few other cornerstones that could allow us to improve our understanding of opportunities. The first of these is the dynamics associated with the opportunity phenomenon. It has been suggested in both fields, entrepreneurship and IE, that opportunities are constantly evolving. Thus, these are not "*single insights*", but are constantly being developed further (Dimov, 2007). Thus, we should avoid the "*snapshot*" style descriptions of opportunities and begin to treat them as an event with duration (Reuber, Dimitratos & Kuivalainen, 2017). Here, it has been suggested that perception of opportunities is an iterative process that reshapes our initial perceptions and through cognition and entrepreneurial action opportunities is transformed into actual (international opportunities) (Oyson & Whittaker, 2015). It has been suggested that entrepreneurial ideation includes a social process, the inner group for which possesses many similarities but differs in their problem-solving style and functional knowledge, which appears to form a significant part of the process (Gemmel, Boland & Kolb, 2012). Indeed, it has been suggested that knowledge asymmetries influence our learning, whereas learning asymmetries seems to be related to individuals' ability to recognize opportunities (Corbett, 2005). Nevertheless, these are all aspects that require further research.

The second cornerstone that has been acknowledged in the IE research is the need for accurate contextual description (Reuber et al., 2017). In practice, this means we should acknowledge different contextual features, both inside and outside the organization, that potentially influence entrepreneurial opportunity. The significance of context has been emphasized, especially in relation to internationalization. Prior research seems to show that the industry (Stayton & Mangematin, 2016) and product and market characteristics (Pellegrino & McNaughton, 2017) are features that may influence the conditions for internationalization. Nevertheless, these are all features that require further research.

If we look at the research of entrepreneurship in general, the way we have studied this phenomenon has also greatly influenced present knowledge. The general challenge with entrepreneurship research seems to be that none of the theoretical models has been generic or distinct enough (Moroz & Hindle, 2012). Prior research has not sufficiently described the context or processes that distinguish the entrepreneurial process from others (Moroz & Hindle, 2012). According to Moroz and Hindle (2012), the reason for this is that prior research has not considered other models while engaging in investigation, and that only a few studies are based on empirical data. The lack of in-depth findings may be due to the way we have applied case study research. It has been suggested that multiple case studies do not necessarily provide results as profound as thought (Dyer & Wilkinson 1991). Here, it has been suggested that “*classic*” case studies that investigate a single case company deeply support the contextual description, and thus unveil dynamics and evoke new and better theoretical insights (Dyer & Wilkinson 1991). Consequently, if we want to emphasize the contextual detail and dynamics, then focusing on a single case setting may be worthwhile. In relation to context, this means that while studying one particular context, the researcher is able to raise more contextual insights than by studying multiple contexts at the same time. In a classic case study, the researcher goes much deeper into the dynamics. This type of research aims to highlight and illustrate findings in an ongoing and social context. Overall, the classic case study approach seems to differ, to its advantage, primarily by creating “*good stories*”. Hence, this approach tends to describe the case company and its context richly, and it is these rich descriptions, in turn, that unveil the dynamics of the phenomenon (Dyer & Wilkinson 1991).

Additionally, it seems that in entrepreneurship research we have developed too broad a vocabulary, which has contributed to the fragmentation of the field (Hansen, Shrader & Monllor, 2011). This reflects the definition of entrepreneurial opportunity and opportunity-related process, which is often missing in the research (Hansen, et al., 2011). This is considered carefully in this doctoral thesis. Firstly, in this study, opportunity is linked to innovation. The reason for this is that the innovation perspective has been suggested as a significant aspect in promoting the theoretical development in the field of IE (Coviello & Tanev 2017). Thus, from now on, entrepreneurial opportunity is linked to the product or service developed by the case company. Second, this doctoral thesis relies on the complementary view of opportunity recognition (Renko, Shrader & Simon, 2012), and in this way, aims to break free from the actual ontological debate and investigate the phenomenon instead. More specifically, it is considered that opportunities contain objective and subjective attributes, and thus this doctoral thesis does not make a choice

between discovery or creation perspectives but considers both as elements of individuals' perception of opportunities (Renko et al., 2012). Third, this study does not depend on a Kirznerian-style conception of opportunity recognition, the reason for this being twofold. First, this study does not assume that individuals discover opportunities accidentally or without intent (Kirzner, 1997). On the contrary, it is believed that opportunity discovery is the result of intentional action. Second, this study emphasizes how individuals perceive social or market need as the basis for opportunity discovery, which has been suggested (Chell, 2013) to be contradictory to what Kirzner proposes (Kirzner, 1979; 1997). The term "*exploitation*" is not applied in this doctoral thesis either, as it seems more related to gathering resources and organizational creation than to the opportunity itself (Kuckertz, et al., 2017). Fourthly, the process in which individuals' perceptions of opportunity is associated is learning. The reason for this is that opportunity recognition seems to be an information-seeking activity (Kuckertz, et al., 2017) and that opportunities are transformed through our cognition (Oyson & Whittaker, 2015). A cognitive-based perspective has been suggested to help us observe how individuals interpret market gaps (Mainela et al., 2014), and responding to this market need seems to be a key element of what opportunities aim to meet (Eckhardt & Shane, 2003; Ramoglou & Tsang, 2016; Renko, Shrader & Simon, 2012). A learning-based study can help mediate between the conflicting ontological insights (discovery and creation perspectives) on the opportunity construct, and thus enable us to move forward in the research (Dutta & Crossan, 2005). In the next chapter, I will elaborate on the objectives of this doctoral thesis, which are strongly related to the above-mentioned features, suggestions and research gaps.

1.2 Research objectives

The overall objective of this doctoral thesis is to conduct an in-depth investigation of entrepreneurial opportunity and its development in a single INV case company. For this purpose a learning-based approach was chosen. The reason is, as mentioned above, that this seems to support the research setting and can provide new insights to advance our understanding of the opportunity phenomenon (Dutta & Crossan, 2005; Mainela et al., 2014). This also seems a reasonable choice if we look at the prior research. Hence, prior research has found that learning (Kraus, et al., 2017) and learning asymmetries (Corbett, 2005) affect the opportunity recognition in international Small and Medium-sized Enterprises (SMEs). Here, we cannot forget that learning is one of the key strengths of INVs (Autio et al., 2000). More precisely, a social learning theory was applied in this doctoral thesis. This was primarily done to support the individual level of investigation, which seems to be an issue of warrant in learning-related research (De Clercq, Sapienza, Yavuz & Zhou, 2012). This suits the social learning theory well, where the focus is on individual and collective levels of learning. Social learning theory seems to support the focus on the social process (Yeoh, 2004) and non-economic aspects of learning (Kauppinen & Juho, 2012), which seems to be a good variation on the performance-oriented research that dominates Organizational Learning (OL) theory (Engeström & Sannino, 2010). Thus, the main research questions for this doctoral thesis are:

RQ1. *How do individuals of an INV operating in a telecommunication industry develop entrepreneurial opportunities and learn?*

RQ2. *How does learning contribute to entrepreneurial opportunity development?*

The objectives of this doctoral thesis were achieved in the following way. Firstly, the study sought to open up the phenomenon from the individual perspective, one of the central requests for the field of entrepreneurship (Coviello, 2015; Odorici & Presutti, 2013) as well as for opportunity-related research (Dimov, 2007; 2011). In relation to Strategic Orientation (SO) literature, this study seeks to increase our understanding about entrepreneurial opportunities beyond the internationalization process (Ruokonen & Saarenketo, 2009) and international performance aspects (Jantunen, Nummela, Puumalainen & Saarenketo, 2008) that have been a central focus of the studies on IE. This is done by focusing especially on the entrepreneurial orientation (Hakala, 2011) and international entrepreneurial orientation dimensions (Gabrielsson, Gabrielsson & Dimitratos, 2014) of the individuals. In other words, this study focuses on the innovative, proactive and risk-seeking behavior of the individuals, which seem to be central to entrepreneurial orientation in both a domestic (Hakala, 2011) and international (Gabrielsson et al., 2014) setting. This was the starting point for the doctoral thesis, and for this purpose, constructivist ontology was followed. Accordingly, it was conceived that reality is formed by a human construction and the most “*knowledgeable*” people are those who live this phenomenon (Stake, 1995).

Secondly, this doctoral thesis addresses the lack of empirical insights in entrepreneurship research (Moroz & Hindle, 2012) by conducting a qualitative study that approaches the opportunity phenomenon in an inductive manner (Suddaby et al., 2015). More specifically, it is a qualitative case study that emphasizes the empirical understanding of the phenomenon (Stake, 2005) and which applies an interpretive approach that emphasizes individuals’ interpretations (Walsham, 1995).

Thirdly, the contextual detail and dynamic nature of opportunities are also considered in this doctoral thesis. Overall, context awareness is an integral part of case study research, where the aim is to unpack their complex structure (Stake, 2005). This is further emphasized through the application of a single case study, which supports the objective of providing accurate and rich descriptions of the context (Dyer & Wilkins, 1991). The interpretive (narrative) strategy also supports this objective because it highlights the richness and complexity of the phenomenon through empirical data and accurate descriptions (Langley, 1999). This is a direct response to the call to include context in our explanation in case studies (Welch, Piekkari, Plakoyiannaki & Paavilainen-Mäntymäki, 2011) and to provide contextual insights for opportunity-related research (Reuber et al., 2017). This research also aims to unlock the dynamics of the opportunity phenomenon. Consequently, this is a longitudinal study that seeks to observe how opportunity develops over time (Reuber et al., 2017). The interpretive (narrative) approach fits in well with this choice because it provides processual perspective for the matter and thus emphasizes the dynamics of the lived reality (Dawson & Hjorth, 2012).

1.3 Structure of the study

The article structure of this doctoral thesis was designed and implemented carefully to match the aims of this study. The entire doctoral thesis process began with a systematic review which aimed to map current knowledge about learning in INVs. Overall, the findings of the review supported the notion that learning was an integral part of these ventures. This had a significant effect, in that the fourth article focused deeply on the individuals' learning process. Additionally, the findings of the review provided a comprehensive picture of what is currently known about learning in INVs and what should be done in the future to advance our understanding of this phenomenon. This concerned both theoretical and methodological procedures. Firstly, the findings seemed to show that we should emphasize the entrepreneurial perspective of learning and investigate how learning priorities change over time. They also indicated that we should take greater account of external factors and investigate how they affect learning. Secondly, the findings indicated that we should investigate learning longitudinally, emphasizing its dynamics and individual-level analysis. As a result, I decided to conduct an in-depth and longitudinal investigation of how individuals perceived entrepreneurial opportunity emergence and development, so far, in the following two articles.

The following two empirical articles immersed themselves in the longitudinal development of the entrepreneurial opportunity process, before and after the official establishment of the case company. Overall, the objective was to map the development of entrepreneurial opportunity and to find the features that contributed to it, with an emphasis on individual perceptions. Indeed, these studies provided a truly in-depth picture of the entrepreneurial opportunity development process. The findings enabled understanding of what type of individual-level capabilities were required to recognize and develop opportunities. Both studies found that individuals were closely observing what happened in their immediate surrounding and sought to develop opportunity according to technological implementation and legislation in the industry. However, perhaps the most significant finding was that the individual differences in knowhow seemed to play a significant role in the opportunity emergence and development. Thus, after these articles, I decided to end the doctoral thesis process with an article that investigated, in-depth, the individuals' learning and the impact of this learning process on the development of the opportunity.

The final article in the doctoral thesis was the most in-depth study in the entire series. It focused on observing individuals' real-time learning for almost two years. The objective in this article was to create an accurate description of the learning process by emphasizing the individual perspective and choosing a methodological approach that emphasized in-depth findings. Overall, this study enabled understanding of how individuals perceived market and industry need and, consequently, sought to determine how opportunity should be further developed. I delved deeply into the social learning process, where differences between individuals significantly determined how the potential and requirements for the opportunity were conceived.

Next (Chapter 2), I move on to present the theoretical basis of this study. I will then review the research design and methodology (Chapter 3) and present the research objectives. Finally, I will go over the articles of the doctoral thesis (Chapter 4) and discuss the findings of the study (Chapter 5), before drawing conclusions based on them.

2 Theoretical background

The theoretical background (Figure 1) of this dissertation follows the framework of the study. Hence, it consists of the entrepreneurial opportunity aspect of entrepreneurship, the presentation of the field of IE with an emphasis on the opportunity, and, in this context INVs, which is a central element of its research. Of learning theories, organizational and social learning theories are included. These are discussed thoroughly in the following chapters.

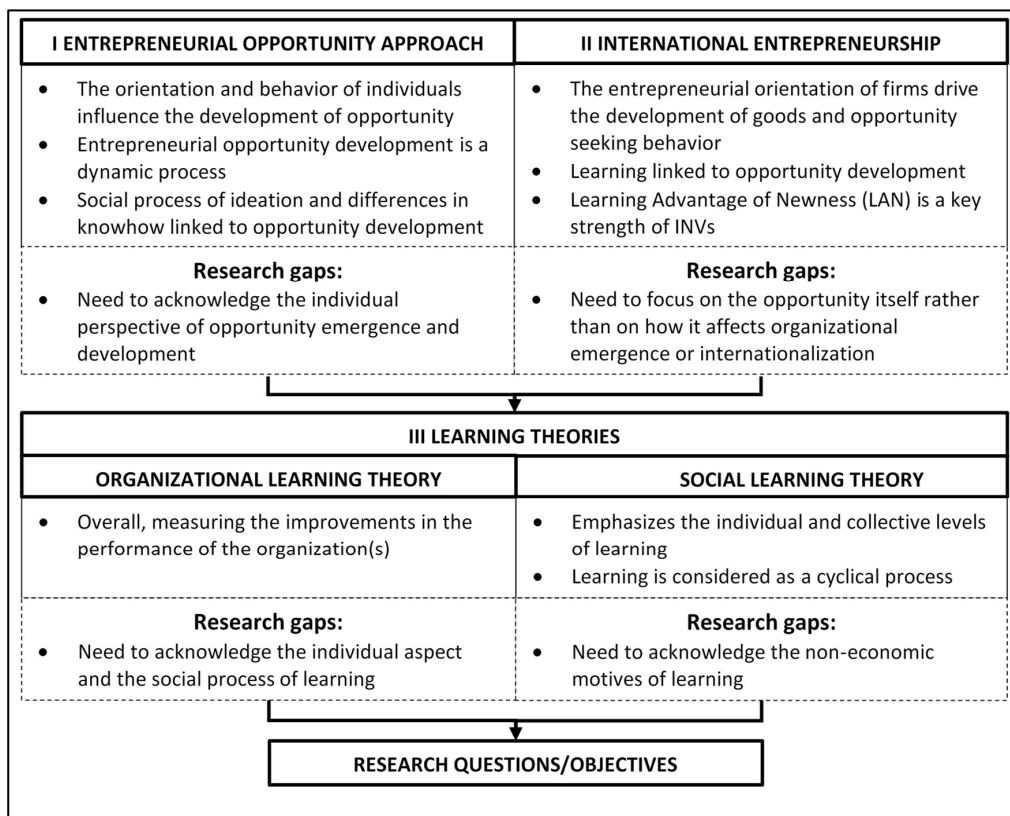


Figure 1. Theoretical framework

2.1 Entrepreneurial opportunity

One of the approaches to entrepreneurship phenomenon is the opportunity viewpoint. In essence, this school is focused on studying entrepreneurial opportunities (Eckhardt & Shane, 2003) and understanding the features contributing to opportunity recognition (Hayton & Cholakova, 2012). According to this viewpoint, this is rightly so, as opportunities are thought of as the main ways for entrepreneurs to meet the market demand (Eckhardt & Shane, 2003; Ramoglou & Tsang, 2016; Renko et al., 2012). Here, the entrepreneurship phenomenon is defined as “...the discovery, evaluation, and

exploitation of future goods and services.” (Eckhardt & Shane, 2003, p.336). Basically, entrepreneurial opportunities can be thought of as new products, services, raw materials, market or organizing methods that form new means–ends relationships (Eckhardt & Shane, 2003). These new means and ends can be achieved by satisfying market needs (means) or creating new demand (ends), or by doing both (Eckhardt & Shane, 2003, p.336). Additionally, central to the existence and identification of opportunities, is the knowledge that individual entrepreneurs possess related to market imbalances (Eckhardt & Shane, 2003). Opportunity discovery of the new means-ends is based on information about how to allocate resources better than they currently are (Eckhardt & Shane, 2003). From this, it may seem that how we define entrepreneurial opportunity depends significantly on the viewpoints from which we study the phenomenon. Thus, the conceptual definitions of entrepreneurial opportunity are influenced whether we emphasize the role of entrepreneurs, market or customer need, the supply of products or services, internal value creation for the firm, value addition of the customer or the role of organizational formation (Hansen, et al., 2011).

However, how entrepreneurs recognize opportunities is a very controversial issue in opportunity-related research. A major hurdle here has been the debate on whether opportunities are discovered or created (George et al., 2016; Suddaby, et al., 2015). Thus, discovery and creation perspectives are considered separate theories of entrepreneurial opportunity. These theories differ in terms of how they think of the nature of opportunities, the role of entrepreneurs and the process of exploitation of the opportunity (George et al., 2016). The discovery perspective considers opportunities to be existing in the environment objectively (Suddaby et al., 2015) and independently of the entrepreneur (George et al., 2016). This viewpoint emphasizes the interaction between the environment and individual entrepreneurs, which may lead to the recognition of market imbalances (Suddaby et al., 2015). The creation perspective views entrepreneurial opportunities as endogenous acts in which entrepreneurs create opportunities through their creative imagination and social skills (Suddaby et al., 2015). In the creation perspective, opportunities do not exist independently: the entrepreneur must create them (George et al., 2016). This viewpoint emphasizes the individual entrepreneur’s ability to realize previously non-existent and alternative social and economic arrangements in the environment (Suddaby et al., 2015).

There is an alternative way of looking at this matter; incorporating the discovery and creation perspectives (Renko et al., 2012). In this perspective, individuals spot opportunities in the objective environment and subjectively perceive these opportunities as accurately as possible (Renko et al., 2012, p. 1246). Thus, opportunities emerge in situations where there is “...*a gap between market needs and the means to satisfy those needs.*” (Renko et al., 2012, p. 1242). However, this does not happen without the perception of the individual entrepreneurs about the market needs and means to satisfy those needs (Renko et al., 2012). It has also been suggested that, from a realist standpoint, entrepreneurial opportunities are “...*propensities that exist independently of potential entrepreneurs, in the form of unmet or possible market demand that can be actualized into profits.*” (Ramoglou & Tsang, 2016, p. 413). More precisely, entrepreneurial

opportunity is defined “*as the propensity of market demand to be actualized into profits through the introduction of novel products or services*” (Ramoglou & Tsang, 2016, p. 416). Wood and McKinley (2017) suggest, positioning themselves strongly with the social constructivist perspective, that we should think of opportunities as an ongoing process, where they are sustained as a function of collective consensus of key stakeholders. Opportunities must be continuously reproduced, and this is done through a consensus of the collective, and if this consensus “*fails,*” individuals begin to reassess the state of the opportunity (Wood & McKinley, 2017). Thus, this study associates opportunity with the term of opportunity development. This is because it accounts for both ontological perspectives (discovery and creation) and emphasizes on the developing nature of entrepreneurial opportunity.

However, it has been suggested that the opportunity-related research should move away from ontological discussion and focus more on the “*epistemological nature of opportunities*” (Dimov, 2007). The opportunity phenomenon should be approached by investigating “*...how individuals perceive their environment and conceive of future possibilities within it.*” (Dimov, 2007, p. 724). It has been suggested that the understanding of how opportunities emerge and evolve requires focus on the individual entrepreneurs (Dimov, 2011). The remainder of this chapter will discuss entrepreneurial opportunity emergence and development, without the ontological discussion and raise some of the perspectives that are essential, based on prior research.

If we look at the origins of entrepreneurial opportunities, it has been suggested that opportunities arise from changes (Grégoire et al., 2010). These changes arise from development of knowledge by the individuals and organizations, changes of behavior of actors in the economy and changes in macroenvironment (Grégoire, et al., 2010). However, it is necessary to acknowledge that opportunities do not arise by themselves; opportunities are “*...courses of action that seek to derive benefits from these changes.*” (Grégoire, et al., 2010, p. 415). Thus, opportunity recognition, according to Grégoire, et al. (2010), involves interpretation of change signals, which is applied in the decision to pursue with the opportunity, in the hope of benefits. Thus, according to some, opportunity recognition can be characterized as “*...being alert to potential business opportunities, actively searching for them, and gathering information about new ideas on products or services.*” (Kuckertz, et al., 2017, p. 92). Here, it seems that opportunity recognition is a result of technological and market-related understanding (Siegel & Renko, 2012). More precisely, empirical evidence indicates that entrepreneurs need to understand both sides of the opportunity, i.e. not only technology but also the market and customers (Siegel & Renko, 2012). Moreover, it seems that the discovery of (international) opportunities requires entrepreneurial knowledge as well, which is acquired through “*...networks, knowledge of foreign markets, and queries and solicitation by foreign customers or distributors.*” (Oyson & Whittaker, 2015, p. 312).

The qualities that can lead to opportunity discovery have also been discussed among Strategic Orientation (SO) research. Especially the “*outward looking*” features of SO have been emphasized, which provide the “*...market knowledge and lead into new*

decisions to explore and exploit opportunities for innovation.” (Kocak, Carsrud & Oflazoglu, 2017, p. 262). Moreover, Kickul and Gundry (2002) contend that entrepreneurs with a proactive personality influence a “*prospector*” strategic orientation, which is a key feature that helps organizations recognize opportunities for developing new products and markets (Kickul & Gundry, 2002).

Nevertheless, the initial recognition of the opportunity is just a starting point in a much longer process. Thus, opportunities should not be thought of as “*single insights*” but as “*...emerging through the continuous shaping and development of (raw) ideas that are acted upon.*” (Dimov, 2007, p. 723). Overall, it has been suggested that opportunity perception is an iterative process “*...that involves reshaping of initial perceptions.*” (Renko et al., 2012, p.1242). Opportunities are still potential, until they “*...are creatively transformed by entrepreneurial cognition and action into actual international opportunities...*” (Oyson & Whittaker, 2015, p. 305). Chell (2013) states that: “*...it is not sufficient to identify what entrepreneurs do when they identify a social/market need, but with what proficiency they execute the subsequent steps to develop it into a social/market value proposition.*” (Chell, 2013, p. 22). Opportunities seem to be significantly changing in order to meet the market demand. Consequently, entrepreneurial opportunity includes a dynamic decision-making process, where opportunities are updated when more information becomes available (McCann & Vroom, 2015). Such planning-based activities may generate evolving perspectives for the opportunity (McCann & Vroom, 2015). In practice, it seems that entrepreneurs move rapidly from conceptual analysis to active experimentation, with the aim of validating and developing the recognized ideas, or alternatively abandoning them (Gemmel et al., 2012).

Zahra (2008) presents that the newly developed knowledge must be “*converted*” into new ideas before it becomes the basis for the opportunity discovery and/or creation. More precisely, the “*Conversion means changing knowledge from one form to another.*” (Zahra, 2008, p. 251). According to Zahra (2008), the conversion can happen in two ways: *horizontally* and *vertically*. The horizontal conversion means that the technological discoveries are converted into a form that people with different professional (technology and business) backgrounds can understand. This, in turn, exposes the technological discoveries to various interpretations of its potential and, through this, provides a more detailed picture of their potential application. The vertical conversion, on the other hand, happens, for example, when technological discoveries “*...lead to additional and varied discoveries within the same domain of research.*” (Zahra, 2008, p. 251).

Additionally, it has been suggested that the development of innovative new products, is a “*... highly social recursive process of ideation...*” (Gemmel et al., 2012, p. 1064). Gemmel et al. (2012) found that entrepreneurial ideation took place in situations where entrepreneurs recognize problems and engage in social interaction with team members and partners to solve these problems, which, in turn, was a cycle of learning and experimentation (Gemmel et al., 2012). Gemmel et al. (2012) found that in the center of this process was the “*inner group*” consisting of an entrepreneur and the closest colleagues. This group share commonalities in relation to “*...language, experience,*

vision, and cognition—but individually possess diverse problem-solving styles and functional knowledge.” (Gemmel et al., 2012, p. 1065). This diversity in question particularly reflected the division between technical background and the more general business or marketing orientation (Gemmel et al., 2012).

This takes us to a very important aspect in opportunity phenomenon: how people with varied backgrounds and prior information contribute to opportunity emergence and development. Individual differences are suspected to be a major factor of opportunity emergence and subsequent development. For example, it has been suspected that the reason certain people discover certain opportunities, may be people’s backgrounds, linked to the prior information and cognitive properties to identify and value entrepreneurial opportunities (Shane & Venkataraman, 2000, p. 222). The dispersion of knowledge is suspected to be an essential element in the opportunity recognition process, which may lead to heterogeneous expectations and through this promote the opportunity recognition of the individuals (Dew, Velamuri & Venkataraman, 2004). Corbett (2005) proposes, that knowledge asymmetries link to our cognitive capabilities and thus the differences in learning link to opportunity process. Learning asymmetries affect individuals’ ability to recognize opportunities and “...*entrepreneur’ ability to adapt and learn as he or she progresses through the process of entrepreneurship.*” (Corbett, 2005, p. 486). Overall, the entrepreneurial team (Forbes, Borchert, Zellmer-Bruhn & Sapienza, 2006) and their composition (Jin, Madison, Kraiczy, Kellermanns, Crook & Xi, 2017) seem to represent important topics for developing the domain of entrepreneurship research and warrant for further research.

2.2 International Entrepreneurship (IE)

Opportunity is also a central element in the field of International Entrepreneurship (IE). Nevertheless, this field of research focuses on the international aspect of opportunity. Oviatt and McDougall (2005) define IE as follows: “...*the discovery, enactment, evaluation, and exploitation of opportunities—across national borders—to create future goods and services.*” Consequently, the field of IE seems to be separate from the domestic view from the outset. According to Mainela, et al. (2014), the focus on the internationalization aspect can be seen from its application and results among the field of IE. According to these authors, the research conducted in the field of IE about international opportunities has mainly focused on two aspects (Mainela et al., 2014). Firstly, the previous research has focused on investigating how international opportunities are used to establish new international ventures or to develop established firms further. Secondly, the focus has been on investigating how international opportunities are exploited as the basis of internationalization.

Nevertheless, in these two main streams of research, the opportunity itself seems left out without proper attention (Mainela et al., 2014). The studies of this kind are (i) not much concerned with opportunity discovery as such and (ii) they do not deeply investigate opportunities themselves. Consequently, these authors state there are a few aspects that

could increase our understanding about opportunities (Mainela et al., 2014). Firstly, we could adopt a more social and dynamic perspective when investigating opportunities. International opportunity should be thought of as an outcome of iterative processes driven by the cognitive activities of the entrepreneurs. The emergence of international opportunities should be thought of as a result of “...*sense-making and enactment in a continually changing social situation.*” (Mainela et al., 2014, p. 118). Secondly, we could focus more on “...*the action-based and interactive nature of the international opportunity development.*” (Mainela et al., 2014, p. 118). Hence, we should focus on the “...*daily practices, exchanges and joint acts in the international opportunity creation.*” (Mainela et al., 2014, p. 118) in our quest to deepen understanding of the phenomenon. One significant element in the (international) opportunity development, seems to be the interaction with the customer (Lehto, 2015). More precisely, entrepreneurs need to figure out how to develop their offering to match the market need; moreover, a direct interface with prospects and customers is a key to unlocking this challenge (Lehto, 2015). However, more research is needed to reveal how customer relationships impact opportunity development (Lehto, 2015).

A recent review by Reuber et al. (2017) also thinks of opportunity as a central element to the development of the field of IE. These authors suggest that there are certain aspects that should be acknowledged in future research related to opportunities. Two of these are (i) *the dynamics* and (ii) *the context* of the phenomenon (Reuber et al., 2017). First, by highlighting the dynamics of opportunities, we can avoid a static view of internationalization (Reuber et al., 2017). Thus, according to Reuber et al. (2017), we should treat opportunity perception and pursuit as events with duration, acknowledge the possibility that entrepreneurs can pursue multiple opportunities over time, investigate how processes related to the same alter over time and include a greater variety of actors in the study of the pursuit of international opportunities. These are all valid remarks. As mentioned in the previous chapter (2.1), entrepreneurial opportunity development represents an iterative and dynamic process that can reshape initial perceptions (Renko, Shrader & Simon, 2012) and generate evolving perspectives for the opportunity (McCann & Vroom, 2015). Moreover, the differences between individuals should also be taken into account. For example, McGaughey (2007) investigated portfolio INV entrepreneurs in her study and found that her sample did not correspond to the homogenous and internally consistent image of INVs that prevails in the literature (McGaughey, 2007, p. 319). On the contrary, she discovered that firms differed significantly in the way they responded to various environmental, organizational and personal issues. Thus, McGaughey (2007) suggests that our analysis goes deeper than the organizational level and focuses on individuals and the diversity of their activities. In this way, we can acquire a more in-depth understanding of what is happening in INVs and how they might differ from each other. Based on the previous chapter these are very similar concerns to those presented in entrepreneurship research.

Secondly, according to Reuber et al. (2017), we could acknowledge the context when studying opportunities. We should investigate the situational features that influence the opportunity (Reuber et al., 2017). According to these authors, contextual features may

arise, for example, from (i) *institutional characteristics* (e.g. industry), (ii) *sociocultural differences* (e.g. type of networks), (iii) *the temporal dimensions of time* (e.g. the transient nature of government incentives) and (iv) *the impact of events* (at individual, firm and institutional levels) (Reuber et al., 2017). The following contextual considerations would seem relevant in the research setting of this study.

In relation to the first dimension, institutional characteristics (Reuber et al., 2017), it has been suggested that industry (Stayton & Mangematin, 2016) and product and market characteristics (Pellegrino & McNaughton, 2017) may be features that can affect internationalization prerequisites and thus require further research. For example, it has been suspected that internet-based ventures (Stayton & Mangematin, 2016) or “*finger-push firms*” (Coviello & Tanev, 2017) may pursue international expansion directly after establishment. However, the medical technology industry is bound to a heavy regulatory system, which may impede the start of internationalization (Mikhailova & Olsen, 2016).

The context of industry and product characteristics touches on a very important aspect of IE research. That is the innovation aspect, which is missing from the field of IE and therefore considered a major avenue for promoting the field (Coviello & Tanev 2017). In general, knowledge intensity is central to this study, since in developed countries, such as Finland, knowledge is often used as a basis for entrepreneurship rather than the use of physical resources (Suomalainen, Stenholm, Kovalainen, Heinonen & Pukkinen, 2015). Based on the little available evidence, it seems that the technology orientation has a significant impact on the prerequisites for international ventures. It seems that high-technology-oriented startups are particularly exploiting the first mover strategy as their competitive advantage. Hence, high-technology startups are working deliberately on innovative products that ride on the edge of industry change (Jolly, Alahuhta & Jeannet, 1992). A more recent study has suggested that when companies are seeking to create new industry standards or trying to increase their market share significantly, time is an asset. In these situations, the company needs to be the first one to launch the products or services to establish industry standards and, through that, guarantee competitive advantage (Stayton & Mangematin, 2016). In connection with the next paragraph, innovation is also a significant feature among rapidly internationalizing ventures. A study by Hewerdine and Welch (2013) found that the high-technology orientation extended the gestation period of INVs. In the following chapter I discuss this venture type in depth.

Secondly, Finland’s sociocultural environment has experienced several changes (Reuber et al., 2017) such as the rise of startup culture, new successful startups and multicultural environment (Suomalainen et al., 2015, p. 15). However, their impact on the rate of new and nascent entrepreneurship “...*is not evident.*” (Suomalainen et al., 2015, p. 15).

Thirdly, in relation to the temporal dimension of time, it has been suspected that situational factors can constrain or press the search for opportunities (Reuber et al., 2017). According to prior research, for example, the size of the domestic market can be a major determinant of the orientation of a SME. Chorev and Anderson (2006) investigated new high-technology-oriented ventures and found that marketing has a particularly vital role

in young ventures located in small and isolated economies such as Israel. The reason for this was that the small domestic market did not provide the opportunity for the startup to become established or grow, which in turn made it necessary for young ventures to penetrate the foreign market as quickly as possible (Chorev & Anderson, 2006). However, the situation in Finland is not the same in. It is not competitive even though it is a small and closed market (Mäki-Fränti & Vilmi, 2016). Here, i.e., in EU in general, it seems that entrepreneurship is not driven by necessity but rather by opportunities (Suomalainen et al., 2015). Specifically, the highly educated population seems to be able to perceive opportunities (Suomalainen et al., 2015, p.16) and are prone to gravitate towards early stage entrepreneurship (Suomalainen et al., 2015, p. 35).

The fourth dimension of context (Reuber et al., 2017) refers to events at different levels that can influence how opportunities are perceived and pursued. This raises several perspectives for this study. Overall, it seems that Finland is “...a competitive and business friendly economy with its well-developed and well-functioning support system for entrepreneurship.” (Suomalainen et al., 2015, p. 38). The support system in question related specifically to the policies, regulation and physical infrastructure to support entrepreneurship (Suomalainen et al., 2015). However, how well these measures promote entrepreneurship in real life is a different case. In other words, “*Despite the supportive policies and environment for entrepreneurship, positive perceptions on business opportunities and high entrepreneurial potential do not turn into potentially growing and remarkable start-ups and new businesses.*” (Suomalainen et al., 2015, p. 38). All in all, it seems that the entrepreneurship activity of adult population is relatively low in Finland (Suomalainen et al., 2015). Moreover, aspiration towards growth, internationalization and innovation seems to “...continue to be rather modest.” among early stage and established business owners in Finland (Suomalainen et al., 2015, p. 39). Thus, it has been suggested that the emergence of new ventures requires more than steady economic and tax policies; it also requires already existing or potential demand for products and services along with infrastructure and high levels of knowhow (Suomalainen et al., 2015, p. 5). Additionally, technology transmission, finance and higher education seem to be areas that do not support entrepreneurship enough (Suomalainen et al., 2015, p. 5).

Moreover, this context raises a number of distortions that hamper economic development in the EU and Finland. In EU, the Brexit decision and migration crisis have been key features that hampered economic recovery (Suomalainen et al., 2015, p. 38). As a result, only limited amount of resources can be allocated to promote economic growth and entrepreneurship “...although the role of entrepreneurship in economic growth is widely acknowledged.” (Suomalainen et al., 2015, p. 38). Finland, on the other hand, is struggling with its own problems. The central element is the recovery from the financial crisis that took place in the late 2000, which caused a significant downfall of competitiveness (Mäki-Fränti, Obstbaum & Vilmi, 2017). This was particularly affected by the weak productivity development, structural changes in the industry and the wage solutions made in Finland (Mäki-Fränti et al., 2017). The recession was also fueled by Finland’s own blunder in the telecommunication industry —the shutdown of Nokia’s mobile phone production (Honkapohja & Vihriälä, 2019). This significantly reduced the productivity in

the electrical- and electronics industries significantly and lowered GDP by around four percent during the 2008–2015 (Honkapohja & Vihriälä, 2019). However, it is good to notice that Nokia boosted the unparalleled economic growth of Finland all the way from the 90's to the mid-2000's (Honkapohja & Vihriälä, 2019; Roslin, 2010). In addition to this, recently, sanctions against Russia have also reduced Finnish exports and, in turn, the economic growth recently (Suomalainen et al., 2015).

The Finnish response to the economic setbacks and promotion of entrepreneurship can be summarized as follows. One of the central corrections to improve competitiveness in Finland is the so-called agreement of competitiveness. This program addresses the challenges, for example, of taxation and structural changes in the employment policy (Suomalainen et al., 2015, p. 38). Moreover, the Finnish government has sought to promote entrepreneurship through the implementation of different policies, for example, the education, employment and fiscal policies (Suomalainen et al., 2015, p. 38). However, at the moment, it seems that it will take longer than expected for Finland to recover from the economic downturn and readjust its former policies (Suomalainen et al., 2015). Here, the main threat is that this slow economic development and lack of other employment alternatives may escalate into a situation where individuals and policy work create entrepreneurship that has a weak prospect of success and growth (Suomalainen et al., 2015, p. 6).

2.2.1 International New Ventures (INVs)

In the field of International Entrepreneurship (IE), considerable attention has been given to the internationalization of small ventures (see e.g. McDougall-Covin, Jones & Serapio, 2014). The field of IE has begun to develop around venture types (INVs and BGs) that internationalize straight from their inception (Servantie et al., 2016). The type of venture which is in focus in this research is International New Ventures (INVs), which “...*from inception, seeks to derive significant competitive advantages from the use of resources and the sale of outputs in multiple countries*” (Oviatt & McDougall 1994, p. 49) or Born Globals (BGs) which are “...*business organizations that, from or near their founding, seek superior international business performance from the application of knowledge-based resources to the sale of outputs in multiple countries.*” (Knight & Cavusgil, 2004, p. 124).

Moreover, Knight and Cavusgil (2004) emphasize the innovativeness of BGs. They concluded that early internationalization and the international performance was related to the innovative nature of the Born Globals (BGs). In their view, these are companies that “...*from or near their founding, seek superior international business performance from the application of knowledge-based resources to the sale of outputs in multiple countries.*” (Knight & Cavusgil, 2004, p. 124). Even though these authors do not refer directly to SO literature, they suggest that especially international entrepreneurial orientation of BGs drives them to develop high-quality goods and innovation-based strategies which are the primary prerequisites for international success (Knight & Cavusgil, 2004). This observation was supported by Odorici and Presutti (2013) who

found that entrepreneurial orientation and the proactiveness related to it seem to link to the opportunity seeking behavior of entrepreneurs and introduction of new technological solutions in BGs (Odorici & Presutti, 2013).

Regardless, the focus of this dissertation, for the sake of clarity, is on INVs. Opportunities are well present in INV phenomenon, where they are closely connected to the individual founders, "...who see opportunities from establishing ventures that operate across national borders. They are 'alert' to the possibilities of combining resources from different national markets because of the competencies (networks, knowledge, and background) that they have developed from their earlier activities." (Phillips-McDougall, et al., 1994, p. 470).

If we take a look at the strong points of these ventures, one issue that seems to stand out is their intangible strength (Zahra, 2005; Zahra, et al., 2003). The intangibility in question refers to knowledge-based or human-based strengths (Autio et al., 2011; Phillips-McDougall, et al., 1994), social and human capital (Andersson & Evers, 2015), which has been found to promote rapid internationalization and survival in the global markets (De Clercq et al., 2012; Sui & Baum, 2014), and the process of recognition process by the entrepreneurs (Kraus, et al., 2017). In International Business (IB) research, one of the main advantages for the rapid internationalization that INVs present is suspected to be prior international experience. Individuals who establish INVs are often highly experienced individuals who have already acquired knowledge in working life, having been involved in the internationalization activities of the firms they worked for (Johanson & Vahlne, 2009). Nevertheless, it has been suggested that experience alone is insufficient to maintain rapid internationalization (Zheng, Khavul & Crockett, 2012). Entrepreneurs need to acquire and adopt new information as soon as they enter global markets (Prashantham & Floyd, 2012). The significance of learning cannot be underestimated, as it is a basic requirement for any firm that wishes to enter and operate in highly competitive and dynamic foreign markets (Bingham, Eisenhardt & Davis, 2007; Ruigrok & Wagner 2003; Santos-Vijande, López-Sánchez & Trespalacios, 2012). At the very core of the capability development of SMEs is learning that steers the direction of the organizational transformation (Tallott & Hilliard, 2016) and supports opportunity discovery (Wolff, Pett & Ring, 2015).

Nevertheless, learning is also a function that INVs seem to master and apply better than other firms. A possible explanation for this has been suggested by Autio, et al. (2000): new firms have the cognitive and organizational flexibility to learn the competencies necessary to achieve and sustain the international growth. These firms enjoy what has been termed a *Learning Advantage of Newness* (LAN). This is a crucial advantage when there is a need to adjust organizational processes in turbulent and unstable global markets (Autio, et al., 2000) INVs operate in (Turcan, 2013). Autio et al. (2000) state that reasoning of learning bound closely how new knowledge is adopted and distributed in organizations and how this knowledge is applied to promote their internationalization in markets where the organizations have limited knowledge. By developing internationally oriented learning practices (Oxtorp, 2014) and by learning (Autio et al., 2011) INVs start

to gain understanding of and create internal routines and processes for adapting to the environment in which they operate. It has been proposed that cognitive and political flexibilities are features that enhance learning in rapidly internationalizing new ventures (De Clercq, Sapienza & Zhou, 2014). The fewer internal power structures and the more open-mindedness and informality in the organization, the more the venture is capable of learning (De Clercq, 2014).

A very recent study by Zahra, Zheng & Yu (2018) took the concept of LAN to a new processing. In their review these authors concluded that LAN is dependent on (i) environmental, (ii) organizational structure, (iii) strategic variable and (iv) resource endowment conditions. In relation to the environmental conditions, the authors suggest that there is more LAN in growing industries due to their dynamic nature, which offer abundant opportunities and heterogenous knowledge for organizations to exploit. They propose that culturally diverse markets increase LAN, as culturally dissimilar markets require adaptation to understand unfamiliar market dynamics and institutions. In relation to organizational structure, it is proposed that LAN at its strongest when there is a medium level of political conflicts and decentralization within the firm. Hence, LAN is at its fullest, when managers have a suitable (not too many or few) number of disputes and the organization has flat structure and sufficient routines that steer how certain functions are performed. The strategic conditions relate to network relationships and strategic intent of the venture. In relation to networks, it seems that commitment to internationally oriented local partners boosts LAN. Hence, these type of partners offer more possibilities for learning. In relation to the intentions, it seems that ventures that emphasize deliberate learning in their international activities and perform below their aspirational level are more likely to gain LAN. Only ventures engage in deliberate learning can learn from internationalization and enjoy LAN. Consequently, firms that perform below their aspiration level are more inclined to improve this by searching for new ideas, changing their way of doing business, and learning from their experiences from international markets. Lastly, it seems that firm's resource base affects LAN, and this manifests itself in managers' international experience and slack resources. Managers with international experience have better capacity for learning quickly and thus taking advantage of LAN. In addition, the availability of resources enable experimentation and exploration in international markets, and, through that, advocate LAN. (Zahra et al., 2018).

Regardless, international SMEs also face a number of challenges related to their (young) age, (small) size and foreignness. More precisely, these companies have been associated in the entrepreneurship literature with the liabilities of *newness*, *smallness* and *foreignness*. The first one of these, *liability of newness*, refers to the external and internal barriers of survival faced by new ventures (Aldrich & Auster, 1986). The external barriers refer to the factors that prevent a company from accessing a new domain. These include features such as product differentiation, technological barriers, licensing and regulatory barriers, barriers to entry due to vertical integration, illegitimate acts by competitors and experiential barriers to entry (Aldrich & Auster, 1986). Internal barriers refer to the creation of roles and structures that align with external challenges and the ability of the company to attract a skilled workforce (Aldrich & Auster, 1986). Based on prior research,

it seems that the liability of newness is a universal challenge for new ventures, whether domestic or international (Sleuwaegen & Onkelinx, 2014). Moreover, the liability of newness seems to apply to ventures that are in the process of organizing rather than officially registered ones (Yang & Aldrich, 2017). Here, Yang and Aldrich (2017, p. 48) found that the survival of new ventures depends on how much entrepreneurs “...can learn during the organizing process than on how much they have accumulated from previous experience.”

The second challenge linked to SMEs is the *liability of smallness*, which refer to the challenges that firms face due to their limited size (Aldrich & Auster, 1986). Liability of smallness is often linked to the liability of newness, but this is not always the case as some new ventures can possess, for example, substantial financial assets from the beginning (Aldrich & Auster, 1986). Thus, these would appear to be two separate issues. Nevertheless, small firms encounter several barriers. Firstly, the most “severe” challenge for small firms seems to be the lack of capital (Aldrich & Auster, 1986, p. 181). The reason for this is that small businesses do not have enough evidence or awareness to generate the finance they need. Secondly, it has been suggested that tax laws act against the survival of small organizations (Aldrich & Auster, 1986, p. 182). The reason is that large corporations are able to obtain loans, which, for example, they use to buy smaller companies. Moreover, the costs of loans are deductible. From a small business perspective, on the other hand, tax solutions favor capital income. Thus, they encourage entrepreneurs to sell their businesses as it is a more economically viable option than the “ordinary income” (Aldrich & Auster, 1986, p. 182). Thirdly, the government regulation, for example occupational safety and health and environmental protection, entails costs, which weigh more on small than large companies (Aldrich & Auster, 1986). Fourthly, small businesses face challenges while obtaining and training skilled labor. Large companies attract employees because of their career development possibility and stability, and as employees stay in the company, their work skills and experience grow and remain within the company. In smaller companies, the benefits of employee specialization are not always possible, as employees need to start with a clean slate. In addition, small companies may not have the resources to train their employees or to hire them due to different government issued employer contributions (Aldrich & Auster, 1986).

The third challenge faced by international SMEs is the *liability of foreignness*, referring to the additional costs incurred from operating overseas (Zaheer, 1995) and “...the costs involved in selling abroad...” (Renko, Kundu, Shrader, Carsrud & Parhankangas, 2016, p. 790). These costs may, for example, consist of spatial distance (the cost of transportation), company-specific costs linked to unfamiliarity and lack of presence in the host country, costs linked to target country environment (e.g. lack of legitimacy of foreign firms or economic nationalism) or costs caused by the home country environment (e.g. restrictions to selling high technology to certain countries) (Zaheer, 1995, p. 343). However, international SMEs can reduce the impact of the liability of foreignness. This can be done, for example, by adopting the latest telecommunication methods, such as internet, to support international marketing and sales (Arenius, Sasi & Gabrielsson,

2005). Moreover, new companies can overcome the liability of foreignness by learning about new markets, customers, processes and cultures (Renko et al., 2016, p. 807).

2.3 Learning theories

Organizational Learning (OL) theory has been actively studied in organizational studies since the 1950s (Yu-Lin & Ellinger, 2011, p. 514). OL theory is also well represented in the field of IE, as Autio's et al. (2000) work is based on the theory by Cohen and Levinthal (1990). Thus, in the following chapter, the central work on the OL theory is discussed. However, the use of OL seems to focus merely on measuring the improvements in the performance of the organization (Engeström & Sannino, 2010). The use of OL theory has implications in the field of IE as well. De Clercq et al. (2012) conducted an overview of knowledge features and learning in the research of IE. One of their implications was that the studies in IB rarely investigated the role of individual managers, with its focus on the organizational level instead. Thus, these authors suggest that we should ought to focus investigation on how individuals learn in future research (De Clercq, et al., 2012). Studies have suggested going beyond marketing and technological contexts, and to investigate the social process of learning (Yeoh, 2004) and non-economic motives of learning (Kauppinen & Juho, 2012). Thus, the second paragraph will discuss social learning theory that seeks to explain the individual and group level of learning.

2.3.1 Organizational Learning Theory

In March's (1991) seminal work, the focus is on how organizations balance between the exploration and exploitation of possibilities. In essence, the question is whether to play with new alternatives (exploration) or refine (exploitation) the existing competencies in an organization (March, 1991). The difference between these two types of learning strategies reflect the expected returns. Exploration is thought to provide new possibilities for the organizations, but it represents uncertain sometimes even negative returns for the company. Exploitative learning, on the other hand, is thought of as more lucrative alternative. Explorative and exploitative learning are applied as alternatives: thus, one may consolidate one's market position (exploitative learning), or improve it, such as by adopting new technologies or improving the current functions of the organization (explorative learning) (March, 1991). According to March (1991), the trade-off between exploration and exploitation depends on two features, mutual learning within the organization, and the external competition intensity that it faces. Mutual learning takes place in the interaction between individual knowledge and the organizational code (procedures, rules, and forms). The way that mutual learning affects the trade-off depends on how much the organization emphasizes individual knowledge as a source of learning, and how receptive employees are to new information. External competition steers the trade-off via competitive positioning.

Barkema and Vermeulen (1998) also discuss the competitive position in learning and focus on how international expansion promotes learning in firms. According to these

authors, international expansion exposes organizations to multinational and multiproduct diversity, which requires information on consumer need, competition, suppliers, and partners. This in turn offers opportunities for learning and for strengthening technological capabilities. However, this is only possible up to a certain point, and that is when an organization encounters its cognitive constraints. International expansion and organizational growth impede information sharing within the firm and thus limits learning by the organization.

Cohen & Levinthal (1990) focus in their important article on innovative capabilities (termed absorptive capacity) which, according to these authors, determine an organization's ability to recognize the value of external information and to apply it commercially. These authors link absorptive capacity closely to the existing knowledge base. They state that prior knowledge determines how effectively an organization can recognize and evaluate external information. For example, if the technology in question is closely related to prior knowledge, it makes it easier for the organization to spot the demand for and the financial benefits of the innovation (Cohen & Levinthal, 1990).

Huber (1991) uses a number of terms to describe the main learning processes in Organizational Learning Theory, namely congenital learning, experiential learning, vicarious learning, grafting, and searching and noticing. Congenital learning occurs in the following way: *"The individuals or organizations that create new organizations have knowledge about the new organization's initial environment and about the processes the organization can use to carry out its creator's intentions, and they make this knowledge available to the new organization's members."* (Huber, 1991, p.91). Experiential learning occurs when organizations, after establishment, acquire some knowledge through direct experience, either intentionally or unintentionally (Huber, 1991, p. 91). Vicarious learning and grafting refer to the external characteristics of learning. Organizations use vicarious learning when they observe the successful strategies, administrative practices, and technologies of other companies. Alternatively, organizations can use grafting to gain new knowledge, for example by hiring external staff (Huber, 1991, p. 97). Searching and noticing are the only straightforward types of learning. Organizations scan the external environment. They search actively (conducting a focused search) in segments of the internal and external environment; they also monitor performance, observing how their goals and stakeholder requirements are fulfilled in the organization (Huber, 1991, p. 97).

Crossan, Maurer, and White (2011) focus in their article on the multidimensional aspect of learning. They suggest that learning is a multidimensional event in which individual, group, and organizational levels are interconnected by a knowledge transfer process (Crossan et al., 2011). Crossan, Lane, and White (1999) suggest that there is one significant choice that organizations need to assess. That is whether to acquire new knowledge (a *"feedforward"* process) or to apply knowledge acquired previously (a *"feedback"* process). The difference between these two alternatives is that the feedforward process offers new ideas from the individual level to the organizational level, whereas the feedback process distributes what has been learned from the organizational level downwards. They suggest that the three levels of organizational learning are linked

by a process of four I's: intuiting, interpreting, integrating, and institutionalizing (Crossan, et al., 1999). For our purposes, this "4I" model has been applied to entrepreneurial opportunities (Dutta & Crossan, 2005). According to Dutta and Crossan (2005), the four Is manifest themselves in the case of entrepreneurial opportunities as follows: intuiting is an individual's ability to discover and fulfill business opportunities, interpreting occurs when entrepreneurs share business opportunities with network members, integrating happens when the learning process becomes a collective action, and institutionalizing is the overall learning process of all the actors involved in the organization (Dutta & Crossan, 2005).

2.3.2 Social Learning Theory

Social Learning Theory holds that learning at the individual level is based largely on how people interpret the externality. They modify observable knowledge, behavior, and events in the environment into practicable guidelines that direct their own actions (Bandura, 1986, p. 51). However, people do not rely blindly on what they observe. Thus, individual behavior represents an interplay between the self-regulative system and external influence (Bandura, 1991, p. 249). According to this account, a considerable amount of learning is *Observational Learning*, where individuals increase their knowledge-base and skills by modelling real-life examples (Bandura, 1997, p. 440). The same rule applies to innovativeness, as innovations are often created by refining pre-existing knowledge into new products or services (Bandura, 1997, p. 372).

Additionally, Bossan, Jann and Hammerstein (2015) suggest that only a small proportion of our knowledge is based solely on our independent ideas; for the most part, learning is based on something that we see others do (Bossan, et al., 2015). Their evolutionary (economy-based) simulations revealed two types of learners: (i) *individual* and (ii) *social learners*. The former type represents individuals who learn by relying on experience and the latter type learns by imitating the choices of the "*most wealthy*" individual example they observe. The simulation indicated that the benefits of these two learning styles varied according to the environment. Firstly, imitating the examples whose decision are based on a successful interpretation of the environment may lead to more favorable results than interpreting the environment. According to Bossan et al., (2015), the reason is that imitators are more likely than individual learners to choose the "*better option*". Secondly, however, this composition changes when the environment begins to change. In this case, individual learners can better adapt their decision-making to the change than those who mimic each other. Overall, the simulation reflects the amount of information on the markets. Markets are powerful indicators of change, but only if there is enough information "*flowing*" into them. It seems that individual learners play a key role in providing the information flow. However, when the information flow is weak, the decision making becomes "*self-referential*," and learning is thus reduced to the terms of imitating. If we rely entirely on the information of others, we will fail to perceive what is really happening in our surrounding reality (Bossan et al., 2015, p. 278).

In addition, a significant element of the social learning theory is a concept of *expansive learning*, which focuses on how learning is transformed from the individual level into collectives (Engeström & Sannino, 2010, pp. 5). According to Engeström and Sannino (2010), this is a cyclical process, where the ideal type learning process takes place in the following order: *questioning, analyzing, modeling, examining, implementing, reflecting* and *consolidating*. These authors suggest that these actions occur in the following way. The first type of action, *questioning*, includes criticizing or rejecting some of the accepted practice and existing wisdom. The second action, *analyzing*, involves mental transformation of the situation, to find out the exploratory mechanisms contributing to it. In the third action, the discovered explanatory mechanisms are *modeled* in an “*observable medium*”. This means that the tentative model of a new idea is constructed and reflected against a problematic situation. The fourth action is thoroughly *examining* the model, to make most out of its dynamics, potentials and limitations. The fifth action is the *implementation* of the model, which takes place through: “*...practical application, enrichment and conceptual extension*.”. The last two actions are *reflecting* the process and *consolidating*: “*its outcomes into a new stable form of practice*.”

A relevant example of expansive learning in practice is a study by Kauppinen and Juho (2012). They applied the cycle of expansive learning by Engeström (2000; 2001) in their empirical investigation of new international software firms and found that it manifests itself as follows. The first phase (*questioning*), occurred when both entrepreneurs discovered that the only way to achieve their personal goals was to establish their own business. The second phase (*analysis*), occurred when the entrepreneurs started to discuss the possibilities they had in common. The third phase (*modelling the new solution*) occurred when the entrepreneurs assessed whether it was possible to develop a more functional system that the potential customer currently had. The fourth phase of expansive learning (*examining and testing the new model*), occurred when the idea was transformed into an actual product, as an outcome of the collaboration of the entrepreneurs. The fifth phase (*implementing the new model*), occurred when the entrepreneurs started to evaluate the business opportunity based on the customer need. In the sixth phase (*reflection of the process*), the entrepreneurs applied their interdisciplinary knowhow to modify the product to customer needs. In the final phase (*consolidating and generalizing the new practice*), the whole process returned to the beginning, as the entrepreneurs began to evaluate the business opportunity through their personal goals (Kauppinen & Juho, 2012).

2.4 Summary of the theoretical framework

The theoretical framework of this dissertation is twofold. Firstly, it focuses on entrepreneurial opportunities and the field of international opportunities, and the connection between them. As we see in the next paragraph, these differ in principle, but have a more in common with opportunities than could be expected. Secondly, learning is involved in this framework. The reason for this is that opportunity, whether domestic or foreign, is strongly linked to knowledge orientation and learning. Both organizational learning and social learning theories were included in the theoretical framework. The

reason for this is that organizational learning is in principle an essential part of the focus of this study, as one of the main theories of INVs is bound to it. Nevertheless, based on the research suggestions, social learning theory is also included.

2.4.1 Opportunity in entrepreneurship and IE

In principle, entrepreneurship and international entrepreneurship research differ (see Table 1) fundamentally in how they think of opportunity. However, the differences seem to be limited to whether they cross borders. Thus, both talk about discovery and exploitation of goods and services. The similarities are not limited to this. In both, there would appear to be similar problems for the promotion of the theory. To put it simply, in both fields there is an obvious need to sharpen the focus of the research of entrepreneurial opportunity, namely by focusing on the central processes and activities and emphasizing the individual aspect while doing so. More importantly, both share very similar ideas what are the key features and activities in relation to the opportunity. It seems that the knowledge possessing and seeking behavior and learning are vital for opportunity emergence and development. The least remarkable thing is that this seem to be an area where INVs stand out. Consequently, a learning-based perspective is suitable for inclusion in the theoretical framework of this study. The application of it is presented in depth in the following paragraph.

	Entrepreneurship	International entrepreneurship
Definition of the field	"...the discovery, evaluation, and exploitation of future goods and services." (Eckhardt & Shane, 2003)	"the discovery, enactment, evaluation, and exploitation of opportunities—across national borders—to create future goods and services." (Oviatt & McDougall, 2005)
Definition of opportunity	New products, services, raw materials, market or organizing methods that form new means—ends relationships (Eckhardt & Shane, 2003)	An international opportunity is a situation that both spans and integrates elements from multiple national contexts in which entrepreneurial action and interaction transform the manifestations of economic activity (Mainela et al., 2014)
Where opportunities arise	Central to the existence and identification of opportunities, is the knowledge that individual entrepreneurs possess related to market imbalances (Eckhardt & Shane, 2003)	<u>INV literature:</u> Individuals who perceive opportunities (from establishing ventures) based on their competencies (network, knowledge, background) (Phillips-McDougall, Shane & Oviatt, 1994, p. 470)
Actions/activities in relation to opportunity	"...courses of action that seek to derive benefits from these changes." (Grégoire, et al., 2010, p. 415). "...being alert to potential business opportunities, actively searching for them, and gathering information about new ideas on products or services." (Kuckertz, et al., 2017, p. 92)	(Learning) supports the opportunity discovery (Wolff, et al., 2015) <u>INV literature:</u> Knowledge intensity supports opportunity recognition (Kraus, et al., 2017)
Main challenge in opportunity-related research	Ontological debate on discovery and creation (George et al., 2016; Suddaby, et al., 2015)	Not really focusing on opportunities, but their effect on organizations and internationalization (Mainela et al., 2014)
Suggestions for future research in relation to opportunity	Focus on the epistemological aspect (how individuals perceive environment and opportunities within it) (Dimov, 2007)	Focus on the i) iterative process driven by cognition of entrepreneurs ii) focus on daily practices and joint acts (Mainela et al., 2014)

Table 1. Fields of entrepreneurship and international entrepreneurship and definition of opportunity

2.4.2 Learning in OL and social learning theories

When we compare organizational learning and social learning theories (Table 2), we can see that these differ from one another in their perspectives. OL theories focus on organizations or organization perspectives in learning. Social learning theories, in turn, seem to focus on individual and group-level learning. If we look at their role in the research, organizational learning theory seems to be a well-established part of organizational studies in general. It has a significant role in entrepreneurship research, as the concept of LAN by Autio et al. (2000), is based (its framework on learning) on organizational theory by Cohen & Levinthal (1990). However, at the same time, it has been suggested that much of the organizational learning done is focused on the performance aspect of learning. There are some indications that it would be novel in organizational learning studies to extend the views beyond marketing and technological context and, for example, focus on the socially constructed aspect in learning. Consequently, social learning theory seems fit to answer this. Firstly, it seems to emphasize (based on its limited application so far) the non-economic motives in learning. Secondly, it supports the individual aspect, which comes from the suggestions of entrepreneurship and IE fields, as the theories seem to emphasize the individual and collective levels in its application. It can help to observe the individual difference, knowledge asymmetries etc., in this research better. Thus, only social learning theory is applied in the analysis of this dissertation. However, this is not to criticize organizational learning theory. In its all extensiveness, it is a significant theory that has significantly contributed to research, but in the setting of this dissertation, social learning theory is more suitable.

	Organizational Learning	Social Learning
Main concepts (selected)	<ul style="list-style-type: none"> i) How organizations balance between Exploration/exploitation (March, 1991) ii) The relationship between international expansion and learning (Barkema & Vermeulen, 1998) iii) Absorptive capacity: organization's capability to recognize external information and apply it commercially (Cohen & Levinthal, 1990) iv) Main learning processes in an organization (Huber, 1991) v) Knowledge transfer between individual, group and organizational levels (Crossan, et al., 1999) 	<ul style="list-style-type: none"> i) (Observational) learning is interplay between self-regulation and external influence of the individual (Bandura, 1986; 1991; 1997) ii) Learning is reflection of examples (Bossan, et al., 2015) iii) How learning transforms from individual level into collectives (Engeström & Sannino, 2010)
Relation to entrepreneurship studies	<ul style="list-style-type: none"> i) Long history among organizational studies (Yu-Lin & Ellinger, 2011, p. 514) ii) OL theory is the basis for LAN by Autio et al. (2000) (Cohen & Levinthal, 1990) 	<ul style="list-style-type: none"> i) Found a cyclical process of opportunity creation linked to social learning (Kauppinen & Juho, 2012)
Implications/suggestions	<ul style="list-style-type: none"> i) The studies of organizational learning have strong focus on the performance of the organization (Engeström & Sannino, 2010) ii) Need to go beyond the context of marketing and technological environments and include socially constructed aspects of learning (Yeoh, 2004) 	<ul style="list-style-type: none"> i) The lack of a purely monetary interest, and of any clear idea of the shared object of learning (i.e. an international business opportunity), made it convenient to apply social learning theory (Kauppinen & Juho, 2012) ii) We scrutinize the research problem through the social learning approach, whereby entrepreneurs are embedded in the context and act towards a socially shared object (Kauppinen & Juho, 2012)

Table 2. Organizational and social learning theories

3 Research design and methodology

The starting point for the dissertation research was to understand entrepreneurial opportunity phenomenon by highlighting the individuals' perceptions and through this to create an in-depth description of what type of activities and events are central during the observation period. I approached this through constructivism. The reason was that this philosophical perspective emphasizes the sense-making and perceptions of the individuals, which are thought of in this study as significant drivers of entrepreneurial opportunity emergence and development. Consequently, the research methodology was designed to support the philosophical standpoint of this study and respond to the recommendations made in the opportunity-related research. I will return to the philosophy in more detail in Chapter 3.1.

This dissertation research began with a systematic review (Tranfield, Denyer & Smart, 2003) of learning in rapidly internationalizing SMEs over the last twenty years. Eight databases were used here and 50 articles were finally selected for the review using the selection criteria. The findings of the review enabled us to clarify the state of learning in rapidly internationalizing SMEs in the research. However, above all, this encouraged us to study the phenomenon more precisely because the findings show our knowledge of this is limited. I will return to this method in more detail in Chapter 3.2.

In relation to the empirical part of this dissertation, a qualitative interpretive approach was chosen, which emphasizes individuals' interpretation and provides a rich description of the context. The empirical data collection method was designed to follow these principles as well. The data was collected with qualitative semi-constructed open-ended interviews to the key individuals of the case company. The objective of this procedure was, above all, to emphasize the interpretation of the participants. This is longitudinal and a single case study, which is a combination that supports the focus on dynamics and contextual detail. Both are significant features in promoting opportunity-related research. The analysis of the data was also designed to meet the research objectives. Interpretive/narrative analysis was applied in the empirical articles to emphasize the interpretation of the individuals as the basis for the findings. I will return to these from Chapter 3.3 onwards.

3.1 Philosophical positioning

As noted in the theory section, opportunity-related research is based on ontological positioning between the *discovery* and *creation* viewpoints. Here, Suddaby et al. (2015) investigated their application in research and found that they differed from their philosophical starting points. More precisely, the discovery perspective falls into *deterministic/realist* philosophy and creation follows *constructivist/interpretive* ontology. According to these authors, the studies that apply the deterministic standpoint seem to share the conception that opportunities exist in the external environment. The studies in this category seem to emphasize the individual differences as central element for

opportunity discovery. Accordingly, the interaction between the environment and individuals, “...in some rare cases confers unique capabilities on some individuals to identify gaps in existing social and economic arrangements...” (Suddaby et al., 2015, p. 5). However, although this category acknowledges the importance of individuals, the impact of their surrounding environment seems to be greater. The studies that fall into the category of constructivist perspective, on the other hand, seem to emphasize the viewpoint that opportunities derive from the reflexivity of entrepreneurs. In contrast to previous (deterministic standpoint), this viewpoint holds that opportunities are created, not discovered. This viewpoint holds that some individuals are in a better position to see opportunities in their environment. Some individuals “...are differentially endowed with the ability to see alternative social and economic arrangements in their environment.” (Suddaby et al., 2015, p. 6). According to Suddaby et al., (2015) these two viewpoints (deterministic and constructivist) vary in the terms of “reflexivity” and “imprinting” (Suddaby et al., 2015). Discovery-based researchers seem to lean on imprinting aspect, which emphasizes the limitations and possibilities linked to the social, political and economic context in which the individual is embedded (Suddaby et al., 2015). The creation-based researchers, on the other hand, incline to reflexivity. This aspect emphasizes the individual self-awareness of the constraints arising from the social, political and economic context of the individuals.

However, these opposing viewpoints seem to have something in common as well (Suddaby et al., 2015). Here, it would seem that both of these aspects emphasize the human cognition as a significant component of entrepreneurial opportunity. According to both perspectives, entrepreneurial opportunity emerges “...as the result of a capacity of some actors (individuals or organizations) to perceive socially embedded schemas in unique and creative ways...” (Suddaby et al., 2015, p. 9). This insight is very much in line with the standing point of this dissertation, where it is thought that the individual interpretation is the key driver for opportunity emergence and development, which happens in the interaction with external and independent reality. Here, however, I would like to remind us not to exaggerate the “hero individual” who recognizes market imperfections, but rather that what “really matters” in the long-term of opportunity is the social collective and the consensus in it (Wood & McKinley, 2017). This insight is, according to Wood & McKinley (2017), a central element of the social constructivist perspective. In this regard, in the next paragraph, I will focus on presenting the constructivist approach, which forms the philosophical basis of this dissertation.

This study is based on constructivism. This philosophy starts with the assumption that “The world we know is a particularly human construction.” (Stake, 1995, pp. 99-100), and thus our understanding about it is based largely on our own experience (Stake, 1995). According to Stake (1995), the human construction of knowledge begins by how we experience an external stimulus. Therefore, even though stimulus is external, we will only know our own interpretation of it. Here, Stake (1995) suggest that we may conceive three types of realities. The first is the external reality that can stimulate us in a simple sense, but where we have no other interpretation of the stimuli than our own. The second is the reality that consists of these previously mentioned interpretations of simple stimulation.

This is our experiential reality of external reality. The third and the last dimension is the totality of our integrated interpretations, which forms our rational reality. Stake (1995) suggest that, even though everybody has his/her own interpretations of the last two realities, people are not entirely isolated in their own realities. The reason is that we live in the same world and by interacting with each other, we shape our realities accordingly (Stake, 1995).

Stake (1995) also mentions that researchers seem to take different stances of how the external reality corresponds to our own reality. This is actually a central question in constructivism-oriented research, which considers how much of the reality is based beyond the human structure and understanding (Kwan & Tsang, 2001; Nørreklit, Nørreklit & Israelsen, 2006; van den Belt, 2003). Here, Stake (1995) suggest that the most “*appetizing view*” is that all three realities exist and affect our experience (Stake, 1995). This is also the viewpoint in this dissertation. Consequently, this dissertation takes the so-called moderate viewpoint on the matter. The reason is that the moderate constructivism stand takes a more relativist standpoint in relation to scientific knowledge (Kwan & Tsang, 2001; van den Belt, 2003). This study acknowledges that there is a world outside the human structure and understanding (Nørreklit, et al., 2006).

Overall, Stake (1995) suggests that the constructivism approach provides a good premise for conducting a case study. Its promise it is that it encourages us to investigate and create comprehensive descriptions of the studied phenomenon from the viewpoint of the individuals who are most “*knowledgeable*” about the case. This is also the stance that this dissertation takes. Starting with Chapter 3.3, I will take a closer look at the case study research, its constructivist application and the current state of case studies among the field of International Business studies. Prior to this, however, the systematic review method that formed the basis for this entire dissertation is presented.

3.2 Systematic review design

The first article of the dissertation was a systematic review of how learning was dealt in the previous studies of rapidly internationalizing SMEs, between 1994 and 2017. This was conducted according to the instructions by Tranfield et al. (2003) for systematic review. The articles were sought from the following databases ABI/INFORM, Business Source Elite (EBSCO), Emerald, JSTOR, SAGE Journals Online, Science Direct (Elsevier), Springerlink, SCOPUS. The search combinations of the central terms (Rialp, Rialp & Knight, 2005) were the following: *international new venture, born global, born-global, micro-multinationals, global startup, early internationalization, early internationalisation, learning, organizational learning, organisational learning, knowledge, and experience*. Using the inclusion criteria, we accepted publications from the fields of international business, marketing, entrepreneurship, management, international entrepreneurship, and strategy. According to the criterion, the study had to comprise a full text, to appear in a peer-reviewed academic journal, and to be published in English. The initial inclusion criteria yielded 386 articles. In the final inclusion, we

excluded articles that (i) did not investigate new or early internationalizing ventures, (ii) applied serial or portfolio entrepreneurs as a data source, (iii) were not empirical studies, or (iv) did not have any learning-related outcomes in them. The final inclusion yielded 50 articles.

3.3 Qualitative case study research

“The purpose of case report is not to represent the world, but to represent the case” (Stake, 2005, p. 460)

Stake (2005) starts his discussion about case study by suggesting that this “...is not a methodological choice but a choice what is to be studied.” (p.443). The choice of conducting a case study research is based largely, if not entirely, on our interest in a case (Stake, 2005). Consequently, the qualitative case study research puts much of emphasis on the empirical understanding of the case (Stake, 2005). Stake (2005, p. 444) suggests that the holistic understanding about a case requires “*meticulous*” focus to its activities. According to Stake (2005), contextual awareness is an integral part of case study research. Those who conduct a case study should carefully consider the external environment in which the case is embedded and the “*subsections*” of the case itself. The first, the external environment, refers, for example, to the historical, cultural, physical, social, economic and political surroundings of the case. The second, refers, for example, to the production and market departments in the case (Stake, 2005). Stake (2005) suggests that these contexts are almost endless, because each of them can have its own context. Nevertheless, this is also an excellent opportunity for qualitative case studies, as we can make this complexity understandable (Stake, 2005).

In the Stake’s (2005) categorization of case studies, this dissertation falls into the “*intrinsic*” case study category. Accordingly, the objective is to create in-depth understanding about the case by investigating what is important in it, in its own world. Consequently, this dissertation emphasizes relevant issues, contexts and interpretations in the case and thus creates a “*thick description*” based on this account (Stake, 2005). The qualitative case study approach also reflected my own activities in the dissertation. Accordingly, I was trying to be in “*the thick of what is going on*” (Stake, 2005, p. 449). While doing so, a researcher “*digs*” to investigate the meanings that people give and reflecting them “*to context and experience*” (Stake, 2005, p. 450). Consequently, the work becomes inevitably reflective (Stake, 2005, p. 450). Although, the intrinsic case study approach does not emphasize generalization, it cannot be avoided (Stake, 2005). However, according to Stake (2005, p. 450), this should not go beyond stating that the observed “*happenings*” can recur in future and other situations. Intrinsic case study research emphasizes that the reader understands the interpretation of the author, but also that readers draw their own conclusions (Stake, 2005). Overall, the importance of case study in promoting the science takes place by providing accurate descriptions. By revealing the complexity of the case, we are able to provide new perspectives for future research and, at the same time, delimit the boundaries of generalization (Stake, 2005, p.

460). The objective of “*classic case studies*” is to create, “...*good stories more than testable theory.*” (Dyer & Wilkins, 1991, p. 617). This is precisely the purpose of dissertation.

Orientation	Positivist (empiricist)	Interpretive/constructionist	Critical realist
Nature of research process	Objective search for generalities	Subjective search for meaning	Subjective search for causes
Case study outcome	Explanation in the form of testable propositions	Understanding of actors' subjective experiences	Explanation in the form of causal mechanisms
Strength of case study	Induction	Thick description	Causes-of-effects explanations
Attitude to generalization	Generalization to population	“Particularisation” not generalization	Contingent and limited generalizations
Nature of causality	Regularity model: proposing associations between events (weak form of causality)	Too simplistic and deterministic a concept	Specifying causal mechanisms and the contextual conditions under which they work (strong form of causality)
Role of context	Contextual description a first step only	Contextual description necessary for understanding	Context integrated into explanation
Main advocate	Eisenhardt	Stake	Ragin/Bhaskar

Table 3. Case study research in IB (Welch et al., 2011)

The current trend in case studies in the field of International Business (IB) seems to be moving away from inductive theory building. The reason, according to Welch, Piekkari, Plakoyiannaki and Paavilainen-Mäntymäki (2011), is that this type of research has restricted us to creating a causal explanation and contextualized theory. According to Welch et al. (2011), we have three alternatives to it: *the natural experiment*, *interpretive sensemaking* and *contextualized explanation*. These viewpoints seem to differ (Table 3) considerably between themselves in relation to the premises, objectives and outcomes (Welch et al., 2011). According to Welch et al. (2011), the characteristics and strengths compared with the inductive theory-building of these three alternatives are as follows. The case studies applying a natural experiment reinforce and modify the existing theory. Compared to the positivist orientation, this viewpoint has stronger explanatory power. The interpretive (including constructivism) dimension, on the other hand, approaches case study research through an interpretive sensemaking and “...*affirms the value of contextualisation to theorising.*” (Welch et al., 2011). However, there are some shortcomings in the aforementioned alternatives, as their authors state. According to Welch et al. (2011), they are limited by the tradeoff between internal validity and thick description. The natural experiment can create causal explanations but lack the emphasis on contextualization. Interpretive case studies, on the other hand, create the thick description at the cost of the causal explanation (Welch et al., 2011). In their opinion, the third option (contextualized explanation) is the most suitable case study method. For researchers who apply interpretive approach in case studies, these authors suggest inclusion of the context as a central component of the explanation and provide explanations “...*as to why events occur in the way they do.*” (Welch et al., 2011).

To summarize, this study relies on the constructivist case study approach. The main reason is that the constructivism focuses primarily on the interpretation of the individuals,

which is also the starting point for this dissertation. The moderate viewpoint of constructivism seems to support the insight that opportunities emerge in the interaction between the individual sensemaking and external reality, which allows to avoid the ontological standstill and move forward in the research. The recommendations (see Welch et al., 2011) in the field of IB linked to the development of a case study method is also acknowledged. This study pays special attention providing contextual description and a causal explanation through individuals' perspective. In the following chapters, I will go deeper into the research methodology, which is strongly based on the philosophical standpoints and requirements of the opportunity-related research.

3.4 Empirical research design and methodological considerations

This dissertation conducts an in-depth qualitative interpretive study on entrepreneurial opportunity. The reason is that qualitative research provides new insights to promote theory through its inductive approach to the matter (Suddaby et al., 2015). The interpretive approach seems to support the objectives of this study in general, as it emphasizes the context, and narratives, and considers reality as socially constructed (Leppäaho, Plakoyiannaki & Dimitratos, 2016). The overall objective is to understand the opportunity phenomenon by emphasizing the people's interpretations of what they are doing (Walsham, 1995), and the sensemaking and the meanings they relate to it (Klein & Myers, 1999, p. 69).

More precisely, this is a single case study, which further supports the focus on providing accurate and rich descriptions of the selected context (Dyer & Wilkins, 1991) and narratives (Eisenhardt & Graebner, 2007). This answers the methodological and theoretical request. Firstly, this is a direct procedure linked to Welch et al. (2011) suggestions to incorporate context in the explanation. However, the context awareness in this study means that the study provides an in-depth description of a certain setting, rather than creating universal statements (Walsham, 1995). Secondly, emphasis on the context is a direct answer to the request of Reuber et al. (2017) to open up this feature for theory advancement in the opportunity-related research. The aim of this study is not to generalize, but to offer accurate details from a phenomenon by concentrating carefully on a single setting (Eisenhardt & Graebner, 2007). Overall, the objective of this dissertation is not to provide "*law-like explanation*" (Welch et al., 2011), but to create an accurate and in-depth description of the case.

Another key issue in this research is the dynamics that seems to be a major development area among opportunity-related research. This study tackles this issue by acknowledging that opportunity perception and its development is an event with duration (Reuber et al., 2017). A longitudinal data collection method is applied for the purpose. Additionally, the longitudinal data provides real-time observations of the critical events, rather than relying on retrospective insights (Eisenhardt & Graebner, 2007). Here, it has been suggested that relying too much on retrospective judgement may cause us to see entrepreneurial projects as self-evident and unproblematic; thus, we miss the lived and questioning nature of them

(Popp & Holt, 2013). The data collection is designed to support the interpretive approach of this study, with key individuals interviewed, providing a variety of perspectives for the analysis.

3.5 Data collection

The primary qualitative data (see Table 4) of this dissertation consists of 26 semi-constructed open-ended interviews conducted to the key individuals in the case company from April 2016 to December 2017.

Type	Date	#	Length	Pages	Interviewee	Data utilized (Articles)	Transcribed
Negotiation interview	09.03.2016	x	-	-	Mike	EMP1, EMP2	Personal notes
In-depth interview	07.04.2016	1	1:27:02	37	Mike	EMP1, EMP2, EMP3	Yes
In-depth interview	07.04.2016	2	1:19:04	42	Terence	EMP2, EMP3	Yes
In-depth interview	12.04.2016	3	1:33:43	51	Sam	EMP2, EMP3	Yes
Follow-up 1	11.05.2016	4	1:17:02	17	Mike	EMP2, EMP3	Yes
Follow-up 2	24.05.2016	5	0:51:17	11	Mike	EMP2, EMP3	Yes
Follow-up 3	21.06.2016	6	1:09:39	16	Mike	EMP2, EMP3	Yes
Follow-up 4	05.07.2016	7	0:49:18	14	Mike	EMP2, EMP3	Yes
Follow-up 5	02.08.2016	8	1:25:26	24	Mike	EMP2, EMP3	Yes
Follow-up 6.1	02.09.2016	9	1:02:38	17	Mike	EMP2, EMP3	Yes
Follow-up 6.2	02.09.2016	10	1:29:49	19	Sam	EMP2, EMP3	Yes
Follow-up 7	04.10.2016	11	1:13:32	36	Mike, Sam	EMP2, EMP3	Yes
Follow-up 8 (Presentation)	15.11.2016	12	1:47:39	22	Mike, Sam	EMP2, EMP3	Yes
In-depth interview	29.12.2016	13	1:42:18	29	Tom	EMP1, EMP2, EMP3	Yes
Follow-up 9	20.01.2017	14	1:21:10	26	Mike, Sam	EMP2, EMP3	Yes
Follow-up 10	03.02.2017	15	1:21:40	25	Mike, Sam	EMP2, EMP3	Yes
Email	07.03.2017	x	-	4	Mike	EMP1, EMP2, EMP3	Email
Email	15.03.2017	x	-	2	Sam	EMP1, EMP2, EMP3	Email
Follow-up 11	24.03.2017	16	1:11:16	16	Mike	EMP2, EMP3	Yes
Follow-up 12 (Skype)	12.04.2017	17	1:19:04	29	Mike, Sam	EMP2, EMP3	Yes
Follow-up 13	10.05.2017	18	1:01:39	17	Mike, Sam	EMP2, EMP3	Yes
In-depth	26.05.2017	19	1:21:53	19	Tommie	EMP2, EMP3	Yes
Follow-up 14	20.06.2017	20	1:14:55	23	Mike, Tommie	EMP2, EMP3	Yes
Follow-up 15	18.09.2017	21	1:06:11	18	Mike	EMP2, EMP3	Yes
Follow-up 16	27.10.2017	22	1:31:06	18	Mike	EMP2, EMP3	Yes
Email	27.10.2017	x	-	4	Sam	EMP2, EMP3	Email
Follow-up 17.1	15.11.2017	23	1:40:04	32	Sam	EMP2, EMP3	Yes
Follow-up 17.2	15.11.2017	24	1:11:40	16	Tommie	EMP2, EMP3	Yes
Follow-up 18	19.12.2017	25	1:21:15	16	Sam	EMP2, EMP3	Yes
Follow-up 19	22.12.2017	26	1:46:16	21	Mike, Tommie	EMP2, EMP3	Yes
Total	-	26/4	34:36:36	611/10	-	-	-

Table 4. Data of the dissertation

The overall objective of the analysis was to increase our understanding of entrepreneurial opportunity phenomenon by emphasizing the empirically collected field material (Schwarz & Stensaker, 2014). While doing so, I tried to follow the “*simplest rule of method*” of qualitative case study (Stake, 2005, p. 449). Even though I might not be the “*best intellect*”, my sole objective was still to delve into the topic and to situate myself as close as possible to the case and the “*thick of what is going on.*” While doing so, according to Stake (2005, p. 449), my “*brainwork*” becomes “*reflective*” in a way that I ponder the meaning of the collected material, but not the conceptualizations of other researchers.

The data for this study was collected from a single case company (WTC). The primary data consisted of semi-constructed open-ended interviews which took place between April 2016 and December 2017. Secondary material was also collected for this study. Firstly, email conversations were conducted during the analysis for the articles. In these, complementary questions were made to ensure the accuracy of the findings. Secondly, I read WTC’s blog and social media to keep up with the most significant events of the case company during the observation period.

The content of the interviews varied according to whether the interview was an in-depth or follow-up interview. In the in-depth interviews, the focus was on exploring the backgrounds of people and entrepreneurial opportunity. They sought to find out the current state of the case company and the interviewees before follow-up interviews. In the follow-up interviews, the focus moved to real-time observation of entrepreneurial opportunity development. However, in all the interviews, people were allowed to reflect on the past, the current and the future freely, and which they did regularly. The questions in the follow-up interviews focused on monitoring key projects and entrepreneurial opportunity development. With the secondary data, the email discussions included supplementary questions about the key activities and events during the analysis of empirical articles to ensure the accuracy of the findings.

All of the conducted interviews were semi-constructed open-ended interviews. These were conducted to the key individuals in the case company and their composition varied from interview to interview (see Table 4). The interviews were conducted in Finnish for Mike, Sam, Terence and Tommie and in English for Tom. All the interviews were conducted on the premises of the case company, except the follow-up interview 12, which was conducted by Skype. One of the follow-up interviews (follow-up interview 8) included a presentation for WTC, based on the observation of the case company’s activities. Overall, 26 semi-constructed interviews were conducted in this research, with the total length of 34 hours and 36 minutes and total of 611 pages of transcribed word documents.

The data was collected by digitally recording the interviews and transcribed verbatim. Personal notes were made during the interviews. The email discussions, which included the supplementary questions, were included in the transcribed material. During the article writing process, copies of articles were sent to the individuals to ask permission to their

publication and presentation. These instances were excellent opportunities to ask the interviewees for their opinion about the accuracy of the findings. Corrections were made based on their suggestions before the submitting them forward.

3.5.1 Case selection and the team composition

The case selection was based on purposeful sampling. The logic behind this was to choose a case where we can learn the most (Stake, 2005). For this purpose, I chose an INV. The decision was based on the insights made previously in the opportunity-related research. Firstly, opportunity recognition seems to be information-seeking behavior (Kuckertz et al., 2017). Secondly, in the field of IE, a learning-based perspective has been presented as a viable alternative for increasing our understanding about how individuals recognize market gaps based on their creativity (Mainela et al., 2014). Thirdly, INVs seem to stand out from others with their learning capabilities (Autio, et al., 2000; De Clercq, 2014). Consequently, this type of venture was selected as a case for this dissertation.

The criterion for INV in this study follows Oviatt & McDougall's (1994) definition "*...that, from inception, seeks to derive significant competitive advantages from the use of resources and the sale of outputs in multiple countries*" (Oviatt & McDougall 1994, p. 49). These conditions were met in the following way. The case company (codenamed Wireless Telegraph Company, WTC), is a Finnish INV that operates in the telecommunications industry. WTC was established officially in August 2012, as a spin-off from an Multinational Enterprise (MNE) where it had been an independent project since January 2010. WTC began to seek overseas access, immediately after establishment. As a result, WTC has been engaged in several development projects of various mobile network solutions in North America, Central America, South America, Scandinavia, Continental Europe, South Asia, Middle East, South Africa and Eurasia since its establishment.

The team composition (see Table 5) in WTC (all individuals codenamed) has developed as follows. Mike and Tom have been working on entrepreneurial opportunity since its beginning when it was part of an independent business unit in the MNE. WTC was originally launched by Mike, Tom and Jack in 2012. However, manpower declined in the coming months as Tom decided to stay in the MNE and worked only part-time as a consultant for WTC from 2014 onwards. Jack left the company in summer of 2014. In spring 2013, WTC was supplemented by Sam. He bought a share of the company and became the second owner of WTC and was appointed head of R&D. WTC was reinforced again in spring 2015 by Terence, who had several years of experience of sales management in various teleoperator organizations, but he left the firm in late 2016. Tom eventually joined WTC full-time in 2017 as an employee working in R&D. The last addition to WTC was Tommie, who joined the firm in spring 2017 as a sales manager. He had several years of sales experience in large multinational telecommunication companies and SMEs in various high-technology industries.

	EDUCATIONAL BACKGROUND	PRIOR WORK HISTORY	TIME IN WTC	ROLE IN WTC
Mike	<ul style="list-style-type: none"> ▪ Automation engineer ▪ Bachelor's degree 	<ul style="list-style-type: none"> ▪ Program manager, product management 	<ul style="list-style-type: none"> ▪ 2012 fall- 	<ul style="list-style-type: none"> ▪ Founder, entrepreneur
Tom	<ul style="list-style-type: none"> ▪ Computer science ▪ PhD 	<ul style="list-style-type: none"> ▪ Software engineer, team leader, senior architect, system architect 	<ul style="list-style-type: none"> ▪ 2012 fall- 	<ul style="list-style-type: none"> ▪ Founder, employee
Sam	<ul style="list-style-type: none"> ▪ Software engineer ▪ Bachelor's degree 	<ul style="list-style-type: none"> ▪ Software designer, team leader and project manager (in software design of telecom) ▪ Entrepreneur (severance payment), product management and consulting 	<ul style="list-style-type: none"> ▪ 2013 spring- 	<ul style="list-style-type: none"> ▪ Entrepreneur
Terence	<ul style="list-style-type: none"> ▪ Mechanical engineering ▪ Bachelor's degree 	<ul style="list-style-type: none"> ▪ Sales manager, sales and marketing consultant, marketing and sales executive, CEO 	<ul style="list-style-type: none"> ▪ 2015 spring-2016 December 	<ul style="list-style-type: none"> ▪ CEO
Tommie	<ul style="list-style-type: none"> ▪ Master of Science in Technology ▪ Information technology (International business and strategy major) 	<ul style="list-style-type: none"> ▪ Coding (during studying), project manager (sales), international sales 	<ul style="list-style-type: none"> ▪ 2017 spring- 	<ul style="list-style-type: none"> ▪ Sales manager

Table 5. Team composition of WTC

3.6 Data analysis

The focus of the analysis was to observe entrepreneurial opportunity development from individual perspective. Narrative strategy was chosen as the analytical method to support the research objectives. Firstly, this was done to support response to the individual viewpoint requested in the entrepreneurship literature (Coviello, 2015; Odorici & Presutti, 2013). Secondly, this suits the philosophical standpoint of this study, where the phenomenon is approached from the interpretation of individuals (Welch et al., 2011). Interpretive/narrative analysis was chosen, as this emphasizes the “...stories that people tell.” (Gartner, 2007, p. 613) and the interpretation of the individuals of the phenomenon under study (Walsham, 1995). This type of analysis enables reflection of the key concerns through the language used by entrepreneurs (Chell, 2013).

The narrative approach supports theory building by providing: “...an intimate connection to empirical realities.” (Dawson & Hjorth, 2012, p. 340) and emphasizing the “processual aspect” of the empirical material (Dawson & Hjorth, 2012, p. 341). Consequently, the dynamics of the lived reality, such as acting, deciding and organizing, manifest for researchers as small narratives (Dawson & Hjorth, 2012). The advantage of this approach is that it reveals the vibrant side of reality, in “...a form where life is still in language, which is the form of everyday knowledge.” (Dawson & Hjorth, 2012, p. 342). The result of narrative analysis can be thought of as “high resolution data”, based on the dynamics of real-life (Dawson & Hjorth, 2012, p. 342). In principle, the narrative strategy provides an opportunity to create an accurate story from the raw data and thus reveal the richness and complexity of the studied phenomenon (Langley, 1999). This gives even more emphasis to providing contextual detail (Langley, 1999), which is a strong objective in this study.

The analysis of empirical data followed the propositions and guidelines of process-based (Langley, 1999; Smith, 2002) and interpretive/narrative (Cope, 2005; Dawson & Hjorth, 2012) examples. The frame of the analysis was in general a four-phase process, with some differences between its application among the articles. In all the empirical articles, analysis started by creating an overall story of the observation period and summarizing all the critical events and activities linked to entrepreneurial opportunity (Dawson & Hjorth, 2012). In the second step, the focus moved to observing how these observed events and activities contributed to entrepreneurial opportunity (Dawson & Hjorth, 2012). In the longitudinal articles (EMP2, EMP3), this step included a “*thematic*” construction on how the participants conceived the opportunity development process (Cope, 2005). Nevertheless, a similar “*multivoiced story*” was also made in the EMP1, based on the participants’ descriptions of the observation period. The third phase of the analysis was slightly different between the first and the last two empirical articles. The reason was that these articles differed in relation to the observation period and number of interviewees. In the first empirical article (EMP1), the third phase moved straight to summarizing the story from the collected data. However, in the EMP2 and EMP3, third step included a “*cross-case comparison*” between participants to observe the commonalities and differences between individuals (Cope, 2005). The fourth and final phase of the analysis, involved collecting the inductive findings and comparing them with the theoretical framework of this study (Cope, 2005; Dawson & Hjorth, 2012).

Overall, the data analysis process followed the principles of qualitative case studies (Stake, 2005). This was a longitudinal process, where I constantly reflected on the collected empirical data without anyone else’s conceptualization of the matter. In the analysis, findings were categorized by following individuals’ key activities (focus), how they described the progress in different projects (progress). It was also analyzed in the terms of the events and activities individuals associated the development of opportunity with (e.g. milestones, challenges, feedback, product characteristics, contextual features) and how individuals’ perceptions of opportunity developed over time. The analysis also focused on how individuals perceived the development of opportunity and how their views differed from each other. Triangulation was also considered (Stake, 2005). This was done through spending much time and effort comparing the differences and similarities of the mini-cases, that is, the interviewees of the case company. During the analysis, I approached individuals by email if I needed more information or had specific questions about key activities and events. All versions of the articles were circulated to the members of case company, before they were sent out to publications or conferences, to guarantee accuracy of the findings and gain publishing permission.

The material was displayed in Word tables, which included direct quotes from transcribed interview material. In accordance with the analytical method, this was done by creating tables in chronological order and categorizing all the significant events and activities linked to entrepreneurial opportunity, based on individuals’ perception of them. This enabled the efficient processing of a vast amount of data, and the comparison of the individual perspectives and highlighting of the most significant findings. Tables also included email conversations and my interview notes, if significant insights emerged from

them. During the analysis of each article, an illustration was made based on the findings of major events and activities related to entrepreneurial opportunity. The figures in the empirical articles were based on these illustrations.

The analysis revealed a highly dynamic and complex phenomenon that had to be presented as comprehensively as possible. Firstly, it was discovered that there were multiple activities and events taking place at multiple levels, often simultaneously. For example, regulation and industry development, negotiations with customers, technological development in the office and meetings with financiers were all features representing their own dimensions and that had to be taken into account in the analysis. Secondly, even though the team members appeared to be similar with relation to their professional background, their perspectives on the development of opportunity differed significantly. As a result, the analysis carefully took into account the differing viewpoints of all interviewees. Thirdly, the analysis revealed from the outset that opportunity development was anything but a linear process. Based on the longitudinal analysis, the change began to take place in the form of a cyclical process, returning after certain (but never identical) cycles to re-evaluate the suitability of the opportunity. However, this does not mean that the opportunity did not develop. As the findings will illustrate, the opportunity took many new directions and developed significantly during the observation period. Overall, these are all aspects that are considered to arise in the presentation of findings and thereby emphasized the processuality of this research.

4 Summary of the publications and review of results

The dissertation consisted of four articles (Table 6). The first of these was a systematic review that laid the foundation for the dissertation. The latter three formed the empirical contribution to this dissertation. In the following paragraphs, the objectives and findings of these articles are discussed in more detail.

#	Title/publication	Year	Author(s)	Type	Observation period	Published
1	Learning in International New Ventures: A systematic review	2018	Teemu Tuomisalo, Tanja Leppäaho	Systematic review	-	International Business Review
2	Emergence of an entrepreneurial opportunity: a case within a Finnish telecommunication International New Venture	2019	Teemu Tuomisalo	Empirical	2010-2012 Retrospective	Journal of International Entrepreneurship
3	The evolution of entrepreneurial opportunity within a Finnish Telecom International New Venture	2018	Teemu Tuomisalo, Martin Hannibal	Empirical	2012-2017 Retrospective /real-time	The 22nd McGill International Entrepreneurship Conference, August 2018, Halmstad University
4	Learning and entrepreneurial opportunity development within a Finnish Telecom International New Venture	2019	Teemu Tuomisalo	Empirical	2016-2017 Real-time	The 23rd McGill International Entrepreneurship Conference, August 2019, University of Southern Denmark

Table 6. Publications of the dissertation

4.1 Publication 1. Learning in International New Ventures: A systematic review

4.1.1 Background and objectives of the article

A very central part of IE research lies in the internationalization of SMEs (McDougall-Covin, et al., 2014). In this review, we focused on rapidly internationalizing ventures, most commonly known as International New Ventures (INVs) (Oviatt & McDougall, 1994), or Born Globals (BGs) (Knight & Cavusgil, 2004; Rennie, 1993). One of the strengths of these companies is their learning ability, which has been found to support their growth after establishment (Autio, et al., 2000; Hagen & Zucchella, 2014).

The first article was a systematic review (Tranfield, et al., 2003) of the state of learning in the field of international entrepreneurship. The review consisted of 50 articles published between 1994-2017. More specifically, the objective was to discover what was known about learning among rapidly internationalizing SMEs over twenty years of research. The findings were related to the organizational learning theory proposed by March (1991). Overall, the systematic review sought answers for the following questions:

1. *What do we know about learning in international new ventures?*

2. *How have learning theories been applied in research on early and rapid internationalization?*

4.1.2 Main findings and contribution

The systematic review confirmed that learning is a key element in rapidly internationalizing ventures. Here, we found four significant dimensions linked to learning: the role of competencies, dynamics, networks and environmental features. We found several avenues for future research for advancing our understanding of the INV phenomenon. We also found several methodological and theoretical development areas that could advance our understanding of the INV phenomenon.

4.1.3 Role in thesis

The systematic review formed the basis for the entire dissertation. Based on the findings, we were able to realize the most significant features to be acknowledged when investigating learning in INVs. These findings enabled us to identify the most central methodological and theoretical development areas to be considered. This was also done in empirical articles.

4.2 Publication 2. Emergence of an entrepreneurial opportunity: a case within a Finnish telecommunication International New Venture

4.2.1 Background and objectives of the article

The first empirical article focused on the background of entrepreneurial opportunity before the official establishment of the case company. The reason for this was that the pre-launch period seems a significant one that requires further research. Here, it has been proposed that we need to investigate the antecedents of entrepreneurial opportunity in order to explain the phenomenon in more detail.

This article conducted an in-depth investigation of this pre-launch period and its connection to entrepreneurial opportunity emergence. While doing so, a Strategic Orientation (SO) approach was applied, which offered multiple perspectives to investigate firm-based activities. However, this article focused on individual-level perspective, as requested in opportunity-related research. This was a qualitative single case study, where two of the individuals involved in the pre-launch period were interviewed with semi-constructed open-ended interviews. I also took follow-up interviews when there were issues that related to the pre-launch period. Consequently, this article sought to answer the following research question: *How do individuals discover opportunities during the pre-launch period?*

4.3 Publication 3. The evolution of entrepreneurial opportunity within a Finnish 55 Telecom International New Venture

4.2.2 Main findings and contribution

The findings of this article confirmed the insight that the pre-launch period is significant for entrepreneurial opportunity emergence. Here, previous knowhow played a particularly significant role. This study highlighted several insights for increasing our understanding of the antecedents of entrepreneurial opportunity. Firstly, this study found that both interviewees demonstrated high levels of entrepreneurial orientation while still working in another company. This led these people to create novel solutions, which was also the primary feature in discovering the initial opportunity. Here, it was found that the initial opportunity discovery and its development were strongly related to individuals' information seeking behavior. In this case, entrepreneurial opportunity was mirrored to respond to potential customers' demands. Such a process seemed to require a reconciliation of technological and commercial knowledge domains. Here, it seemed that everyone had his/her own areas of expertise that promoted the opportunity emergence. This finding confirmed that contrasting knowledge domains and learning asymmetries are significant for the discovery and development of entrepreneurial opportunity. This article also provided new empirical insights into how this happened. Secondly, it was discovered that the context was a significant precondition for opportunity emergence. In the studied case, the most significant elements were linkage to the MNE, and the level of support granted to the project. Government-level initiatives and regulation affected the emergence and development of entrepreneurial opportunity during the pre-launch period.

4.2.3 Role in thesis

This first empirical article immediately provided in-depth findings on individual level features that contributed to entrepreneurial opportunity emergence and its subsequent development. The findings showed individuals' knowhow and the differences therein were significant. These findings encouraged me to apply a learning-based approach. Here, it was found that the discovery and creation were supportive processes, which allowed me to surpass the ontological debate and move into in-depth investigation of the phenomenon. These findings indicated that entrepreneurial opportunity includes a longitudinal process that needs to be investigated more closely. Context also had a significant effect on entrepreneurial opportunity, and the findings helped to understand why. Overall, these findings increase our understanding about entrepreneurial opportunity phenomenon and encouraged to keep the in-depth and longitudinal approach when investigating this.

4.3 Publication 3. The evolution of entrepreneurial opportunity within a Finnish Telecom International New Venture

4.3.1 Background and objectives of the article

The second empirical article investigated the long-term development (2012–2017) of entrepreneurial opportunity, after the establishment of the case company. This decision

was based on the insights and suggestions from the field that entrepreneurial opportunities are not one-shot deals, but rather include an iterative and dynamic decision-making process in which opportunities are modified based on new information. This article conducted an in-depth longitudinal study on entrepreneurial opportunity development. This study focused on the individual perceptions and aimed at describing the context as accurately as possible. This was done by applying a qualitative single case study with 26 semi-constructed open-ended interviews conducted for five participants. This was partly retrospective and partly real-time study, as the interviews started in April 2016 and ended in December of 2017.

4.3.2 Main findings and contribution

In this study, it was found that the development of entrepreneurial opportunity was a dynamic process to which the realization of technological and commercial potential was central. Individuals began to understand the requirements that potential customers placed on entrepreneurial opportunity, namely, to innovation. This included two dimensions. Firstly, this required technological understanding how innovation could solve customer's technical problems. Secondly, commercial understanding was also required. The team had to be able to demonstrate the commercial benefits of the innovation for the customer. The team began to understand the contextual factors that influenced the willingness of customers and through that the development of innovation. In this context, the regulation of telecommunication industry was a particularly significant feature that had to be considered, as it steered customer demand. The innovation type itself was also a key feature. This was because the implementation of groundbreaking technology seemed particularly challenging in the telecommunication industry.

The impact of this increased understanding about entrepreneurial opportunity seemed twofold. Firstly, the team began increasingly to understand the potential and requirements of innovation, which concretized the focus of the solution. They were able to figure out the real-life applications for innovation. This seemed to reflect comprehensive understanding about the customer preferences that led to tailored but at the same time more limited solutions. Secondly, this realization process seemed to impact innovation in that it began to divide into several new segments. Although the original idea of entrepreneurial opportunity did not change, it was divided into several smaller segments that responded to the real-life demand of various customer groups.

These findings support the dynamic aspect of entrepreneurial opportunity and advance our understanding about this process. Based on the findings, it seemed that the individual realization about opportunity was twofold, which reflected technological and commercial requirements set by the customers. Understanding contextual features was significant to adjusting opportunity to match demand. Based on the findings, the increased understanding affected innovation in two ways. Firstly, as a result, individuals started to have a deeper understanding about the potential of innovation, and through that they were able to focus on the application of it to match the real-life situation. Secondly, the

4.4 Publication 4. Learning and entrepreneurial opportunity development within a Finnish Telecom International New Venture 57

innovation was divided into several segments that reflected the demand of different customer groups.

4.3.3 Role in thesis

The findings in this article supported significantly the dynamic aspect of entrepreneurial opportunity. Here, it was found that individual sense-making was at the core of the opportunity development process. This encouraged me to conduct a real-time observation of this matter. The findings gave slight indications that there were individual differences on how people contributed to the development process. This encouraged me to investigate interpersonal learning and its impact on entrepreneurial opportunity. These two issues were done in the last empirical article.

4.4 Publication 4. Learning and entrepreneurial opportunity development within a Finnish Telecom International New Venture

4.4.1 Background and objectives of the article

In this final article, I immersed in investigating learning and entrepreneurial opportunity as deeply as possible. The objective here was to avoid the measures that have previously stifled research and highlight the solutions that have been proposed to advance our understanding of the entrepreneurial opportunity phenomenon. This particularly meant that I focused on individual perceptions while doing so. Based on previous research, and my previous findings, it seemed that opportunity development is linked to individuals' knowledge-seeking behavior. There were suggestions and recommendations to apply learning-based perspective for advancing our understanding of entrepreneurial opportunities. This article approached this phenomenon from a learning-based perspective. While doing so, a social learning theory was chosen, which emphasizes individual and group level learning, further supporting the objectives of this article.

Adhering to research recommendations and research gaps, a qualitative interpretive study was conducted. However, unlike in previous articles, this was based entirely on real-time observations. It was a longitudinal study that focused on the observation of key activities and events through individuals' perception for almost two years. Overall, the objective was to create an accurate description that corresponded to real life and was based on the individuals' immediate perceptions. It was the same single case company as before. The interviewees, however, were Mike and Sam and, as a newcomer, Tommie, who was hired as sales manager during the observation period. These semi-constructed and open-ended interviews were mostly conducted before and after business trips to a specific target country. Overall, the article sought to answer for the following research questions:

- 1) *How and what entrepreneurs learn during the observation period?*
- 2) *How learning process influences the entrepreneurial opportunity development?*

4.4.2 Main findings and contribution

In this article, I investigated the development of entrepreneurial opportunity from the individuals' perspective. Overall, it seemed that their objective was to understand how their groundbreaking innovation aligned with customer demand. The findings showed this was a learning process in which innovation was developed according to perceived customer need. The team began to understand customer preferences that reflected two different dimensions, due to the customer's organizational structure. The team had to understand how innovation would provide economic benefits to the customer, after which they had to convince the technological department of how it worked. Overall, this required the constant evaluation of suitability of the innovation. The impact of this learning process on the innovation was that it concretized during the observation period. Innovation evolved from a conceptual level idea to a specific technological solution that responded to customer demand. I investigated the learning process between the individuals. Here, it seemed that individual differences in knowhow had a significant impact on how the potential and limitations of the innovation were seen. Here, the extremes seemed to be technology and customer interfaces. One side tried to build a picture how innovation responded to the customer's need and the other side sought to develop innovation in this direction in the limits of technology and resources.

Overall, this article supports the perspective that entrepreneurial opportunities develop in the interaction between the individual and environment. Individuals seem to develop innovation to match or to create demand. However, this article raises a number of new insights about what kind of process this is. In the center, there seems to be a learning process in which individuals try to understand the conditions of the innovation. This especially reflects understanding about customer demand. Here, I discovered a social learning process that helps us to understand how personal differences in knowhow affect the opportunity development. This article raised several contextual features that affected the development of entrepreneurial opportunity. The understanding of the characteristics about telecommunication industry was particularly significant to adjust entrepreneurial opportunity to match the demand. Individuals learned about the challenges of the technology related to the opportunity and their own position in the industry, both of which significantly affected their possibility to implement innovation.

4.4.3 Role in thesis

This article is the flagship of the dissertation. It delved the deepest into the relationship between learning and entrepreneurial opportunity from the empirical articles. In so doing, it emphasized the individual perceptions and relied entirely on real-time observations, to provide maximally accurate and dynamic observations. Consequently, the findings provided a considerable amount of in-depth insights that advance our understanding of entrepreneurial opportunity phenomenon and give some implications for social learning theory as well. Several new avenues for further research are provided.

5 Discussion and conclusions

The objective of this dissertation was to conduct an in-depth investigation of entrepreneurial opportunity development by applying a learning-based perspective. Based on the observed research gaps, this was done by focusing on the individual perspective and emphasizing the dynamics and contextual detail in the data collection and analysis. The article design (see Table 7), was planned to respond to the objectives of this dissertation. In the next chapter, I will discuss the main findings of these articles, which is followed by a reflection on theory. After this, I will present the practical implications and, finally, present the limitations of this study and suggestions for future research.

	Motivation for the study	Research question(s)	Indications for following articles
REVIEW	Investigate what we know about learning in rapidly internationalizing ventures	i) What do we know about learning in international new ventures? ii) How have learning theories been applied in research on early and rapid internationalization?	i) Limited knowledge of learning in rapidly internationalizing research (EMP3) ii) Found that individual and organizational competencies contributed learning (EMP1, EMP2, EMP3) iii) Found that learning is a dynamic phenomenon (EMP2, EMP3) iv) Found that contextual features affect learning (EMP1, EMP2, EMP3)
EMP1	Prior research: i) Need to study antecedents and the pre-launch period of INVs linked to entrepreneurial opportunity Systematic review: i) Indications that individual competencies and industry features are significant for opportunity development and are issues to learn	i) How do individuals discover opportunities during the pre-launch period?	i) (Prior) Knowhow and orientation of individuals contributed to opportunity discovery (EMP2, EMP3) ii) Opportunity discovery and development represented knowledge seeking behavior – especially customer related commercial and technological realization (EMP2, EMP3) iii) Differences in knowhow required for opportunity discovery and development (EMP3) iv) Entrepreneurial opportunity includes a longitudinal process (EMP2, EMP3) v) Context is essential in opportunity emergence and development (EMP2, EMP3)
EMP2	Prior research: i) Need to acknowledge and investigate dynamics and context features linked to entrepreneurial opportunity EMP1: i) Entrepreneurial opportunity development is longitudinal process and requires further investigation ii) Differences in knowhow (technological and commercial) is significant for entrepreneurial opportunity emergence and development	i) How do individuals perceive the opportunity development? ii) What are the features that contribute to entrepreneurial opportunity process and how they do it?	i) Opportunity development was a longitudinal process (EMP3) ii) In the center of the development process was individuals' realization of customer demand and contextual features (EMP3) iii) Initial insights that individual differences contributed significantly to entrepreneurial opportunity development (EMP3)

EMP3	<p>Prior research:</p> <ul style="list-style-type: none"> i) Lack of in-depth knowledge about entrepreneurial opportunity. Need to focus on individual perceptions ii) Apply learning-based perspective to increase our understanding about entrepreneurial opportunities <p>REV:</p> <ul style="list-style-type: none"> i) Limited knowledge about learning in INVs <p>EMP 1, EMP2:</p> <ul style="list-style-type: none"> i) Opportunity discovery and development represent knowledge-seeking behavior <p>EMP2:</p> <ul style="list-style-type: none"> i) Individual differences in knowhow seem to be essential for entrepreneurial opportunity development 	<ul style="list-style-type: none"> i) How and what do entrepreneurs learn during the observation period? ii) How learning process influences the entrepreneurial opportunity development? 	<ul style="list-style-type: none"> i) Learning process drives opportunity development (REW, EMP1, EMP2) ii) Learning process presented increased understanding of customer preferences and contextual features (EMP1, EMP2) iii) Interface between (individuals) technology and commercial knowhow affected how individuals perceived the potential and limitations of opportunity (EMP1, EMP2) iv) Entrepreneurial opportunity developed from conceptual idea into a concrete technological solution representing real life demand
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Table 7. Article design.

5.1 Findings from the systematic review

The objective of the systematic literature review was to investigate our knowledge of learning in INVs and how the topic has been studied so far. The aim here was also to provide topics for further study, both in theoretical and methodological terms, that could increase our understanding about the topic.

RQ 1. What is the current state/knowledge of learning in INVs?

Based on the article sample in the review, we discovered four main elements that contributed to learning in INVs: *competencies, dynamics, networks* and *environment*. In the first, competencies, we also found three subcategories contributing to learning: i) *orientation*, ii) *skills* and iii) *experience*. In the case of orientation, it was found that there were various individual and organizational level orientations that contributed to learning in INVs. Here, it was also found that learning does not happen automatically but requires conscious effort from firms. Additionally, the findings indicated that the level of learning was contradictory with internationalization. Firms were forced to balance between internationalization and learning. Based on the findings, there were also various individual and organizational level skills that supported learning. Finally, we found that experience was a feature significant for learning. However, the findings of the article sample were contradictory on whether the experience was useful for learning.

The second main element was the dynamics, where the timing of internationalization was emphasized in relation to learning. However, the findings of the articles were contradictory on whether rapid internationalization supported learning. Nevertheless, here, it was discovered that internationalization itself was regarded as a long-term learning process, where learning priorities change over time. However, once again, the studies were contradictory. The articles disagreed on whether the prior experience supported learning at the beginning of internationalization or not. Additionally, in connection with dynamics, we found that the misfortune was linked to learning in INVs.

The findings showed that these firms learn by doing, including the possibility of mistakes. Finally, the findings linked to dynamics emphasized the multidimensionality of learning. Learning seemed to be realized at the individual, group and organizational levels in INVs.

The third element that was found to influence learning in INVs was networks. Based on the systematic review, several stakeholders were found to promote learning in INVs. Additionally, these findings revealed what type of information was obtained from different networks.

The last element was the environment, which, based on the findings, seemed to influence learning in many instances. Overall, the findings suggest that the commitment to international operations increased the breadth and speed of learning. However, here, the findings indicate that internationalization does not advance learning endlessly. Moreover, findings indicate that internationalization and learning, both bind the resources of INVs. Hence, these ventures need to make decision on which one to invest in. Additionally, findings indicate that the environment in which these ventures operate, and venture's own characteristics affect learning. Firstly, the findings indicate that the countries of origin and target countries offer different conditions for learning. Secondly, the competition faced in international markets seemed to have an impact on learning. However, here, the findings showed that uncertainty and competition intensity increase learning efforts at INVs. Thirdly, the findings provided a slight indication that the venture's own characteristics affected learning. Here, the findings indicate that the cultural diversity of INV promotes learning, but only to a certain point, after which the risk of conflict increases.

RQ 2. What are the avenues for future research of learning in INVs?

In the next phase of the systematic review, we reflected on the findings on organization learning theory by March (1991). The objective was to get an overview of the state of current research and to raise topics for future research that could increase our understanding about learning in INVs. Here, three categories emerged reflecting March's (1991) theory: the *competencies*, the *dynamics* and *environmental features*.

In terms of competencies, the entrepreneurial aspect of learning seems to be a central feature that requires additional research. This was a perspective that did not arise from our findings or the theory of March (1991). Thus, it would be necessary to address this topic in future research. Additionally, research findings differed in relation to exploitative and explorative learning (March, 1991). Contrary to what March (1991) suggests, the findings did not emphasize financial return as a motivation for learning, but rather the relationship between internationalization and learning. The findings indicated that the tolerance of uncertainty and the role of risk and failure are features that require further research.

In dynamics, the findings strongly indicate that learning is a long-term process in which priorities change constantly. As mentioned earlier, the articles seemed to fall into two

groups, which learning strategy (*explorative or exploitative*) is more useful at the beginning of international operations. Nevertheless, this is a topic that warrants for further research. Here, March's (1991) theory provides a noteworthy insight. According to March (1991), the environmental turbulence significantly affects the learning possibilities of a firm. This is a perspective that could be acknowledged in future research. Additionally, the role of misfortune, which was missing from March's (1991) theory, could be taken into account in future research.

The last category related to the environment. Here, the most central environmental element that influenced learning in INVs was internationalization. This perspective was missing from March's (1991) theory, but this is not a key focus in his theory either. Nevertheless, the effect of the international environment needs to be further investigated in relation to learning in INVs. Based on the findings, environmental features relevant to further research are the following. Firstly, we should investigate how the scope of internationalization affects learning. Here, we should study how the intensity of competition affects learning. The findings indicate that increased competition pushes INVs to learn. Thus, this could be a significant topic for future research.

Finally, the findings of the systematic review also raised methodological issues that could be taken into account in future research. The need for longitudinal studies, the application of hermeneutic time perspective and the use of narrative analysis were emphasized. Additionally, based on the findings, it seems that we should emphasize the individual level of analysis in the future research. Overall, we concluded that other learning theories should be applied in future research. This could be done, for example, by applying a social learning theory or entrepreneurial learning, which represented only a fraction of the studies in the article sample. These could enable us to detect, for example, the non-economic motives for learning and increase our understanding about learning at individual and group level in INVs.

5.2 Findings from empirical articles

In relation to empirical research, this dissertation sought to answer two research questions: i) how do individuals of an INV operating in a telecommunication industry develop entrepreneurial opportunities and learn and ii) *How does learning contribute to entrepreneurial opportunity development*. These research questions are answered in the following paragraphs.

RQ 1. How do individuals of an INV operating in a telecommunication industry develop entrepreneurial opportunities and learn?

In relation to the first research question "*How do individuals of an INV operating in a telecommunication industry develop entrepreneurial opportunities and learn?*", this study found that individuals actively sought to find out how entrepreneurial opportunities met market demand. A key element in the emergence and development of entrepreneurial opportunity was the entrepreneurial orientation of the individuals, which led them to seek

new solutions. Additionally, this required professional skills with a particular emphasis on combining technological and commercial knowhow. Understanding contextual features was also significant in order to develop the opportunity to meet actual demand. However, this was challenging because the groundbreaking technological solution, the industry and the market development formed a dynamic entity. This meant that individuals had to actively seek to understand the demand and the features that affected it. This required technological and commercial understanding that emphasized the individuals' areas of expertise. Here, it was found that interpersonal learning was a key activity that guided decision-making and, thereby, the development of entrepreneurial opportunity. More about the impact of the learning process will be dealt with in the next research question. But, before that, I will go into more detail about the development of innovation and its related findings.

Based on the findings, it seems that understanding customers' need was central to the emergence and development of entrepreneurial opportunity. This was already apparent at the beginning of the activities during the pre-launch period, as the first prototype was designed to solve a customer-related challenge. Additionally, when the firm was established, individuals began to interact more with the market and customers, which enabled them to understand the need and requirements of potential customers. The findings indicate that there are two elements involved in the learning process. Firstly, this required understanding of the technological need. Individuals had to discover what technological challenges potential customers had and how the opportunity was able to solve those problems. For example, the sport broadcasting and IPTV solutions were based on observations of how the customer's technological problem could be solved through the opportunity-related technology. Secondly, this required understanding about the commercial potential for the customer. The solution had to provide enough sales for the customer to make it desirable for them. For example, the broadcasting solution was too marginal business for teleoperators. The IPTV-solution, on the other hand, surpassed the threshold, as more than half of teleoperator's consumer customers could use it. These technological and commercial dimensions were the two most significant features in the learning process and understanding about them grew during the observation period.

Consequently, individuals valued customer-based knowledge and interaction with them. They especially valued customers who were ready to cooperate with them, as this provided a possibility for learning more about their demand. This was crucial for the development of entrepreneurial opportunity. Hence, due to this collaboration, individuals were able to realize greater depth which features affected customer demand. In the case of teleoperators, this reflected, in particular, their corporate structure. Thus, the case company first had to demonstrate to the "*business owner*" how the opportunity contributed to its business, and then had to convince the R&D department that this was technologically functional. While doing so, the team began to gain in-depth understanding of the commercial potential and technological functionality of the opportunity. In a commercial sense, individuals understood to an increasing degree how opportunity could generate revenue on the customer's sales channel. In a technological sense, they began to understand to an increasing degree what technological requirements

the customer had in relation to the opportunity. However, even though customer negotiations were perceived as significant for opportunity development, these were anything but straightforward. Based on the findings, it seemed that customer demand was like a windbreak that was constantly changing direction. This was influenced by the customers' internal organizational structure and their own perceptions on how 5G technology must be used. This also highlighted WTC's own role, which in practice meant that they had to deliver exactly the solution that customers wanted, although they often felt that this did not match their original idea.

Understanding the contextual features was also central to the learning process. Firstly, this increased individuals' understanding about the customer need. Here, the findings indicate that the most central features in the telecommunication sector are the governmental-level initiatives and legislation. Individuals did not perceive that these would have a direct impact on entrepreneurial opportunity, but these had to be acknowledged, as they drove customer demand. These were considered to have positive and negative effects on the implementation of new technology and, through that, the demand in the industry. In a positive sense, both the North American PS segment and Baltic IPTV solution came into existence through government or EU-level initiatives which required actors in the telecommunication industry to provide certain services. In a negative sense, legislation set limitations on what could be implemented in the industry. In practice, this set limits on what type of products or services could be provided in the industry and thus indirectly limited the development of entrepreneurial opportunity. In this case, it seemed that potential customers, especially teleoperators, interpreted regulation very strictly, because they did not want to endanger their business by breaking the law. A good example of this was the Central European IPTV project, which was terminated by the customer, as it was perceived as legally too vague.

Overall, the development of the telecommunications industry was in constant turmoil. All teleoperators seemed to draw their own picture of what features the 5G technology will include. However, while these predictions were radical at a conceptual level, teleoperators were ready to implement only very limited solutions. Based on the findings, it seemed that the following features played a key role in the development and demand in the telecommunication industry. Firstly, operators seemed to be more oriented towards securing their own market positions rather than offering new technological solutions for fear of loss. As mentioned, this was a cat-and-mouse game where the teleoperators seemed to be waiting for someone to take the first real step towards creating a 5G network. This of course limited the demand in the industry and thereby limited WTC's ability to commercialize the opportunity. Secondly, it seemed that the teleoperators were not entirely sure what features the 5G technology was about to include. Thus, operators were constantly trying different solutions to get a better idea of the potential of the technology. This, in turn, made WTC think that they had to constantly adjust their opportunity. Thirdly, teleoperators did not want to risk their business for fear of sanctions or to invest in legal action to implement the new technology. Thus, although the regulation did not directly affect WTC's operations, it reflected market demand and, in turn, their ability to commercialize the opportunity.

However, the case company or entrepreneurial opportunity cannot be excluded from the context. They also had significant impact on the development of the opportunity, which individuals increasingly began to understand. The groundbreaking nature of the opportunity and the associated competitive advantage were emphasized in this case. With the groundbreaking innovation, the team sought to generate more demand in the industry. Though this required them to understand exactly what the customer requirements and limitations were before they were ready to implement new technology. Here, individuals were trying to figure out which segment offered the most likely breakthrough. However, at the same time, individuals understood that if such a breakthrough was made, they would have to be the first ones to implement the technology. Otherwise they would lose their main competitive advantage, the first-mover advantage. Thus, the characteristics of the opportunity set specific requirements that individuals had to be aware of. Secondly, the nature of the case company influenced the development of entrepreneurial opportunity. This seemed to be related in particular to the creditability of the case company. The findings indicate that a small startup had limited chances of getting large corporations to implement new technology. This, in turn, directly influenced technological development and learning. The reason was that the opportunity could only be developed properly when testing it with a customer in a real-life network. Overall, the development of groundbreaking technology and emerging industry was an extremely dynamic combination. This required the team to continuously monitor the turbulent development in the telecommunication industry and evaluate whether their solutions were in line with 5G technology and, if necessary, make significant changes to the opportunity in a timely manner.

When we look at collective learning, the findings highlight differences in competencies between individuals. Hence, although, all interviewees were engineers by training, they had their own strengths in terms of knowhow. Thus, everyone seemed to perceive opportunity from a personal perspective. Here, a social learning process was observed, in which individual differences were emphasized. These differences had significant impact on the way the opportunity's potential and limitations were perceived. Based on the findings, the customer-technology interface was emphasized. Those individuals who negotiated with customers were seeking new openings in the market and were interested to develop the opportunity from the customer's perspective. Those working in technological development, in turn, sought to understand how the opportunity could be developed to meet this identified customer need. While doing so, they began to understand the technological challenges and overall degree of difficulty of the opportunity. They understood how challenging the technology really was, and what possibilities the case company had to implement the solutions. Overall, the findings indicate that one side was building conceptual level ideas with the emphasis on the customer's point of view, while the other side strove to understand whether this was technologically feasible. This was also the most significant difference between individuals, creating information gaps between them and thereby restraining the learning process.

Thus, the personal differences also emphasized the dynamics of the phenomenon. In other words, the differences in viewpoints seemed, in some cases, to cause personal contradictions that limited the interaction between certain individuals. This in turn had a significant impact on the development of the opportunity as it created information gaps, especially between sales and technological development. Nevertheless, in light of the findings, it can be stated that the diversity of the entrepreneurial team contributed significantly to the discovery and subsequent development of the opportunity. The diversity allowed for two different perspectives, the importance of which was understood by all individuals. The benefits of diversity was evident in the development of the opportunity into more accurate applications that reflected the combination of technological and commercial understanding. Thus, the diversity of the entrepreneurial team can be considered one of the key elements in the entrepreneurial opportunity process.

RQ 2. How does learning contribute to entrepreneurial opportunity development?

With regard to the second research question “*How does learning contribute to entrepreneurial opportunity development?*”, this study found that interpersonal learning had a significant impact on the development of entrepreneurial opportunity. The effect of this increased understanding seemed to be twofold: it led to the discoveries of new segments and to the more specific use of different solutions. More on this will be discussed below.

Overall, the findings showed that the learning process contributed to entrepreneurial opportunity in such a way that individuals began to gain in-depth understanding about its possibilities and requirements. The most visible effect was the various “*verticals*” or segments that were generated during the observation period. It seems that the purpose of these segments was to create customer-specific product lines from entrepreneurial opportunity. Thus, the opportunity was increasingly mirrored from the perspective of potential customers, which enabled the team to understand what commercial and technological benefits that opportunity could provide for the customer. Consequently, individuals began to understand what real-life applications the opportunity had. This was evident at the end of the observation period, when discussion with the potential customers included negotiations on much more specific technological solutions than initially. This also worked in the other direction. The team began to understand their own earning logic and the technological requirements of implementing the new technology.

Thus, based on the findings, it seems that learning is linked to the development of entrepreneurial opportunity. Overall, this is a dynamic process that steers the direction of opportunity development and refines its focus to meet real-life demand. The findings indicate that individuals perceived this as a platform type of development, where different segments represented the productization of the opportunity. Individuals did not perceive that the main idea of the opportunity had ever changed, but that these segments were limited solutions of it to serve certain customer groups. Thus, these solutions were the most concrete way to demonstrate the commercial and technological benefits of the

opportunity for the customer. This learning process, in turn, can be considered to have significantly concretized the opportunity

Although findings suggest that entrepreneurial opportunities made significant progress during the observation period, the findings also indicate that it was difficult for individuals to follow their own progress. Often, the only way to detect change was to compare the past to the present and evaluate how far they had progressed. Additionally, since the opportunity represented groundbreaking technology with no actual customer base, it was difficult for individuals to assess whether the innovation met future demand or not. As a result, decisions had to be made amid continuing uncertainty, which emphasized the dynamics of lived reality. This, in turn, emphasized the importance of learning, as individuals were actively required to learn new ways to develop the opportunity.

5.3 Theoretical contributions

This study seeks to increase our understanding of the entrepreneurial opportunity phenomenon by providing in-depth (Mainela et al., 2014) and strongly empirical findings (George et al., 2016). This is generally done by focusing on individuals' perceptions (Dimov 2007; 2011). In so doing, the aim was to create an in-depth description that emphasized the micro-foundations of entrepreneurial action (Shepherd, 2015) and daily practices, exchanges and joint acts linked to entrepreneurial opportunity (Mainela et al., 2014). For this purpose, a learning-based perspective was applied, which is suggested to help us investigate the cognitive-based interpretations of market gaps and the creativity of the entrepreneur (Mainela et al., 2014). More precisely, this dissertation applied a social learning theory, which allows us to observe the social process (Yeoh, 2004) and non-economic motives of learning (Kauppinen & Juho, 2012). The overall objective was to emphasize the entrepreneurial side (see systematic review) and individual and collective level learning over the performance aspect that is the central focus of OL theory (Engeström & Sannino, 2010) that previously dominated research (see systematic review). By providing these in-depth insights, this research seeks to promote two major cornerstones in the opportunity-related research. The first one of these is dynamics (Reuber et al., 2017). I am answering this by providing insights throughout the life cycle of entrepreneurial opportunity, from its emergence to the end of the observation period of this study. The second significant feature for increasing our knowledge about opportunity phenomenon is the accurate contextual description (Reuber et al., 2017). I strive to respond to this research gap by providing the most accurate description of the external features that influenced entrepreneurial opportunity from the perspective of individuals.

5.3.1 Contribution to opportunity-related research

The first theoretical topic addressed in this dissertation is the ontological discussion of the discovery and creation perspectives of entrepreneurial opportunity (George et al.,

2016; Ramoglou & Tsang, 2016; Suddaby et al., 2015). In summary, according to the findings, it seems that these are not mutually exclusive aspects. The findings show that individuals have almost endless opportunities to discover in their environment, but discovery requires their imagination and knowhow. With this finding, this dissertation adopts the complementary perspective (Renko et al., 2012) on this matter. Accordingly, it is thought that potential opportunities exist in an objective environment, but they require the subjective perception of individuals in order to be discovered.

Secondly, this dissertation contributes to the theory by providing an accurate description of how individuals perceive opportunities in the environment. The findings suggest that opportunities arise and develop through the interaction between individual and the environment (Dimov, 2011). More specifically, the findings support the idea that the environment provides the information or stimuli, which is activated by individual's perception that something is possible (Dimov, 2011). Additionally, according to the findings, this represents profit-seeking behavior, where individuals seek benefits by responding to market demand (Ramoglou & Tsang, 2016) and/or environmental change (Grégoire et al., 2010). Both these issues emerged in this study. Meeting market demand and understanding the changes in the technological environment in the industry were central to opportunity emergence and development. Here, the importance of innovation was emphasized. These efforts particularly materialized in the form of technological solutions. Thus, these findings support the view that the innovation aspect is a significant perspective for the field of IE (Coviello & Tanev 2017) and INV-related research (Hewerdine & Welch, 2013). The findings of this dissertation help to understand why. Based on the findings, innovation is a central element for an INV, and its characteristics have a significant impact on the activities in the firm. In this case, individuals were seeking to implement groundbreaking technology to create demand in the market. Here, the first mover advantage was thought of as the central competitive advantage. Thus, this study reinforces the suspicion that product characteristics can be a feature that affects learning and internationalization of international SMEs (Pellegrino & McNaughton, 2017). This finding also helps to broaden our perspective on context in relation to opportunity (Reuber et al., 2017): a product or service can contain a great deal of complexity, such as the level of technology that emerged in this study that can significantly affect entrepreneurial opportunity and its conditions.

Thirdly, this study opened up the perspective of individuals (Dimov 2007; 2011) in relation to the emergence and development of entrepreneurial opportunity. According to the findings, the most significant attribute of the individuals was the entrepreneurial orientation that drove them to seek and develop new innovations during the observation period. This observation is in line with the SO literature (Hakala, 2011; Kickul & Gundry, 2002; Odorici & Presutti, 2013), but it is hoped that this encourages researchers to also acknowledge this as an individual-level attribute. However, the most significant process for entrepreneurial opportunity was how individuals understood the external requirements associated with this. These findings support the notion that individual perception (Dimov 2007; 2011) and activities shaping it (Shepherd, 2015) are central elements in the emergence and development of entrepreneurial opportunity. Here, the findings indicate

that this included a learning process. Hence, this research supports the notion that opportunity discovery represents information-seeking behavior (Kuckertz et al., 2017). The findings aid understanding, as requested (Mainela et al., 2014), of how individuals combine types of information to form a knowledge structure for the basis of (international) opportunity. Based on the findings, the key element was the realization of the customer need from commercial and technological perspectives. Additionally, here, individuals began to understand other contextual features that influenced customer demand. The most notable of these were government-level initiatives and legislation, which had a significant impact on the demand in the telecommunication industry. This finding is significant for understanding the specifics of the telecommunication industry and how it affects entrepreneurial opportunity. This provides new insights into how context can influence entrepreneurial opportunity (Reuber et al., 2017).

Fourth, if we look at the findings of this research, the starting point for opportunity discovery is rooted in the response to perceived market demand (Eckhardt & Shane, 2003; Ramoglou & Tsang, 2016; Renko et al., 2012). Additionally, the findings support the suggestion (Siegel & Renko, 2012) that even though technological understanding is required, that alone is not enough for opportunities to be discovered. Thus, entrepreneurs need to understand customers and markets as well (Siegel & Renko, 2012). Here, this study tackles the question about the different elements in opportunity phenomenon (Hansen, et al., 2011). In this case, the single most important outside element that individuals need to understand market demand is the customer and its needs. This is not to say that this is always the case or that other elements mentioned (Hansen, et al., 2011) would be any less significant. However, in this case, where the case company was looking for a breakthrough and its first remarkable sale, the opportunity was adjusted largely based on the feedback from its potential customers. Thus, the findings indicate that opportunities were viewed more for the customer's need than for firm's own financial gain. Moreover, this study contributes this element by confirming the doubt (Lehto, 2015) that (international) opportunities change and this the change links to the customer and the development of customer relationships. Here, this study provides an in-depth description of how customer interaction leads to situations where new opportunities were discovered and how opportunities were modified based on the customer feedback. While doing so, this study helps improve our understanding about those "daily" acts that are linked to international opportunity creation (Mainela et al., 2014) by illustrating that understanding customer needs through customer interaction and is a key element for opportunity discovery and its subsequent development. Moreover, the findings indicate that customer interaction went beyond surveys and such (Oyson & Whittaker, 2015) as opportunities were modified in a much closer interaction with potential customers.

Fifth, the findings indicate that opportunity discovery and development were bound closely to the context where the case firm was situated. Thus, there are several in-depth insights into how different dimensions of context (Reuber et al., 2017) can affect the discovery and development of entrepreneurial opportunity. In relation to the institutional characteristics of context (Reuber et al., 2017), this study confirms that industry (Coviello & Tanev, 2017; Stayton & Mangematin, 2016) and product or market characteristics

(Pellegrino & McNaughton, 2017) can have a significant impact on the activities of firms. In addition, this study increases our knowledge by demonstrating that industry, product and market characteristics do not affect only internationalization but are also strongly linked to entrepreneurial opportunity and its development. Moreover, it was discovered that industries can set boundaries for discovering and developing entrepreneurial opportunities. More precisely, much like the medical technology sector (Mikhailova & Olsen, 2016), regulation and legislation within the telecommunication industry set limits to the use of technology and thereby to customer demand. Additionally, the nature of technology used by WTC was central to the conditions and development of entrepreneurial opportunity. In other words, individuals were trying to make a breakthrough in the market by introducing groundbreaking technology. This is in line with the insight that the competitive advantage of high-technology oriented ventures is in the way they seek to find solutions that ride on the wave of technological change (Jolly, et al., 1992). Thus, this study confirms that innovation is a significant aspect in the field of IE (Coviello & Tanev 2017) and because this study focused on this perspective, the findings contribute to the theory of this discipline.

In relation to the temporal dimensions of time (Reuber et al., 2017), the findings link especially to the discussion of what is the role of domestic market in the discovery and pursuit of opportunities (Chorev & Anderson, 2006). Here, this study supports the insight that domestic market can influence how entrepreneurial opportunity is exploited. However, the effect is not so unambiguous that small markets force firms to seek growth outside their home country (Chorev & Anderson, 2006). The findings in this study indicate that the pursuit of new technological solutions was driven more by opportunity than necessity. This corresponds well to the statistical picture of Finnish entrepreneurship (Suomalainen et al., 2015). Moreover, we need to acknowledge that every country has its own special features that can positively or negatively influence entrepreneurship. In this case, for example, the economic downturn that Finland faced in the late 2000s had far-reaching effects on individuals' independent pursuit of entrepreneurial opportunity and the demand of potential customers later in the life cycle of the firm. However, the entrepreneurial activity and international growth aspirations demonstrated by the case company and its individuals cannot be generalized in the Finnish context. This is because Finland has relatively low levels of entrepreneurial activity and aspirations towards for growth and internationalization despite all the efforts made to support entrepreneurship (Suomalainen et al., 2015).

Additionally, the findings revealed several contextual events that influenced entrepreneurial opportunity. The effects of institutional level events (Reuber et al., 2017) are as follows. For example, the downfall of the parent company was a key event that sparked the entrepreneurial activities of individuals; this provided an opportunity to continue developing technology independently in the spin-off company. Moreover, the regulation and legislation that were bound to the telecommunication industry can be considered significant drivers of the market demand that in turn had a significant impact on the emergence and development of entrepreneurial opportunity. This was visible, for

example, in the case of IPTV segment, which was created and later on shut down for how customers perceived regulation. Moreover, the start of the PS segment can be traced to a government level initiative in northern America. Examples of firm level events (Reuber et al., 2017) seem to reflect, especially, on the composition of the case company. For example, hiring Terence and Tommie can be considered to contribute to opportunity development in a sense that these instances provided valuable insights into the customer demand and commercial utility of the technology. The individual level events (Reuber et al., 2017) were, for example, when Mike and Sam gatecrashed an evening gathering arranged by the mother company and met again after many years or when Terence went on a ski trip when his friend mentioned that WTC was looking for a sales executive.

Sixth, it was found that individuals do not act independently, but they engage in social and problem-solving behavior together when developing innovative solutions (Gemmel et al., 2012). Thus, in this study it was observed that individuals were working together to create solutions that respond to market demand. However, here, it was found that their viewpoints differed significantly. This difference especially reflected people's knowhow and, consequently, their position in the opportunity development process. In this case, the customer-technology interface was particularly emphasized. One side was more aware of the customer need, in order to map new avenues for the opportunity. The other side, in turn, was more aware of the technological possibilities for meeting this perceived demand. This finding aids understanding of how the dispersion of knowledge (Dew, et al., 2004) and learning asymmetries (Corbett, 2005) affect opportunity. In this case, the most significant difference was the standoff between technological implementation of the opportunity and conceptual ideation based on the customer need. It is hoped that these findings related to the entrepreneurial team (Forbes et al., 2006) and its composition (Jin et al., 2017) in the context of entrepreneurial opportunity will draw conclusions that will help promote the theory of entrepreneurship. Here, the findings indicate that team diversity particularly is a key element in the discovery and development of entrepreneurial opportunities because of the professional background.

Finally, this dissertation found that entrepreneurial opportunity is a longitudinal and dynamic phenomenon. This part of the findings addresses a very significant research gap, the dynamics of the opportunity (Reuber et al., 2017). Overall, the findings support the notion that entrepreneurial opportunities are actively evaluated and modified (Dimov, 2007; McCann & Vroom, 2015; Renko et al., 2012; Reuber et al., 2017; Shepherd, 2015). As already mentioned, this study found that the most significant feature here was the learning process that steered the opportunity development throughout the observation period. Additionally, this dissertation research help to understand how this influenced the development of entrepreneurial opportunity. Overall, the findings support the notion that this includes continuous development of "*raw ideas*" (Dimov, 2007), transformation from potential into actual (Oyson & Whittaker, 2015) and development into a social/market proposition (Chell, 2013). Based on the findings, a similar development was observed, as the application of the opportunity was refined and segmented to meet the needs of different customer groups. Lastly, the findings provide empirical insights into how the conversion of knowledge occurs (Zahra, 2008). This study demonstrated that

horizontal and vertical conversions are the result of a social learning process that seeks to understand how opportunity meets market requirements.

5.3.2 Contribution to learning literature

The theoretical contribution in relation to learning in INVs and learning theories is as follows. Firstly, findings provide insights about the LAN. In principle, the findings support the notion that LAN is one of the key characteristics and competitive advantages of an INV (Autio, et al., 2000). However, in light of the findings, it seems to be a much more complex phenomenon than how information transforms in an organization and how that information is exploited to support internationalization. Based on the findings, it is a dynamic learning process in which individuals seek to understand the preconditions of opportunity and develop it further. Additionally, the findings emphasized the differences in knowhow between individuals, which significantly affected the learning process. Thus, the findings indicate that opportunity is the key element in the learning process, and also the key success factor for an INV in its early stages. However, this does not mean that information flow and internationalization are not significant part of learning and doing business for INVs, but these may become more relevant after the initial breakthrough or when an organization reaches a certain size.

The contextual findings of this dissertation also provide insights for LAN, which is a significant aspect which Zahra et al. (2018) discuss in their article. In this case, the significance of industry seemed to be emphasized, namely, that understanding the implementation of new technology in the telecommunication industry was a significant part of the learning process. Thus, the findings support the proposition that growing, and through this, dynamic industries may provide more learning opportunities than others. If we observe the case firm itself, the findings of the dissertation increase our understanding about how political conflicts and decentralization affect learning in an INV (Zahra, 2018). Unlike in Zahra (2018), political conflicts did not reflect a power struggle in this case. Rather, the friction between individuals was formed through their areas of expertise and duties and, through this, how the potential of opportunity was perceived. Additionally, it was observed that although there were only three key (decision-making) individuals in the case company, there were challenges in information sharing. Thus, the size of the organization or established routines may not be sufficient to explain LAN, at least profoundly.

Additionally, findings provide insights into how individuals learn, which is a perspective requested in the field of IE (De Clercq et al., 2012). The findings showed that individuals increased their knowledge base by constantly observing their environment, as suggested by Bandura (1997) in his theory about social learning. The personal self-regulation (Bandura, 1991) seemed to play a role in how this information was absorbed. Here, findings help to understand how this is realized in real-life. As already mentioned, the individuals' knowhow was the most significant feature how they perceived the opportunity. Here, the findings indicate that the self-regulation was linked to this knowhow. Previous experience and expertise of the individuals determined from which

perspective opportunity was assessed, and this also determined the angle at which individuals sought to obtain more information.

The last addition to social learning theory is related to expansive learning (Engeström & Sannino, 2010). Overall, the findings support the idea that this is a cyclical process, where how learning transforms from the individual level into collectives is central. This has been studied once before (Kauppinen & Juho, 2012), with the finding that the social learning process was linked to the internationalization of a SME. In this dissertation similar activities were also observed in the social learning process. In this case, similarities reflect individuals' aspirations as a source of opportunity and its subsequent development. Mirroring customer needs, interpersonal collaboration and the encountering of interdisciplinary knowhow were significant for the opportunity development. However, in this case, opportunity was the most significant feature in the learning process. Hence, this study raised a new "*by-product*" (Kauppinen & Juho, 2012) of social learning that can be investigated in future. Overall, I hope that these findings will encourage researchers to apply social learning theory when investigating entrepreneurial opportunity in the future, because we are just at the very beginning of this. Nevertheless, these preliminary results look very promising for the advancement of the entrepreneurial opportunity phenomenon.

5.4 Practical implications

This study sought to provide practical implications that entrepreneurs can learn about to promote their own business and help to improve the conditions for SME entrepreneurship. The findings indicate that context, in addition to entrepreneurial opportunity (Reuber et al., 2017), has a significant impact on the creation of entrepreneurship. In this case, the emergence of the case company can be linked to the decline in the parent corporation's competitiveness that provided an opportunity for the former to pursue technology independently. For novice entrepreneurs or those planning entrepreneurship, the findings encourage individuals to plan for entrepreneurship in the long term and consider alternative ways to start a business. In this case, the individuals continued to work with the innovation they had developed during their employment by establishing a spin-off company where their employer was the main funder. The findings direct individuals to think of entrepreneurship from this perspective, which may provide several benefits over ordinary entrepreneurship. Here, for example, it may be much easier to obtain financing than in the case of seeking it from an external funder.

This study unlocks the dynamic nature of entrepreneurial opportunity (Reuber et al., 2017) and supports the notion that opportunity development is a continuous process of evaluation and modification (Dimov, 2007; McCann & Vroom, 2015; Renko et al., 2012; Reuber et al., 2017; Shepherd, 2015). Based on the findings, it seems that entrepreneurs need to be prepared to make (sometimes significant) changes in innovation according to the customers' needs. More precisely, entrepreneurs should themselves understand and show customers the technological utility and commercial value of the innovation.

Entrepreneurs should also closely monitor events in their environment. In this case, especially the regulation in telecommunication industry had a significant impact on the customer demand. Thus, individuals had to be aware of the conditions imposed by the regulation, even though this did not concern them directly.

This study responded to a request to open up a cognitive perspective on how individuals interpret market gaps based on their creativity (Mainela et al., 2014). While doing so, this study provided practical implications as well. By observing the learning process, the key areas of development of the case company were identified. In this case, the commercialization of technology especially was an area that individuals found difficult to implement and this was also the area where more support was sought. Thus, this is an area that could be supported more in the context of growth entrepreneurship. Additionally, by following the learning process, it became clear that individuals had difficulty mapping their own progress amidst all the uncertainty. In this study, it was found that the outside perspective especially was something that entrepreneurs found important when evaluating their own activities. Thus, this is something that, for example, future graduate students should consider in similar research.

When looking at interpersonal work skills in the target company, the encounter between different knowhow (Corbett, 2005; Dew, et al., 2004) was seen to play an important role in the development of innovation. However, this factor does not automatically lead to the discovery of innovation or promote its development. Entrepreneurs and other key individuals must actively share their ideas and opinions with each other. In this case, the difference between the customer and technological interfaces in particular seemed to pose challenges for innovation development. More specifically, one side built a conceptual image based on the customer need and the other sought to develop the technological platform accordingly. However, entrepreneurs should ensure that the difference between the conceptual visualization and the technological degree of readiness does not become too large, so that the solution can be delivered to the customer within a reasonable time.

Additionally, these findings provide insights that could be useful when constructing an entrepreneurial team. The first element that should be noted here is the professional diversity of the team. Here, the reconciliation of technological and commercial perspectives especially seems essential in developing entrepreneurial opportunities that meet the requirements of real life. This is something that should be considered when forming an entrepreneurial team. Secondly, the findings of this study indicate that an interpersonal communication and collaboration within the team should be guaranteed. This seems to be essential when hiring a new member in the team or when the intensity of entrepreneurial activities increase. The main schism relates, based on the findings of this study, to the opposites of technology development and customer interaction. However, it is important that everyone understands, at least to some extent, the connection between technology and its commercialization. The reason is that it provides a more comprehensive picture of the potential of the opportunity to all. If this element is missing, it may cause personal confrontations and in turn hinder the development of products or services.

This study also had some implications for innovation development in MNEs. Overall, it seems that MNEs are able to develop new innovations by supporting the entrepreneurial way of working. Based on the findings, it would appear that the context (Reuber et al., 2017) also plays a significant role here, as the MNE was able to create a supportive environment and take advantage of various events, such as the innovation competition, which enabled the emergence of a new innovation. In this case, individuals created a whole new line of business as part of an independent project. However, with certain functions, the exact opposite can be achieved. For example, the shutdown of functions and cuts may hamper the development of new products and services. Cuts and layoffs can lead to a situation where no one readily takes the risk of implementing new products because people fear losing their jobs. Thus, cuts, at their worst, can exacerbate the financial spiral of the corporation.

Finally, the study provided some insights that can be used to support entrepreneurship at the government level. First, the findings indicated that the government-level actors have a significant role to play in the implementation of new technology, either directly by implementing various institutional level events or indirectly by supporting institutional characteristics (Reuber et al., 2017). Here, for example, the European Union's proposal to implement new technology in the telecommunication sector was one of the features that led to the emergence of the initial innovation. Moreover, policy makers can create demand by demanding technological reforms. In this study, two separate events where this occurred were observed. The first was the emergence of the PS segment in North America where the government demanded prioritized network solution for high-priority users. The second was the emergence of IPTV segment in Europe where European-Union level regulation created new demand by mandating that teleoperators provide IPTV services for mobile network customers. However, the EU and government actions can also influence the introduction of new technologies in the opposite direction. According to the findings, regulation in particular has a significant impact, which was highlighted in the telecommunication sector. More specifically, the teleoperators interpreted the legislation strictly and were not willing to implement anything that would contradict that. Thus, it seems that much more active discussion is needed to keep the legislation in line with technological development, which would appear to follow a cycle of five years in this industry. This means that the regulator could be more active in monitoring developments in the telecommunication industry and encourage the implementation of new technologies.

Second, in this study, it was found that the financial support provided by the government did not fully match the need of the company in question. More specifically, the company in this case study did not need resources for product development, but rather for promoting its business, namely sales. However, most of the government-based funding had to be allocated on technological development, at least here in Finland. Thus, in the context of government support for high-tech SMEs, funding could also be provided to support their sales activities.

Third, as far as the context is concerned, it does not seem possible to respond to all setbacks or challenges, at least not in the short term. An example of this, in the Finnish context, is the small market size (Mäki-Fränki & Vilmi, 2016) and delayed economic recovery (Suomalainen et al., 2015). Even more significantly for this study is that entrepreneurial activity in Finland is relatively low, although in the light of statistics, we have a good starting point for this (Suomalainen et al., 2015). Here, the significant observation is that entrepreneurship in Finland is driven especially by opportunity (Suomalainen et al., 2015) and thus this should be the element to be noticed in activities supportive of entrepreneurship. Statistics show that more Finns perceive opportunities than the EU average, but less than that of the Swedish (Suomalainen et al., 2015). Thus, there is room for improvement. In the case of Finland, highly educated people could be the spearhead, as this segment has the highest perception of opportunity (Suomalainen et al., 2015, p. 16) and is more prone to early stage entrepreneurship (Suomalainen et al., 2015, p. 35). However, while many of them report perceiving opportunities and possessing entrepreneurial skills, their actual entrepreneurial activity is low (Suomalainen et al., 2015, p. 5). Although this study does not provide a direct answer to the rise in entrepreneurial activity, the findings highlight few issues that may, at least in part, help to solve the problem. These are education and age. In other words, all the key people in the case company were highly educated and had years of work experience before becoming an entrepreneur. This observation is also supported by context: entrepreneurship activity is the highest among the 35-44 age group (Suomalainen et al., 2015, p. 4), to which category the people in this study fall. Thus, in Finland, we should consider whether we should focus support on entrepreneurship in the segment which has the highest change of realization. This does not mean that entrepreneurship cannot be taught in universities, but based on statistics and the findings of this study, support activities are the most effective when they are directed at highly educated individuals with several years of work experience in the industry.

5.5 Limitations

Certain limitations of this dissertation could be considered. First, in connection with the findings, over-generalization should be avoided, as this was a single-case study. Here, for example, in the relation to the context, it can be assumed that different countries and industries may have different prerequisites for entrepreneurial opportunity. However, generalization was not the purpose of this dissertation. The purpose was to provide new insights on theory-building based on accurate findings that can be applied as a basis for future research, which will be discussed in the next chapter.

There was another limitation linked to the research material. First, the material collected was only on individuals from the case study company. Thus, the perspective of this dissertation remains limited to this. For instance, findings do not reveal how funders and partners perceived opportunity development, which could provide further insights into the conditions under which opportunity was developed. Second, only part of the findings was based on real-time observations. As a result, the study failed to observe major events

and activities in real-time that took place before the company was established or in its early years. Additionally, the observation period did not cover the most critical moment for entrepreneurship: whether the entrepreneurs succeeded in their objectives, that is, whether or not they ultimately made their business profitable.

5.6 Suggestions for further research

This dissertation provides several avenues for further study. The first one concerns the dynamics of opportunity phenomenon. Future research could focus on the most significant turning points, for example, a situation where INV achieves its first major sales contract. This was not observed in this study, but it could be significant to investigate what happens if an INV starts scaling its business. This could improve our understanding of the features that make opportunity successful. It would also be a more likely event to reach than, for example, the period before starting a business. Overall, dynamics should be emphasized in future research. We need to go much deeper into the entrepreneurial process, where the concept of time seems to be cyclical and where uncertainty and failure are central elements. Based on the findings from an individual's perspective, entrepreneurship is a much more nebulous process than the research has implied so far.

The processual nature of the opportunity raises several avenues for future research. Overall, the non-linear progress observed in the study requires more research. This can be addressed, in particular, by delving deeper into people's minds and bringing forth the emotional states that emerge in the midst of all uncertainty as they try to chart their progress. Additionally, the dynamics of the industry and the innovation bring forth new topics for future research. Here, we need to conduct more research on how entrepreneurs are seeking to create new demand in industries that are at a technologically similar juncture. Moreover, the differences in perspectives between individuals that have emerged in this study suggest that the discovery and development of entrepreneurial opportunities is a much more complex process than had been assumed. Thus, we need to investigate how different individuals perceive the potential for entrepreneurial opportunities and how and why these perspectives differ. Finally, this study highlighted that the development of entrepreneurial opportunity was, in itself, an extremely dynamic process. Thus, we need to conduct more research on whether change is always as radical or whether it is an industry-specific characteristic. Moreover, it would be significant to see if SMEs focus all their resources on a single product segment when a commercial breakthrough occurs.

Another issue that arises in relation to future research is contextual awareness. Overall, the findings indicate that we need to acknowledge and investigate contextual features that influence the conditions and development of entrepreneurial opportunities further. In this case, the industry type, the case company characteristics and opportunity type were emphasized. In relation to the industry, the findings suggest that we should investigate specific set requirements more closely. The findings show that the telecommunication industry is a highly regulated sector which sets significant conditions for opportunity

development. We should also be careful in the future about how we define high technology, because the findings indicate, for example, that making mobile games can be much easier than coding solutions in the telecommunication sector, not to mention space technology. Thus, in the future, we must refine our view of high technology, subdivide it into more specific categories and investigate how these differ. This study also highlighted the characteristics of the case company. Here, the case company was an SME operating in a sector dominated by large multinational corporations. It set its own conditions for developing entrepreneurial opportunity. This reflected the credibility of the case company as a reliable supplier in telecommunication industry. Consequently, further research is needed to investigate how the cooperation between an INV and MNE affects the development of opportunity. Overall, we need to go deeper than simply describing the B2B setting and think about how the encounter between different organization types affects entrepreneurial opportunity or business in general.

Finally, this dissertation charts a path for further research in on learning. This study supports the notion that LAN is a key feature of an INV (Autio et al., 2000). However, some differences occurred in this study which offer possibilities for further research. First, the findings did not emphasize business performance or internationalization, but learning was strongly linked to entrepreneurial opportunity that sought commercial success. Consequently, future research should investigate LAN from this perspective. Second, future research should investigate LAN from a more individualist perspective. The findings showed that people's viewpoints and their differences significantly influenced the perception of entrepreneurial opportunity and their opinions were not always in agreement. Thus, the notion that an organization's small size would lead to LAN automatically cannot be fully supported. In this case, there was already friction between three individuals, reflecting conflict between customer and technology interfaces. Further research is required to investigate how individual differences in knowhow affect learning in INVs. Here, another insight emerged that warrants further studies. Although people had a considerable amount of professional expertise, they had no experience of being in a startup. Thus, it would be significant to investigate whether INVs return to the MNE style structure if individuals' work experience is based on working in large multinational corporations. Third, the dissertation provides future research topics related to LAN and context, which is a significant aspect suggested by Zahra et al. (2018). However, the findings of this study differ in some respects and thus provide direction for future research. First, although the findings indicate that individuals were intentionally learning, it was also a prerequisite for entrepreneurial opportunity development. Future research needs to investigate whether learning is intentional or compulsory, or both, and what their relationship is to LAN. Second, Zahra et al. (2018) suggested that slack of resources supports LAN, but in this case the case company never had too many resources. Thus, this can be a situation that is only achieved much later in the life cycle of an INV. As a result, further research is needed to investigate which stage an INV will achieve such a situation in, and if so, how this abundance of resources will affect LAN and the development of entrepreneurial opportunity.

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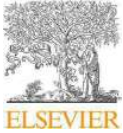
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Learning in international new ventures: A systematic review

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ABSTRACT

The present paper reports the findings of a systematic review on learning among International New Ventures (INVs). Learning has been studied fairly extensively by scholars in the field of organization theory. Learning is a prerequisite for internationalization, and the behavior of individuals working in INVs seems to indicate a strong predisposition or aptness to learning. In spite of this, research on learning among INVs has been limited and fragmented up to the present time. In seeking to advance the research niche of INV learning, we conducted a systematic review of articles published on learning within INVs. Our contributions are related to: (i) providing a review of current knowledge of learning among INVs; (ii) relating the findings of our review to the organizational learning theory proposed by March (1991); and (iii) a future research agenda.

1. Introduction

In the field of International Entrepreneurship (IE), considerable attention has been given to the internationalization of small ventures (see e.g. McDougall-Covin, Jones, & Serapio, 2014). The present paper is located within the IE field, with a focus on companies that internationalize from their inception, generally referred to as *International New Ventures* (INVs) (Oviatt & McDougall, 1994), or *Born Globals* (BGs) (Knight and Tamar Cavusgil, 2004). For clarity, we shall refer to all the rapidly internationalizing new ventures as INVs in this article.

Learning is an important prerequisite for the successful internationalization of any organization (Johanson & Vahlne, 2009), and it constitutes one of the main advantages possessed by INVs, helping them to maintain growth after the firm is established (Autio, Sapienza, & Almeida, 2000; Hagen & Zucchella, 2014). INVs have specific features in relation to learning: their strong knowledge base assists both in their emergence and in their rapid internationalization (Autio, George, & Alexy, 2011; De Clercq, Sapienza, Yavuz, & Zhou, 2012; Oviatt & McDougall, 1994; Sui & Baum, 2014). However, a prior knowledge base is not in itself a sufficient condition to advance rapid internationalization (Zheng, Khavul, & Crockett, 2012). The most significant factor is that *entrepreneurs should be ready to acquire and adopt new information as soon as they step into global markets* (Prashantham & Floyd, 2012). Our contribution is related to clarifying the state of the art of INV learning, seeking thus to advance the development of the field. We conducted a systematic review (Tranfield, Denyer, & Smart, 2003) of a set of 50 articles, seeking to answer the following questions:

- 1 What do we know about learning in international new ventures?
- 2 How have learning theories been applied in research on early and rapid internationalization?

Our review constitutes an in-depth analysis of what is known about learning in INVs. Thus, it aims to provide insights concerning the features contributing to learning in INVs, and further, to address the methodological issues arising in the articles reviewed. Overall, we seek to offer a comprehensive overview of what is known about learning in INVs, and to suggest areas for future research.

As distinct from the review by De Clercq et al. (2012), who focused on how learning functions within the first years of internationalization (giving attention to the outcomes of early internationalization rather than to learning *per se*), we focus on the actual learning processes of INVs over their entire life cycle. We also seek to probe more deeply into the theories and methodologies applied in articles on INV learning. Most importantly, we relate our findings to March's (1991) *organizational learning theory* (henceforth OL theory). A major aspect of this theory is the tradeoff (essential for INVs) between exploitative and explorative learning. This will be discussed in more detail below.

Our review is structured as follows. First, we present the most important theoretical insights related to INVs, learning, and OL literature. Second, we present the methodology used in the review. We then move to the results, including descriptive and empirical analyses of the articles reviewed. Finally, we discuss the findings of the review, relating them to March's (1991) OL Theory, and suggesting future research directions.

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2. Literature review

2.1. Organizational learning

2.1.1. Organizational learning according to March (1991)

Learning has constituted an element in organizational studies for over four decades (Yu-Lin & Ellinger, 2011, p. 514), but in recent years, the organizational learning (OL) theory proposed by March (1991) has formed a notable point of departure for discussion in the field. OL Theory has several implications for learning in a firm. According to March (1991), the main strategic choice to be made by an organization is whether to explore new possibilities (*exploration*) or to exploit old ones (*exploitation*). These two types of adaptations vary by their features and expected outcomes. Exploration has been described as search, variation, risk-taking, experimentation, play, flexibility, discovery, and innovation. In essence, its function is to experiment with new alternatives. The flip side of exploration is that its returns are uncertain, and may well be negative for the company. Exploitation is manifested more in terms of refinement, choice, production, efficiency, selection, implementation, and execution. It refines and extends existing competence, technologies, and paradigms. In the best case, the returns on exploitation are positive, proximate, and predictable (March, 1991).

According to March (1991) the trade-off between exploration and exploitation depends on two features: (i) *mutual learning* within the organization, and (ii) the external *competition intensity* that it faces. Mutual learning takes place in the interaction between individual knowledge and the organizational code (procedures, rules, and forms). The way that mutual learning affects the trade-off depends on how much the organization emphasizes individual knowledge as a source of learning, and how receptive employees are to new information. External competition steers the trade-off via competitive positioning. Explorative and exploitative learning are applied as alternatives; thus, one may consolidate one's market position (exploitative learning), or else improve it e.g. by adopting new technologies or improving the current functions of the organization (explorative learning) (March, 1991).

2.1.2. Other organizational learning studies

Although the work of March (1991) has been influential in the field of organizational learning, other scholars, too, have made important contributions. Thus, Barkema and Vermeulen (1998) discuss the role of external influence on organizational learning, through discussion of how international expansion promotes learning in firms. Expansion exposes organizations to multinational and multiproduct diversity, which requires information on consumer need, competition, suppliers, and partners. Hence, this diversity offers opportunities for learning and for strengthening technological capabilities. However, firms can only benefit from it to a certain point. At this point they encounter the cognitive constraints of the organization. In general, international expansion and organizational growth make it harder for independent business units to share information with each other, with a consequent decline in learning.

According to Cohen and Levinthal (1990), innovative capabilities (termed *absorptive capacity*) determine an organization's ability to recognize the value of external information and to apply it commercially. One central element of the absorptive capacity is the organization's existing knowledge base. This means that prior knowledge determines how effectively an organization can recognize and evaluate external information. For example, if the technology in question is closely related to prior knowledge, it makes it easier for the organization to spot the demand and the financial benefits of the innovation (Cohen & Levinthal, 1990).

Crossan, Maurer, and White, (2011) suggest that learning is a multidimensional event, within which individual, group, and organizational levels are interconnected by a knowledge transfer process (Crossan et al., 2011). According to Crossan, Lane, and White, (1999),

organizations need to find a balance between choices. This will involve either acquiring new knowledge (a “feedforward” process) or else applying knowledge acquired previously (a “feedback” process). The feedforward process offers new ideas from the individual level to the organizational level, whereas the feedback process distributes what has been learned from the organizational level downwards. How the information transfers through these different levels depends on four processes (termed the “4I’s”), comprising *intuiting*, *interpreting*, *integrating*, and *institutionalizing* (Dutta & Crossan, 2005). We can summarize Dutta and Crossan's model as follows: *intuiting* is an individual's ability to discover and fulfill business opportunities, *interpreting* occurs when entrepreneurs share business opportunities with network members, *integrating* happens when the learning process becomes a collective action, and *institutionalizing* is the overall learning process of all the actors involved in the organization (Dutta & Crossan, 2005).

3. Methodology

In the present study, we began by identifying relevant keywords (Tranfield et al., 2003), and by conducting searches in several databases. We used different combinations of the terms *international new venture*, *born global*, *born-global*, *micro-multinationals*, *global startup*, *early internationalization*, *early internationalisation*, *learning*, *organizational learning*, *organisational learning*, *knowledge*, and *experience* (see Rialp, Rialp, & Knight, 2005) to identify titles, abstracts, keywords, and full texts in the following databases: *ABI/INFORM*, *Business Source Elite (EBSCO)*, *Emerald*, *JSTOR*, *SAGE Journals Online*, *Science Direct (Elsevier)*, *Springerlink*, *SCOPUS*. We included articles that were published between the years 1994 and 2017.

Articles from all academic fields were candidates for inclusion, given the breadth of INV-related research. In the event, the articles were published in journals in the fields of *international business*, *marketing*, *entrepreneurship*, *management*, *international entrepreneurship*, and *strategy* (see Appendix A). However, to be included in the review, the study had to comprise a full text, to appear in a peer-reviewed academic journal, and to be published in English. The initial inclusion criteria yielded a total of 386 articles. We excluded articles that (i) did not investigate new or early internationalizing ventures, (ii) applied serial or portfolio entrepreneurs as a data source, (iii) were not empirical studies, or (iv) did not have any learning-related outcomes in them. We ended up with 50 articles. The process of categorizing the articles is summarized in Table 1 below. The articles included in the review can be found in Appendix D.

4. Findings

The findings of this review are presented in two sections. The first section (the *descriptive analysis*) presents the publication types, the methodology, and the research settings and approaches of the articles. The second part (the *empirical analysis*) offers an account of the state of current knowledge concerning learning in INVs, as revealed in the articles reviewed.

4.1. Descriptive analysis

4.1.1. Methodology and theoretical approaches

We discovered that most of the articles were published in journals in the fields of international business ($n=14$), marketing ($n=10$), and management ($n=10$) (See Appendix A). These were followed by journals in the fields of entrepreneurship ($n=9$), international entrepreneurship ($n=6$), and strategy ($n=1$). Hence, it seems that even though INVs are at the core of International Entrepreneurship research (McDougall-Covin et al., 2014), this is not manifested in the journals devoted to this field, since the articles specifically in this domain constituted only 6 out of the 50 articles reviewed. As discussed below, the

Table 1
Examples of categorization.

DYNAMICS	
<p>COMPETENCIES</p> <ul style="list-style-type: none"> • The innovative nature of BGs develops knowledge in the firm (Knight & Cavusgil, 2004) • BGs differ from other firms via a more aggressive learning style: active engagement and experimentation, tolerating failure, instantly solving problems as they arise (Chetty & Campbell-Hunt, 2004) • Prior international experience shapes learning (Yeoh, 2004) 	<ul style="list-style-type: none"> • Early internationalization is positively related to learning (Kumar, 2013) • Learning priorities change during the different phases of internationalization (Anderson et al., 1998) • Scrubs are an inevitable part of the internationalization process, providing valuable learning opportunities for INVs (Bunz et al., 2017)
ENVIRONMENT	
<p>NETWORKS</p> <ul style="list-style-type: none"> • Different stakeholder interactions lead to the creation of different types of international market knowledge (Ewert & Zettinig, 2015) • Networks influence the learning process of INVs (Evers et al., 2012) 	<ul style="list-style-type: none"> • Deliberate knowledge integration from international operations increases the breadth and speed of learning (Wood, Khavul, Perez-Nieves, Prabhya & Dobrowski, 2011) • Competition intensity and internal social interaction increase the international learning effort (De Clercq & Zhou, 2014) • Uncertainty speeds up the learning process (Autio et al., 2011)

multidisciplinary approaches of the articles included represent a very varied sample from different academic fields. The mean academic journal guide rating (Academic Journal Guide, 2018) of the reviewed articles was 2.56. An inspection of the chronology revealed that the mean date of publication was within the first half of the year 2010 (2010.14). The two peak years were 2014 ($n = 6$) and 2011 ($n = 6$).

Thereafter, we evaluated the extent to which each study was aimed at learning (see Appendix C). The evaluation yielded three different degrees of intention: *direct*, *indirect*, or *no intention* to investigate learning. The largest group ($n = 30$) consisted of studies which had no intention of investigating learning at all, or which did not use learning-based frameworks, but which nevertheless offered learning-related findings. The direct category ($n = 12$) included articles that either investigated learning itself or used a clearly learning-oriented research setting to investigate new and rapidly internationalizing ventures. We considered the intention to be *indirect* ($n = 8$) when learning had more of a mediating role in the research, but provided learning-related outcomes. Overall, one gains the impression that in the INV context, learning-related research has not been a particularly consistent phenomenon.

When we examined the research setting of the articles (See Appendix B), we discovered that a clear majority of the articles used a quantitative approach ($n = 26$), with qualitative approaches being fewer in number ($n = 20$). There was also a small group of articles ($n = 4$) that applied mixed methods. The most popular sample group in the data was that of top management ($n = 22$), including CEOs or other executives, followed by a group ($n = 13$) that included entrepreneurs and top management team members. The rest of the studies used entrepreneurs ($n = 6$) and databases ($n = 4$) as data sources. There was also a group of articles ($n = 5$) that did not specify their data source. The time frame of the data collection was divided fairly evenly between longitudinal ($n = 18$) and cross-sectional ($n = 14$) studies; however, most of the studies ($n = 18$) did not define the period of data collection or the time frame at all. Most of the articles used a single country setting ($n = 38$), while a minority ($n = 9$) used cross-country comparisons. These latter were conducted most frequently within the continent of Europe ($n = 23$), then Asia ($n = 10$), North America ($n = 7$), across continents ($n = 4$), Oceania ($n = 4$), and South America ($n = 1$). The industries included in the articles were mainly in the high-technology sector ($n = 19$), followed by the multi-industry sector ($n = 15$), and the manufacturing sector ($n = 10$).

An evaluation of the theoretical standpoints revealed that the clear majority used a combination of international business and international entrepreneurship literature ($n = 34$), as exemplified in the article by Chetty and Campbell-Hunt (2004), which specifically states that the article uses both traditional and born-global approaches. In addition, there were a number of articles that used only international entrepreneurship theories ($n = 14$). An example of this would be the article of Chandra, Styles, and Wilkinson, (2012), which refers to the “lens of international entrepreneurship” as its means of investigating rapidly internationalizing firms. There were also a couple of articles ($n = 2$) that did not use either IB or IE literature.

Multiple academic fields entered into our article set, and the fields were often mixed together. The fields consisted of management ($n = 35$), marketing ($n = 23$), entrepreneurship ($n = 22$), strategic management ($n = 16$), strategy ($n = 13$), economic theories ($n = 13$), and sociology ($n = 10$). An example of a deliberate mixing of fields can be found in the article by Kungwansupaphan & Siengthai, 2014, p. 561, who state that they draw on “the integration of human capital theory, resource-based view theory, learning theory, and on the literature of international entrepreneurship and strategic management.”

The terminology used by the articles varied significantly. Contrary to what one might expect, the articles directly referring to INVs ($n = 13$) and BGs ($n = 8$) were in the minority. These were clearly outnumbered by a mixed group ($n = 29$), comprising 17 different terms in total (See Appendix B).

4.1.2. Knowledge and learning premises

Examination of the learning theories revealed that nearly all ($n = 42$) of the articles applied purely OL theory (See Appendix C). The most popular OL theories applied were from the works by Cohen & Levinthal, 1990 ($n = 28$) and Barkema and Vermeulen (1998) ($n = 28$). These were followed by Huber (1991) ($n = 21$), Cyert and March (1963) ($n = 15$), March and Simon (1958) ($n = 14$), Argyris and Schön (1978) ($n = 10$), Nonaka (1991, 1994, 1996) ($n = 9$), and March (1991) ($n = 7$). The remaining articles applied entrepreneurial learning ($n = 2$) or a combination of OL theory plus entrepreneurial learning ($n = 1$) and social learning theory ($n = 1$), or did not apply learning theories at all ($n = 3$). Furthermore, there were four major concepts applied in defining learning. The first and most popular view ($n = 22$) took learning to be about developing new knowledge, in the manner of Hessels and Stel (2011, p. 258), who referred to learning in terms of “the acquisition, assimilation, and exploitation of new knowledge,” and as “a base upon which further knowledge and innovations can be developed.”

In the second most popular ($n = 14$) group, learning was linked to the development of the capabilities of the firm and its members, or to a reduction in the challenges faced during internationalization. Along these lines, Zhou, Barnes, and Lu (2010, p. 886) refer to the “entrepreneurial dynamics of learning as a driving factor for capability upgrading.”

The third group ($n = 7$), conceived internationalization itself as a learning process, in the sense that firms learn during their internationalization process. Thus, Yeoh (2004, pp. 512–513) takes the view that “internationalization via geographic diversification can be viewed as a process of learning and knowledge accumulation which in turn influences firm performance.”

In the fourth group ($n = 7$), prior knowledge or experience were regarded as the main contributors to learning. Sardana and Scott-Kemmis (2010, p. 442) make this point in defining entrepreneurial learning as “the process by which entrepreneurs develop skill and competency through experience and vicarious experience.”

The final unit of the descriptive analysis was related to determining the type of knowledge that was found to contribute to the learning process of an INV. Here, there was considerable variety in the types of knowledge, information, and experiences involved. The various aspects were often covered simultaneously, but the clearly dominant category of knowledge was identifiable as internationally related ($n = 34$). The next three categories were market-based knowledge ($n = 21$), technologically-based knowledge ($n = 17$), and industry-based knowledge ($n = 10$). There was also a group ($n = 10$) that could not be put into any of these categories, and a couple ($n = 2$) that acknowledged customer-specific knowledge as important.

4.2. Categorization

From an analysis of the reviewed articles in terms of features influencing learning we identified four main elements that contributed to learning in INVs (See Appendix C). These were, in order of magnitude, *competencies* ($n = 23$), *dynamics* ($n = 20$), *networks* ($n = 10$), and *the learning environment* ($n = 10$). In first group (competencies), learning was influenced by a particular characteristic or experience, along the lines pointed out by Voudouris, Dimitratos, and Salavou (2011, p. 248), who referred to the “technological, industrial and international learning orientations” linked to a firm’s learning. In the second group (dynamics), the findings related to how learning changes over time, or how learning takes place at different levels, as in the study by Pellegrino & McNaughton (2015, p. 469) in which “the firms’ learning evolved as they internationalized.” The results of the third group (networks) addressed the impact of networks on learning. An example of this occurs in the research of Evers, Andersson, and Hannibal, 2012, who refer to instances in which “different stakeholder groups (allied, cooperative, neutral, and entrepreneur) influence the learning

processes.” The fourth and the final group (concerning the learning environment) addressed the external influences on learning, including the competition intensity, the scale of internationalization, the home and target market conditions, and the cultural diversity within the firm. Here, one can quote from Yeoh (2004, p. 528), who concluded that “exposure to foreign markets enhances the potential for learning.” Below, we examine in more detail the findings for each thematic group.

4.2.1. Competencies related to learning

The individual competencies affecting learning consisted of three different sub-categories, namely, *orientations* ($n = 10$), *skills* ($n = 9$), and *experiences* ($n = 4$). With regard to the first (orientations), it was found (i) that an entrepreneurial orientation is positively associated with the learning effort (Sapienza, De Clercq, & Sandberg, 2005), and (ii) that entrepreneurial behavior supports the potential of the learning advantage of newness through the acquisition of network- and market-related knowledge (Zhou, Barnes, & Lu, 2010). In addition, the following findings were obtained: (iii) industrial, technological, and international learning orientations promote entrepreneurial learning (Voudouris, Dimitratos, & Salavou, 2011); (iv), the innovativeness of the firm develops knowledge (Knight & Tamar Cavusgil, 2004); (v) a high-technology orientation contributes to innovation, and high advertising intensity promotes greater learning (Nadkarni & Perez, 2007); (vi) internationally-oriented practices enhance the learning advantage of newness (Oxtorp, 2014); (vii) the innovative and proactive pursuit of opportunities produces foreign market-based knowledge in INVs (Zhou, 2007); (viii) a service-orientation enhances organizational learning and provides improved access to customer- and network-based knowledge (Laudien & Daxböck, 2017). However, (x) (experiential) learning is not an automatic process but requires deliberate practices from the INV in question (Bunz, Casulli, Jones, & Bausch, 2017). Moreover, (xi) the degree of learning was regarded as a strategic selection; hence, INVs must be cautious, given that a high learning orientation and international expansion consume (already limited) resources, and INVs cannot implement both at the same time. A high learning orientation will thus tend to decrease the scale and scope of internationalization and increase the firm’s focus on serving particular markets – a point made also by Baum, Schwens, and Kabst (2011, p. 323), who note that “learning binds resources just as international expansion does.”

The skills which were found to contribute to learning were (i) entrepreneurial- and managerial competence (Kungwansupaphan & Siengthai, 2014), (ii) marketing, internal, and network learning capabilities (Weerawardena, Mort, Salunke, Knight, & Liesch, 2014), and (iii) international entrepreneurial capability (Zhang, Tansuhaj, & McCullough, 2009). In addition, there were certain specific skills that were found to support learning in INVs, namely, (iv) the creation of international business opportunities (Kauppinen & Juho, 2012), (v) an active learning style, including tolerance of failure and proactive problem-solving (Chetty & Campbell-Hunt, 2004), and (vi) trust building (Vanninen, Kuivalainen, & Ciravegna, 2017).

It was further argued (vi) that as firms learn, they start to develop knowledge of internal processes, which helps them to better adapt to the environment in which they operate (Autio et al., 2011). In addition, (vii) organizational flexibility (Autio et al., 2000) and the cognitive and political flexibilities of the firm (De Clercq, Sapienza, & Zhou, 2014) were found to enhance learning in INVs.

The last of the three sub-categories of individual competency (see above) was prior experience. Here, the results were contradictory. Some of the articles found international experience to be an important precondition for learning in INVs (Park & Rhee, 2012), and one that also shaped how they learned (Yeoh, 2004). However, not all the articles agreed on the utility of experience. Thus, it was found, for example, that learning from direct experience restrained the early internationalization of the organizations in question (Schwens & Kabst, 2009b). There were also indications that it is not the abundance of experience that guides the learning in INVs, but rather the lack of it. In a study by

Sardana and Scott-Kemmis (2010), individual entrepreneurs were found to learn more if there was some “experience gap” or vacuum in their personal knowledge or expertise. Moreover, the team learnt most in cases where there was variation in the skills of the group.

4.2.2. The dynamics of learning

As regards the *dynamics of learning*, it was generally found that the timing of a firm’s internationalization affects its learning. However, the results were conflicting. Some articles found that early internationalization was positively related to learning (Kumar, 2013) and to the firm’s capability to absorb foreign market knowledge (Ripollés, Blesa, & Monferrer, 2012); also, that the longer the firm operated in domestic markets, the less internationalization-related knowledge it possessed (Blomstermo, Eriksson, & Sharma, 2004). Moreover, Chandra (2017) concluded that survival and learning are the features uppermost when entrepreneurs evaluate the international opportunities during the early stages. However, there were also findings indicating that INVs have neither the time (Almodóvar & Rugman, 2014) nor the resources (Baum, Schwens, & Kabst, 2015) to learn in their early phase; thus, learning from others and imitating are the best practices in the early phases of internationalization (Schwens & Kabst, 2009b). Overall, it was difficult to reach a firm conclusion on the basis of the articles reviewed.

In addition, internationalization was itself described as a long-term learning process (Boter, 2003), such that the learning requirements seem to change over time (Anderson, Graham, & Lawrence, 1998). However, there were two schools of thought on the order in which learning was likely to take place. The first of these suggested that the most effective means of learning is initially to exploit managerial experience and then to start interpreting market signals (Ruokonen & Saarenketo, 2009). Thus, in the first phase, INVs need their own or a partner’s experience. In the second phase, they start to learn from partners or clients, while in the third phase, they start to leverage the acquired knowledge (Gabrielsson, Kirpalani, Dimitratos, Solberg, & Zucchella, 2008). Similarly, it was found that during the first phase of internationalization firms rely on congenital learning (Fuerst & Zettinig, 2015) and experiential learning (Pellegriño & Mcnaughton, 2015), before they start to scan their environment, at which point they observe successful examples and employ external members to increase their knowledge base:

The second school of thought relied on findings contrary to those above. Thus, Gabrielsson and Gabrielsson (2013), p. 1370 found that “opportunity creation and explorative learning were most important in the early phases while, opportunity discovery and exploitative learning became more important in latter phases.” Similarly, Zou and Ghauri (2010) found that INVs seem to augment their knowledge base in the early phases of internationalization. At present, the issue remains open.

The findings related to the dynamics of learning also highlighted the role of misfortune. Setbacks are an unavoidable part of learning in INVs, and are considered as valuable sources of learning for these firms (Bunz et al., 2017). These are particularly emphasized in the early stage of internationalization (Chandra, 2017). Hence, it seems that entrepreneurs apply “trial-and-error” and “learn by doing” types of learning during the first years of activities, and start to transform their capabilities into organizational knowledge when moving to the post-entry stage (Romanello & Chiarvesio, 2017).

Finally, regarding the *multidimensionality* of learning, Voudouris et al. (2011) found learning to be a multidimensional process that spanned from the individual level all the way to the entire organization. However, Shrader, Oviatt, and McDougall, (2000) found the role of the entrepreneurial team to be more important in exploiting the foreign market knowledge than the organization. This was supported in a study by Kauppinen and Juho (2012), in which the researchers described learning in INVs as a social process. In the researchers’ view, the initial stage is particularly important, since within it the “imaginative power

of becoming something other than a person among others” creates international business opportunities.

4.2.3. Networks

As regards *networks* within INV learning, the learning of the firms took place with partner firms ($n=6$), customers ($n=4$), personal contacts ($n=2$), outside institutions ($n=2$), supply chain members ($n=1$), and international networks in general ($n=1$). It thus appears that INVs use networks in a fairly versatile manner to support their learning. Networks appeared to impact on learning in two ways. They either contributed to the knowledge acquisition and information flow of an INV or affected its learning processes in some other way. In the first case, networks allowed firms to gain knowledge that was useful for internationalization (Park & Rhee, 2012). Networks provided foreign market knowledge (Presutti, Boari, & Fratocchi, 2007), international market knowledge (Fuerst & Zettinig, 2015), information, opportunities, and internationalization paths (Chandra et al., 2012), technological and market knowledge (Yu, Gilbert, & Oviatt, 2011), or access to the knowledge base of the network member itself (Schwens & Kabst, 2009a).

In the second case, networks were found to influence learning related to marketing, partner, and market capabilities (Evers et al., 2012). They accelerated the pace of the learning (Gabrielsson et al., 2008) and supported the learning processes in INVs (Khavul, Peterson, Mullens, & Rasheed, 2010; Zou & Ghauri, 2010).

4.2.4. The learning environment

Environmental features were related to multiple aspects on learning in INVs. Overall, it was found that the integration of international operations increased the breadth and speed of learning (Wood, Khavul, Perez-Nordvedt, Prakhya & Dabrowski, 2011). However, the benefits of increased internationalization are not endless, and do not come without a price. Bunz et al. (2017) found that increasing exposure to foreign markets pushed INVs to learn from their experience (Bunz et al., 2017), which implies that internationalization and learning compete for the same resources among INVs. Zahra, Ireland, and Hitt (2000) found that the benefit of international diversity has limits, since at some point international expansion can reduce the speed of technological learning. Similarly, Yeoh (2004) found that although exposure to multiple markets may increase the potential of learning, “over diversification” may decrease technological learning.

In addition, it was found that learning in INVs depends on where they operate, since some countries of origin may provide better access to knowledge and resources than others (Chandra et al., 2012). A further finding was that low perceptions of financial barriers (Baum, Schwens, & Kabst, 2013) plus the availability of technologies can increase knowledge intensity among INVs (Hessels & Stel, 2011). With regard to foreign markets, technological and cultural diversity were found to increase technological learning among INVs (Zahra, Ireland, & Hitt, 2000). Overall, as noted by Chandra et al. (2012, p. 95), it appears that “the pace of learning and feedback processes depends in part on a firm’s resources and abilities but also on the context in which it operates.”

In an investigation specifically directed at INVs, it was found that cultural diversity within an INV seems to increase knowledge flow within the organization, but also the risk of conflicting opinions and behavior inside the company, which can impede learning. Thus, Zou and Ghauri (2010), p. 237 found that cultural differences may aid learning, making it easier to gain information and capabilities from foreign firms. However, they also noted that behavior related to traditions may “jeopardize the knowledge learning of new ventures and the internalization of knowledge.”

Finally, the uncertainty and the intensity of competition faced in foreign markets can have effects contrary to what one might expect. Thus, uncertainty within foreign markets was actually found to speed

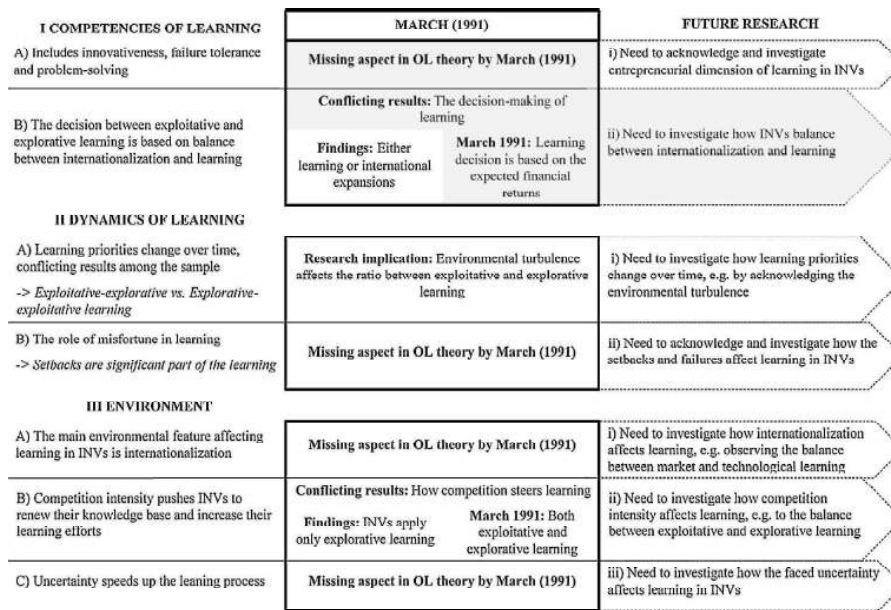


Fig. 1. Model. Relating findings to OL theory by March (1991).

up the learning process by expanding the diversity of organizational processes and by improving the skills to implement necessary processes in markets (Autio et al., 2011). Moreover, it was found that the intensity of competition in international markets pushed firms to renew their knowledge base and hence their learning efforts (De Clercq & Zhou, 2014).

5. Discussion and implications for future research

In this section, we take as our starting point the three dimensions previously mentioned (see Section 4.2), namely *competencies in learning*, *the dynamics of learning*, and *environmental features*. We have used these in arriving at a model (See Fig. 1) summarizing the state of the art in understanding INV learning. We shall consider each of these three dimensions, relating them to the OL model proposed by March (1991). From our own findings, related to those of March (1991), we shall present some methodological considerations and future research directions.

5.1. Competencies in learning

Our analysis (See Fig. 1) contains features bound up with the *entrepreneurial* aspect of learning, namely innovativeness (Knight and Tamar Cavusgil, 2004), plus failure-tolerance and problem-solving behavior (Chetty & Campbell-Hunt, 2004). These are absent from March's (1991) model, and are not particularly well represented in our sample.

March (1991) links uncertainty to *explorative learning* in particular. This type of learning involves experimentation with new alternatives, within which returns are far from certain, and may well be negative for the organization. Nevertheless, the insight that learning would be

assessed against financial returns (March, 1991) did not come up in our results. In paying attention to these aspects, future research could investigate how explorative learning is present or absent among INVs. This will involve the tolerance of uncertainty, and the possibilities of risk and failure.

In addition, we found a dissimilarity related to the *trade-off between exploitative and explorative learning*. In March's (1991) model, this trade-off is estimated according to the expected financial returns. However, this was not the case in our sample. We did find one article indicating that INVs seek to achieve a balance between international expansion and learning (Baum, Schwens, & Kabst, 2011). Nevertheless, this was an insight from a single article, and no definitive conclusions can be made from it. Future studies could thus investigate more fully the trade-off between learning and internationalization in INVs.

5.2. The dynamics of learning

The *dynamics of learning* constituted a second feature emerging from our review. Our analysis indicated that learning is a long-term process, with priorities changing over time. However, there were two perspectives on how this might occur. In one group of articles, learning in INVs starts off as exploitative, after which it becomes explorative (Fuerst & Zettinig, 2015; Gabrielsson et al., 2008; Pellegrino & Mcnaughton, 2015; Ruokonen & Saarenketo, 2009). In another group (two articles), the contrary was true. Thus, explorative learning was seen as the most significant type of learning during the early phase (Gabrielsson & Gabrielsson, 2013; Zou & Ghauri, 2010). Nevertheless, neither of the latter two articles provides an in-depth description of why this might be the case.

March's model (1991) does not cover all the causalities involved,

but it provides an interesting perspective. He suggests that the environmental turbulence is one of the key features affecting the balance between exploitative and explorative learning. According to his model, environmental turbulence increases the need for adaptation and decreases the possibility to learn from the experience. Moreover, this effect is emphasized if the knowledge is gained during an early time period. This could be a significant perspective for future research. Overall, one can suggest that future studies could investigate how learning priorities vary over time, and what kinds of features influence this change.

Another issue that arises from our analysis is the role of misfortune, which is absent from March's model. Learning in INVs seems to be full of setbacks, which can be regarded as inevitable, and as significant sources of learning (Bunz et al., 2017). Moreover, it seems that the setbacks are especially present in the early stages of internationalization (Chandra, 2017). This can partly explain why the "trial-and-error" type of learning is emphasized in the early stages (Romanello & Chiarvesio, 2017). More research is required to confirm this insight.

5.3. The environment

The last feature emerging from the reviewed articles was the *learning environment*. Our findings indicate that internationalization is the most significant environmental dimension. However, this aspect is absent from model. An article from our review (Wood et al., 2011) found that internationalization increases the breadth and speed of learning. However, the picture appears to be contradictory or nuanced in a number of ways. Firstly, it seems that the more firms internationalize, the more they must rely on their experiential learning (Bunz et al., 2017). Secondly, international diversity may actually decrease the speed of technological learning (Zahra et al., 2000). Moreover, the degree of internationalization may affect the balance between the market and technological learning (Yeoh, 2004). Thus, there are avenues for future research on how the scope of internationalization affects learning in INVs. This could encompass, for example, the relative distributions of technological and market-based learning, or how international expansion affects the speed of learning among INVs.

In addition, our results suggest that the competition intensity (De Clercq & Zhou, 2014) and uncertainty (Autio et al., 2011) can influence learning. There are indications that competition intensity pushes INVs to renew their knowledge base and increase their learning efforts (De Clercq & Zhou, 2014). Competition is indeed present in March's (1991) model, promoting both exploitative and explorative learning. However, in our material, according to De Clercq and Zhou (2014) the only way for INVs to respond to increased competition is to renew their knowledge base. Hence, exploitative learning would not be an option for INVs. However, this finding is based on a single article (De Clercq & Zhou, 2014), and corroborative research is needed. Another study (Autio et al., 2011) indicated that uncertainty speeds up the learning process in INVs. Such a feature is absent from March's (1991) model. Nevertheless, we are once again faced with a single finding, and a need for future research to investigate how environmental uncertainty affects learning in INVs.

5.4. Definitional and methodological suggestions for future research

We suggest that in future INV learning research, scholars should pay attention to defining INVs more clearly and consistently. This will enable a more coherent understanding of the phenomenon (see e.g. Madsen & Servais, 1997, p. 579). In future, more data should be collected from locations other than developed Western countries, with INVs from other than the high-technology sector (Nadkarni & Perez, 2007). INVs in the high-technology sector seems to require more

entrepreneurial and marketing competencies than firms that apply less advanced solutions (Andersson & Berggren, 2016), but more research is needed. We also recommend cross-country comparison.

With regard to methodological approaches, we see several alternatives as having potential. These can be listed as follows:

- (i) *Longitudinal comparative case studies* (Pettigrew, 1990) are an excellent means of arriving at process theorizing from empirical findings. This approach would enable in-depth investigations and comparisons in the learning curves of various INVs, potentially leading to new insights into the true nature of INV learning.
- (ii) A *hermeneutic approach* could bring about insights on INV learning, taking into consideration the operational context and company-internal time aspects over an extended time-period, and encompassing the socially-constructed storyline of an INV (Hurmerinta, Paavilainen-Mäntymäki, & Hassett, 2016).
- (iii) *Narrative analysis* (Pentland, 1999) would allow the individual voices of INV entrepreneurs to be heard. This approach could lead to new explanations of the learning of INVs, with stories embracing entire life spans, and taking also other life events into consideration. All of these could constitute potential sources of learning or learning capability.

In line with Coviello (2015), we suggest that in the future, our unit of analysis could be the individual entrepreneur. Altogether, the evidence of our material suggests that OL theory only partially explains learning among INVs. Deeper, processual studies could lead to novel insights, relatable to both INV and OL literatures. Moreover, we suggest that other learning theories could be applied also in future studies. These would include entrepreneurial learning, and social learning theory. In the case of Social Learning theory, the advantage would be that this would take into account non-economic features of learning (Kauppinen & Juho, 2012). The application of entrepreneurial learning could lead to a deeper understanding of individual and team-level learning in INVs (Sardana & Scott-Kemmis, 2010).

6. Conclusion, and limitations of the study

Learning has been acknowledged as a central feature for the new and rapidly internationalizing ventures. This systematic review confirmed this view and discusses in-depth the role of competencies, dynamics, networks and the learning environment in learning among INVs (See Table 1). We compared the state-of-the-art with March's (1991) OL theory, and discovered that there are several promising avenues for future research (See Fig. 1) that could lead to a more in-depth understanding of the INV phenomenon and, hence, contribute significantly to the field of IE. We also contribute by discussing methodological choices and theoretical approaches (See Appendices B and C), suggesting some alternatives, and conclude that there is a need to pay particular attention on the quality and validity of future studies.

The limitations of the paper are related to the limited number of articles reviewed. However, we would argue that positive aspects include clear criteria for the inclusion and exclusion of the articles in question (see the Methods section).

A second limitation is related to the inclusion of merely International New Ventures and Born Globals. However, the specificity in this regard, we would suggest, is part and parcel of the setting up of the study. It can be argued that this comprises both a limitation and a virtue of the study, in relation to IE literature more broadly.

Declarations of interest

None.

Appendix A. Publications and publication years

Journal	1994-1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total	Avg		
The Academy of Management Journal (MAN)			3																				3	4	
Journal of International Entrepreneurship (IE)							1						2			1		1			1		6	1	
Journal of World Business (JB)								1								2		1					2	4	
Journal of International Marketing (IMARK)							1						1					1					5	3	
Journal of International Business Studies (IB)							1						1							1			4	4	
Small Business Economics											1												1	3	
Journal of Business Venturing (ENTR)								1															1	4	
International Entrepreneurship and Management Journal (ENTR)																		1					1	1	
European Business Review (MAN)													1						1				2	2	
Journal of Small Business Management (ENTR)												2	1	1	2	1		1			2		7	3	
International Business Review (IB)																							1	4	
Journal of the Academy of Marketing Science (MARK)																							1	4	
International Small Business Journal (ENTR)														1									2	3	
Entrepreneurship, Theory and Practice (ENTR)														1									1	4	
Industrial Marketing Management (IMARK)																	1						1	3	
International Marketing Review (IMARK)								1					1										2	3	
Strategic Management Journal (STR)														1									1	4	
Management Decision (MAN)															1								1	2	
British Journal of Management (MAN)																			1				1	4	
The Journal of Management Development (MAN)																							1	1	
AN																								1	1
Journal of Global Marketing (MARK)																								1	1
Asian Business & Management (IB)																								1	2
Management International Review (MAN)																				1			1	3	
Management Research Review (MAN)																					1		1	1	
Total		0	1	0	3	0	0	1	4	1	0	2	4	4	6	5	3	6	3	3	1	1	50	2,56	

Appendix B. Methodology

#	Author	Firm Type	Method		Timeframe		Data Collection	#	Source	Country Setting		Industry	Multi-ind.	Manuf.
			Quanti.	Quali.	Mix.	Longitudinal				Cross-sectional				
1	Almódovar and Rugman (2014)	INV	x			1994-2008	Secondary Interviews	110	Database	Spain				x
2	Anderson, Graham & Lawrence (1998)	International Venture	x	x			16							
3	Autio, George & Alexy (2011)	New Venture	x			2002-2004	Interviews	10	Entrepreneurs, Top management	Finland			x	
4	Autio, Sapienza & Almeida (2000)	International Entrepreneurial Firm	x			1993-1997	Survey	134	Top Management	Finland				x
5	Baum, Schwens & Kabst (2011)	INV	x	x			Survey	195	Top Management	Germany	x			
6	Baum, Schwens & Kabst (2015)	BG	x	x		2007	Survey	335	Top Management	Germany	x			
7	Baum, Schwens & Kabst (2013)	New Venture	x	x		2007	Survey	272	Entrepreneurs, Top Management	Germany	x			
8	Blomstermo, Eriksson & Sharma (2004)	BG	x	x			Survey	206	Top Management	Sweden			x	
9	Boyer (2003)	SME	x			1991-1995	Survey	335		Finland, Norway, Sweden				x
10	Bunz, Casulli, Jones & Bausch (2017)	INV	x	x		2008-2010	Observation	1	Top Management	Germany	x			
11	Chandra (2017)	Early Internationalizing Firm	x	x		2005-2012	Interviews	15	Entrepreneurs, Top Management	Australia			x	
12	Chandra, Styles & Wilkinson (2012)	BG	x			2005-2007	Interviews	15	Entrepreneurs, Top Management	Australia			x	
13	Chetty and Campbell-Hunt (2004)	BG	x	x			Interviews	16	Top Management	New Zealand			x	
14	De Clercq and Zhou (2014)	International Young Venture	x				Survey	158	Top Management	China				
15	De Clercq, Sapienza & Zhou (2014)	International Venture	x			2011	Survey	176	Top Management	China				
16	Evers, Andersson & Hämmälä (2012)	INV	x	x		2009-2011	Interviews	6	Entrepreneurs, Top Management	Ireland, Sweden, Denmark	x			
17	Fuerst and Zetting (2015)	INV	x	x			Interviews	4	Entrepreneurs	Colombia				
18	Gabrielsson, Kirpalani, Dimitratos, Solberg & Zucchella (2008)	BG	x	x			Interviews	8	Entrepreneurs, Top Management, Board	Greece, Norway, Finland, Italy	x			x
19	Gabrielsson and Gabrielsson (2013)	INV	x	x		2006-2011	Interviews	4	Entrepreneurs, Top Management	Finland	x			
20	Hessels and Stel (2011)	Export-Oriented New Venture	x			2002-2008	Secondary	80	Database	Global, 34 Countries				
21	Kauppinen and Juhro (2012)	SME		x			Interviews	2	Entrepreneurs, Customers	Denmark, Finland	x			
22	Klavud, Peterson, Mulleens & Rasheed (2010)	INV	x			2009-2010	Survey	173	Top Management	China, India				
23	Knight & Tamar Cavusgil (2004)	BG					Survey, Interview	33 + 203	Top Management, Employees	USA				x
24	Kumar (2013)	Knowledge-Intensive Service Firm (KISF)	x			2009-2011	Interview	3	Top Management	India			x	
25								215		Thailand				x

26	Kongsuwanpaphan and Sengthai (2014)	Early Internationalizing Firm (EIF)	INV	x	x	2013–2014	Survey, Interview	6	Entrepreneurs, Top-Management	–	USA	x
27	Laudien and Dasebick (2017)	Domestic Firm	INV	x	x	2007–2011	Secondary Observation, Interview	1	Database	–	Denmark	x
28	Nadkarni and Perez (2007)	Domestic Firm	INV	x	x	2007–2011	Secondary Observation, Interview	1	Entrepreneurs, Top Management, Employees	–	USA	x
29	Oxtorp (2014)	Domestic Firm	INV	x	x	2007–2011	Secondary Observation, Interview	1	Database	–	Denmark	x
29	Park and Rhee (2012)	Early Internationalizing SME	INV	x	x	2006	Survey	271	Top Management	–	South Korea	x
30	Pellegrino and McNaughton (2015)	INV	INV	x	x	–	Interviews	4	Top Management	–	New Zealand	x
31	Presutti, Boari & Fratocchi (2007)	INV	INV	x	x	–	Interviews	107	Entrepreneurs	–	Italy	x
32	Ripollés, Blesa & Monferrer (2012)	INV	INV	x	x	2005	Survey	135	Top Management	–	Spain	x
33	Romanello and Chiarvesio (2017)	BG	BG	x	x	2014	Interviews	6	Entrepreneurs, Top Management	–	Italy	x
34	Ruokonen and Saarenketo (2009)	Small Finnish Software Company	INV	x	x	2004–2006	Interviews	10	Entrepreneurs, Top Management	–	Finland	x
35	Sapienza, De Clercq & Sandberg (2005)	Independent Company	INV	x	x	2000	Survey	90	Top Management	–	Belgium	x
36	Sardana and Scott-Kemmis (2010)	New Venture	INV	x	x	–	Interviews	32	Entrepreneurs	–	Australia, India	x
37	Schwens & Kabst (2009a)	Early Internationalizing Firm	INV	x	x	–	Survey	272	Top Management	–	Germany	x
38	Schwens & Kabst (2009b)	Early Internationalizer	INV	x	x	1999	Survey	269	Top Management	–	Germany	x
39	Shrader, Oviatt & McDougall (2000)	New Venture	INV	x	x	1983–1988	Secondary Interview	87	Database	–	USA	x
40	Vanninen, Kuitvaäinen & Chirvega (2017)	Born Multinationals	INV	x	x	2004–2016	Interviews	4	Entrepreneurs, Top Management	–	Finland	x
41	Voudouris, Dimitratos & Saliavou (2011)	International New High-Tech Venture (INHTV)	INV	x	x	1999–2005	Interviews	1	Entrepreneurs, Top Management, Employees	–	Greece	x
42	Wierwardena, Mort, Salunke, Knight & Liesch (2014)	BG	INV	x	x	–	Survey, Interview	14 + 435	Entrepreneurs, Top Management	–	Australia, USA	x
43	Wood, Khavul, Perez-Nordvedt, Prakhyn, Dabrowski & Zheng (2011)	New Venture	INV	x	x	2002–2003	Survey	257	Management	–	China, India, Mexico, South Africa	x
44	Yeoh (2004)	New Internationalizing Venture	INV	x	x	–	Survey	258	–	–	USA	x
45	Yu, Gilbert & Oviatt (2011)	New Venture	INV	x	x	2005–2007	Secondary Survey	118	Database	–	USA	x
46	Zahra, Ireland & Hitt (2000)	New Venture	INV	x	x	1993	Survey	103	Top Management	–	USA	x
47	Zhang, Fauststajk & Mccullough (2009)	BG	INV	x	x	–	Survey, Interview	148	Top Management	–	China	x
48	Zhou (2007)	Early Internationalizing SME	INV	x	x	2004–2005	Survey	775	Top Management	–	China	x
49	Zhou, Barnes & Lu (2010)	INV	INV	x	x	–	Survey	436	Top Management	–	China	x
50	Zou and Ghauri (2010)	High-Technology New Venture	INV	x	x	2007–2008	Interviews	3	Top Management	–	China	x

Appendix C. Learning theories applied

#	Author(s)	Learning theories Applied	Learning Theories Applied Directly	Learning Theories Applied Indirectly (Secondary Reference)	Aims	Learning Related Outcomes
1	Almodóvar and Rugman (2014)	OL	OL: Barkema, Bell, & Pennings, 1996	Lu & Beamish, 2004 (OL); Barkema, H. G., & Vermeulen, F. 1998	Investigates the internationalization process of the Spanish INVs (N/A)	INVs do not have time to learn about foreign markets in the beginning (Dynamics)
2	Anderson, Graham & Lawrence (1998)	OL	OL: Argyris, 1976; Argyris & Schön, 1978; Nonaka, 1996	x	Investigates the learning needs of managers in organizations that operate internationally for the first time (Direct)	Learning priorities change during the different phases of internationalization (Dynamics)
3	Autio, George & Alexy (2011)	OL	OL: Barkema & Vermeulen, 1998	x	Investigates how new capabilities emerge and solidify in new ventures that are faced with fundamental uncertainty from their environment (N/A)	As firms learn, they increase their knowledge of their internal processes that allows the reconfiguration of the business model to adapt the environment (Competencies, Skills); Uncertainty speeds up the learning process (Environment)
4	Autio, Sapienza & Almeida (2000)	OL	OL: Barkema & Vermeulen, 1998; Cohen & Levinthal, 1990; Nonaka, 1994	Autio et al., 2000 (OL); Barkema & Vermeulen, 1998 (OL) Hult & Ferrell 1997 (OL); Argyris & Schön, 1978, 1976; Sinkula, Baker & Noordewier 1997 (OL); Argyris & Schön, 1978; Huber, 1991, Fiol & Lyles 1985, Levitt & March 1988, Nonaka, 1991	Investigates the effect of age in the firm, knowledge intensity and imitability of core technology on international growth (N/A)	The learning advantage of newness (the flexibility of a new venture) enables firms to learn competencies for international growth (Competencies, Skills)
5	Baum, Schwens & Kabst (2011)	OL	x	Autio et al., 2000 (OL); Barkema & Vermeulen, 1998 (OL) Hult & Ferrell 1997 (OL); Argyris & Schön, 1978, 1976; Sinkula, Baker & Noordewier 1997 (OL); Argyris & Schön, 1978; Huber, 1991, Fiol & Lyles 1985, Levitt & March 1988, Nonaka, 1991	Investigates the determinants of different INV types (N/A)	The learning orientation differentiates between different INV types: learning orientation takes resources away from the international expansion and vice versa (Competencies, Orientation)
6	Baum, Schwens & Kabst (2013)	OL	x	Autio et al., 2000 (OL); Barkema & Vermeulen, 1998	Investigates how the firm- and entrepreneur-based determinants of international new venturing are moderated by perceived barriers to internationalization (N/A)	The environmental conditions of the country of origin impact the impact of knowledge intensity: the low financial barriers increase the knowledge intensity of INV (Environment)
7	Baum, Schwens & Kabst (2015)	OL	x	Autio et al., 2000 (OL); Barkema & Vermeulen, 1998 Brunel, Yli-Renko & Clarysse 2010 (OL); Cohen & Levinthal, 1990; Huber, 1991; Levitt & March, 1988; Eriksson et al. 1997 (OL); Cyert & March, 1963; March & Simon, 1958; Hult & Ferrell 1997 (OL); Argyris & Schön, 1978, 1976; Johanson & Vahlne, 2009 (OL); Argote, 1999; Barkema & Vermeulen, 1998; Cohen & Levinthal, 1990; March, 1991; Weick, 1995; Sinkula, Baker & Noordewier 1997 (OL); Argyris & Schön, 1978; Huber, 1991, Fiol & Lyles 1985, Levitt & March 1988, Nonaka, 1991	Investigates how the capabilities and resources impact internationalization patterns (Indirect)	Born-globals do not have resources for learning during the early years of international expansion (Dynamics)
8	Blomstermo, Eriksson & Sharma (2004)	OL	OL: Argyris & Schön, 1978; Cohen & Levinthal, 1990; Duncan and Weiss 1979; Fiol and Lyles 1985; March, 1991; Weick, 1991	Eriksson et al. 1997 (OL); Cyert & March, 1963; March & Simon, 1958	Investigates the effects of duration of domestic operations on the knowledge accumulation (Indirect)	The length of domestic activities affects the accumulation of experiential knowledge: the longer the firm operates domestically before internationalization the more it lacks internationalization knowledge (Dynamics)
9	Boter (2003)	N/A	x	x	Investigates the role of management perceptions in exporting and non-exporting SMEs (N/A)	Internationalization is a long-term learning process (Dynamics)
10	Bunz, Casulli, Jones & Bausch (2017)	OL	OL: Barkema & Vermeulen, 1998	Autio et al., 2000 (OL); Barkema & Vermeulen, 1998 (OL); Sapienza et al. 2006 (OL); Barkema, Bell & Pennings, 1996; Barkema & Vermeulen, 1998; Cohen & Levinthal, 1990; Huber, 1991, Vermeulen & Barkema, 2001; Weerawardana et al. 2007 (OL);	Investigates how does an INV in the professional service sector learn and adapt its human capital requirements during internationalization (Direct)	Experiential learning is not automatic but requires deliberate practices (Competencies, Orientation); Setbacks are inevitable part of the internationalization process, which provide valuable learning opportunities for INVs

				Bell, Whitwell & Lukas, 2002; Cohen & Levinthal, 1990; Day, 1994; Nonaka & Takeuchi, 1995; Zhou et al. 2012 (OL); Cohen & Levinthal, 1990; Day, 1994, Huber, 1991			(Dynamics); During the increasing foreign exposure the professional service INV learns from its experience and iterates through the phases of developing, revising, and finalizing its criteria for the requirements of suitable human capital (Environment)
11	Chandra (2017)	OL	x	Zahra et al., 2005 (OL); Daft & Weick, 1984; Weick, 1995	Investigates how entrepreneurs evaluate international entrepreneurial opportunities (N/A)		The early stage international opportunity evaluation is dominated by the need for survival and learning while later stage is influenced by the desire to optimize economic value and efficiency (Dynamics); Mistakes and setbacks are common in early stage internationalization but offer substantial learning opportunities to improve and revise the decision making rules over time (Dynamics)
12	Chandra, Styles & Wilkinson (2012)	OL, Social Learning	x	Corbett 2007 (OL); Cohen & Levinthal, 1990; Hutzschenreuter, Pedersen & Volberda 2007 (OL); Cohen & Levinthal, 1990; Ucbasaran, Westhead & Wright 2009 (Social learning); Bandura, 1994; Wood & Bandura, 1989	Investigates the rapid internationalization through opportunities (N/A)		Networks are important sources of information, opportunities and internationalization paths (Networks); The pace of learning and feedback depends on context where the firm operates (Environment)
13	Chetty and Campbell-Hunt (2004)	OL	OL; Cohen & Levinthal, 1990	x	Compares the differences between traditional and BG approaches (N/A)		BGs differentiate from other firms with the more aggressive learning style: active engagement and experimentation, tolerating the failure, instantly solve problems as they arise (Competencies, Skill)
14	De Clercq and Zhou (2014)	OL	OL; Cohen & Levinthal, 1990; Huber, 1991	Autio et al., 2000 (OL); Barkema & Vermeulen, 1998; Eriksson et al. 1997 (OL); Cyert & March, 1963; March & Simon, 1958; Sapienza et al. 2006 (OL); Barkema, Bell & Pennings, 1996; Barkema & Vermeulen, 1998; Cohen & Levinthal, 1990; Eriksson et al., 1997; Huber, 1991; Vermeulen & Barkema, 2001	Investigates the mediating role of international learning effort at the relationship between international young ventures' entrepreneurial strategic posture and international performance and investigates how external and internal factors moderate this role (Indirect)		Competition intensity and internal social interaction increases the international learning effort (Environment)
15	De Clercq, Sapienza & Zhou (2014)	OL	OL; Barkema & Vermeulen, 1998; Cohen & Levinthal, 1990; Levinthal & March, 1993	Autio et al., 2000 (OL); Barkema & Vermeulen, 1998; Eriksson et al. 1997 (OL); Cyert & March, 1963; March & Simon, 1958; Sapienza et al. 2006 (OL); Barkema, Bell & Pennings, 1996; Barkema & Vermeulen, 1998; Cohen & Levinthal, 1990; Eriksson et al., 1997; Huber, 1991; Vermeulen & Barkema, 2001; Sapienza et al., 2005 (OL); Cohen & Levinthal, 1990; Levinthal & March, 1993 & Nonaka et al., 2000; Zahra et al., 2005 (OL); Daft & Weick, 1984; Weick, 1995	Investigates the contribution of international ventures' entrepreneurial strategic posture to their actual learning efforts at foreign markets depends on various flexibilities that underlie their operations (Indirect)		Entrepreneurial strategic posture enhances learning when venture possesses more cognitive and political flexibilities (Competencies, Skills)
16	Evers, Andersson & Hannibal (2012)	OL	OL; Argyris & Schön, 1978	Brady & Davies 2004 (OL); March, 1991; Weerawerdana et al. 2007 (OL); Bell, Whitwell & Lukas, 2002; Cohen & Levinthal, 1990; Day, 1994; Nonaka & Takeuchi, 1995	Investigates the role of stakeholders in marketing capability building process (N/A)		Networks influence the learning process of INVs (Networks)
17	Fuerst and Zettinig (2015)	OL	OL; Cohen & Levinthal, 1990; Huber, 1991	Autio et al., 2000 (OL); Barkema & Vermeulen, 1998; Eriksson & Chetty 2003 (OL); Cohen & Levinthal, 1990; Barkema, Bell & Pennings, 1996; Eriksson et al. 1997 (OL); Cyert & March, 1963; March & Simon, 1958	Investigates the knowledge acquisition creation of INVs through the interaction with network partners (Direct)		Congenital (technological) knowledge constitutes the starting point for all firms, followed by focused search process and leading to vicarious learning (Dynamics); Different stakeholder interactions lead to the creation of different types of international market knowledge (Networks)

18	Gabrielsson and Gabrielsson (2013)	OL	x	Autio et al., 2000 (OL); Barkema & Vermeulen, 1998; Johanson & Vahlne, 2009 (OL); Argote, 1999; Barkema & Vermeulen, 1998; Cohen & Levinthal, 1990; March, 1991; Weick, 1995	Investigates the growth and survival of high-tech B2B INVs in small and open economies through decision-making logic (N/A)	The role of learning in INVs changes over time: the opportunity creation and explorative learning is important in the early phases. Opportunity discovery and exploitative learning are essential in the latter phases (Dynamics)
19	Gabrielsson, Kirpalani, Dimitratos, Solberg & Zucchella (2008)	OL	x	Ireland, Hitt, Camp, & Sexton, 2001 (OL); Cohen, D. 1998; Nonaka, 1994; Nonaka, I., & Takeuchi, H. 1995; Zahra et al., 2000 (OL); Barkema & Vermeulen, 1998; Bartlett & Ghoshal, 1987; Hitt, Hoskisson & Ireland, 1994; Huber, 1991	Investigates the definition of BG and the behavior of BGs over time (N/A)	Organizational learning develops over time: in the first phase INVs need the experience of the managers or partners, in the second phase they learn from partners or clients and in the third phase they leverage what they have learned (Dynamics); Networks speed up the pace of learning (Networks)
20	Hessels and Stel (2011)	OL	OL: Cohen & Levinthal, 1990	Autio et al., 2000 (OL); Barkema & Vermeulen, 1998; Sinkula, Baker & Noordewier 1997 (OL); Argyris & Schön, 1978; Huber, 1991, Fiol and Lyles 1985, Levitt and March 1988, Nonaka, 1991; Yeoh, 2004 (OL); Cohen & Levinthal, 1990; Zahra et al., 2000 (OL); Barkema & Vermeulen, 1998; Bartlett & Ghoshal, 1987; Hitt, Hoskisson & Ireland, 1994; Huber, 1991	Investigates the relationship between new venture creation and economic growth (N/A)	The availability of technologies increases the firm's specialization in knowledge-based activities (Environment)
21	Kauppinen and Juho (2012)	OL, Social Learning	Social learning: Engeström 1987, 2001	Johanson & Vahlne, 2009 (OL); Argote, 1999; Barkema & Vermeulen, 1998; Cohen & Levinthal, 1990; March, 1991; Weick, 1995	Investigates the internationalization through the social learning theory (Direct)	Entrepreneurial actions (the creation of an international business opportunity) are about learning that constructs and co-creates knowledge (Competencies, Skills); Learning in INVs is a social and cyclical process (Dynamics)
22	Khavul, Peterson, Mullens & Rasheed (2010)	OL	OL: Argote & Todorova 2007; Argote 1999; Huber, 1991; March, 1991	x	Investigates the role of international customer support in exploiting the innovation (N/A)	International customer support is positively associated with organizational learning (Networks)
23	Knight & Cavusgil (2004)	OL	OL: Cohen & Levinthal, 1990	Autio et al., 2000 (OL); Barkema & Vermeulen, 1998; Zahra et al., 2000 (OL); Barkema & Vermeulen, 1998; Bartlett & Ghoshal, 1987; Hitt, Hoskisson & Ireland, 1994; Huber, 1991	Investigates the role of innovative culture and organizational capabilities on early internationalization and international performance (Indirect)	The innovative nature of BGs develops knowledge in the firm (Competencies, Orientation)
24	Kumar (2013)	OL	x	Baker & Sinkula 1999 (OL); Argyris & Schön, 1978; Huber, 1991; Sinkula, Baker & Noordewier 1997 (OL); Argyris & Schön, 1978; Huber, 1991, Fiol and Lyles 1985, Levitt and March 1988, Huber, 1991; Nonaka, 1991; Zollo & Winter 2002 (OL); Argote, 1999; Argyris & Schön, 1978; Cohen & Levinthal, 1990; Levitt & March, 1988; March, 1991; Nonaka, 1994; Weick, 1979,1991	Investigates the factors of early internationalization in Indian knowledge-intensive service firms (KISFs) (N/A)	Early internationalization is positively related to learning (Dynamics)
25	Kungwansupaphan and Siengthai (2014)	OL	OL: Huber, 1991	x	Investigates the role of human capital in the learning orientation of early internationalizing firm (Direct)	Entrepreneurial- and managerial competence have a positive effect on the learning orientation (Competencies, Skills)
26	Laudien and Daxböck (2017)	OL	x	Weerawardena et al., 2007 (OL); Bell, Whitwell & Lukas, 2002; Cohen & Levinthal, 1990; Day, 1994; Nonaka & Takeuchi, 1995	Investigates how growing service orientation affects international new ventures (N/A)	Service-orientation enhances organizational learning (Competencies, Orientation); Increased service orientation goes along with a development of capabilities and allow for an improved access to customer-based and network-based knowledge (Competencies, Orientation)

27	Nadkarni and Perez (2007)	OL		OL: Barkema & Vermeulen, 1998; Vermeulen & Barkema 2001; Weick 1995	Eriksson et al. 1997 (OL): Cyert & March, 1963; March & Simon, 1958	Investigates firm-specific explanations for early international commitment (N/A)	High-technology resource orientation implies a focus on innovation (Competencies, Orientation); High advertising intensity implies that firms seek new ways to compete and differentiate their products and this promotes greater learning and knowledge creation (Competencies, Orientation)
28	Oxtorp (2014)	OL	x		Weerawardena et al., 2007 (OL): Bell, Whitwell & Lukas, 2002; Cohen & Levinthal, 1990; Day, 1994; Nonaka & Takeuchi, 1995	Investigates the challenges technology-based INVs face after their initial internationalization phase and the dynamic managerial capability (N/A)	Internationally oriented practices create routines that provide the learning advantages of newness (Competencies, Orientation)
29	Park and Rhee (2012)	OL		OL: Cohen & Levinthal, 1990	Autio et al., 2000 (OL); Barkema & Vermeulen, 1998; Yli-Renko et al. 2001 (OL); Cohen & Levinthal, 1990; Zahra et al. 2009 (OL) = Cohen & Levinthal, 1990; Zahra & Hayton 2008 (OL); Argyris & Schön, 1978; Cohen & Levinthal, 1990; Doggson, 1993; Huber, 1991) Zahra & George 2002 (OL): Cohen & Levinthal, 1990; Huber, 1991	Investigates the antecedents of knowledge competency and international performance (Indirect)	The prior international experience and use of networks are important pre-conditions for acquiring knowledge-based resources (Competencies, Experience; Networks)
30	Pellegrino and Mcnaughton (2015)	OL		OL: Huber, 1991	x	Investigates the co-evolution of learning and internationalization strategy (Direct)	Learning changes as INVs internationalize: at the time of founding, INVs rely on congenial learning, but as they internationalize they use more experiential, vicarious, searching and noticing based learning (Dynamics)
31	Presutti, Boari & Fratocchi (2007)	N/A	x		x	Investigates the growth of INVs through social capital theory (Indirect)	Network ties between the key foreign customers are positively related to foreign knowledge acquisition (Networks)
32	Ripollés, Blesa & Monferrer (2012)	OL		OL: Cohen & Levinthal, 1990	Sapienza et al., 2005 (OL); Barkema, Bell & Pennings, 1996; Barkema & Vermeulen, 1998; Cohen & Levinthal, 1990; Huber, 1991; Vermeulen & Barkema, 2001; Eriksson et al. 1997 (OL): Cyert & March, 1963; March & Simon, 1958	Investigates the company specific factors that enhance the choice of higher resource commitment entry modes in INVs (N/A)	Early internationalization influences INV capability to absorb foreign market knowledge (Dynamics)
33	Romanello and Chiarvesio (2017)	Entrepren. Learning		Entrepreneurial learning: Zhou, 2007	x	Investigates which factors influence international growth during the entry and post-entry phases of BG and how the factors change during the life cycles of the firms (N/A)	The learning methods of entrepreneurs change as the firm moves from the first years of activity to the post-entry stage. During the first years of activities, founders approached markets with a trial-and-error and "learn by doing" methods. As they reach post-entry stage, entrepreneurs start to transform their capabilities into organizational knowledge (Dynamics)
34	Ruokonen and Saarenketo (2009)	OL		OL: Argyris & Schön, 1978; Barkema & Vermeulen, 1998	Eriksson et al. 1997 (OL): Cyert & March, 1963; March & Simon, 1958	Investigates the strategic orientations of rapidly internationalizing small software companies (N/A)	The most effective way to learn in the beginning is to use managerial experience and in the later phase the learning is focused more on interpreting market signals and adjusting the strategy (Dynamics)
35	Sapienza, De Clercq & Sandberg (2005)	OL		OL: Cohen & Levinthal, 1990; Levinthal & March, 1993	Eriksson et al. 1997 (OL): Cyert & March, 1963; March & Simon, 1958	Investigates the antecedents of international and domestic learning effort at independent firms (Direct)	Entrepreneurial orientation is positively associated to international- and domestic learning effort (Competencies, Orientation)
36	Sardana and Scott-Kemmis (2010)	Entrepren. Learning		Entrepreneurial learning: Cope 2003, 2005; Harrison & Leitch 2008; Politis 2005	x	Investigates the impact of entrepreneurial team and entrepreneurs' role in learning (Direct)	The learning is the highest when there is an experience gap (Competencies, Experience)
37	Schwens & Kabst (2009a)	OL		OL: Barkema & Vermeulen, 1998	Autio et al., 2000 (OL); Barkema & Vermeulen, 1998	Investigates how asset specificity, prior international experience and international network contacts impact early internationalization (N/A)	International networks seem to facilitate learning via access to the knowledge of network members (Networks)

38	Schwens & Kabst (2009b)	OL	OL: Cohen and Levinthal (1990); Levitt & March (1988)	x		Investigates learning in the entry phase of internationalization (Direct)	Learning from the experience affects negatively to the early internationalization (Competencies, Experience); Learning from others and imitating the best practices for the early internationalization (Dynamics)
39	Shrader, Oviatt & McDougall (2000)	N/A		x	x	Investigates how the risks of accelerated internationalization may be engaged (N/A)	The locus of foreign market knowledge may be more the entrepreneur or the entrepreneurial team than the whole organization decision making system (Dynamics)
40	Vanninen, Kuivalainen & Ciravegna (2017)	OL		x		Investigates how born micromultinationals multinationalize (N/A)	Trust building (management) is a prerequisite for efficient learning (Competencies, Skills)
41	Voudouris, Dimitrios & Salavou (2011)	OL, Entrepren. Learning	Entrepreneurial learning: Lumpkin & Lichtenstein, 2005; Minniti & Bygrave, 2001; Politis, 2005; Zhang et al., 2006 OI: Dutta & Crossan, 2005			Investigates the entrepreneurial learning in early internationalizing firms (Direct)	Industrial, technological and international learning orientations affect the entrepreneurial learning (Competencies, Orientation); Entrepreneurial learning is a multidimensional process that spans from individual level to the whole organization (Dynamics)
42	Weerawardena, Mort, Salunke, Knight & Liesch (2014)	OL	OL: Cohen & Levinthal, 1990; March, 1991; Powell et al. 1996	x		Investigates the organizational learning in the context of INVs (Direct)	Learning capabilities (marketing, internal learning and network learning capabilities) of the entrepreneurs creates knowledge and marketing capabilities needed for the internationalization (Competencies, Skills)
43	Wood, Khavul, Perez-Nordvedt, Prakhya, Dabrowski & Zheng (2011)	OL		x		Investigates the strategic early internationalization (N/A)	Deliberate knowledge integration from international operations increases the breadth and speed of learning (Environment)
44	Yeoh (2004)	OL	OL: Barkema & Vermeulen, 1998; Duncan & Weiss, 1979			Investigates technological, market- and social learning during internationalization (Direct)	Prior international experience shape the learning (Competencies, Experience); Exposure to the foreign markets enhances the potential of learning (Environment); Over diversification lead to decline in technological learning (Environment)
45	Yu, Gilbert & Oviatt (2011)	OL	OL: Cohen & Levinthal, 1990			Investigates the role of networks in accelerating new ventures sales into foreign markets (N/A)	Technological alliances provide rapidly changing and complex technological knowledge (Networks); Marketing alliances provide stable knowledge about the foreign markets (Networks)

46	Zahra, Ireland & Hitt (2000)	OL		OL: Barkema & Vermeulen, 1998; Bartlett & Ghoshal, 1987, 1987; Hitt, Hoskisson, & Ireland, 1994; Huber, 1991	x	Investigates the effects of international expansion, measured by the international diversity and mode of market entry, on firm's technological learning and the effects of this learning on the financial performance (N/A)	The entry to new international markets increases the potential for the greater breadth and depth of technological learning, but the greater diversity of foreign markets can reduce the speed of technological learning (Environment)
47	Zhang, Tansuhaj & McCullough (2009)	OL		OL: Cohen & Levinthal, 1990; Weick, 1995	Autio et al., 2000 (OL); Barkema & Vermeulen, 1998; Ireland, Hitt, Camp, & Sexton, 2001 (OL); Cohen, D. 1998; Nonaka, 1994; Nonaka, I., & Takeuchi, H. 1995; Zahra et al., 2000 (OL); Barkema & Vermeulen, 1998; Bartlett & Ghoshal, 1987; Hitt, Hoskisson, & Ireland, 1994; Huber, 1991	Investigates the development and application of entrepreneurial capability (N/A)	International entrepreneurial capability has positive effect on learning (Competencies, Skills)
48	Zhou (2007)	OL		OL: Barkema, Bell, & Pennings, 1996	Autio et al., 2000 (OL); Barkema & Vermeulen, 1998; Eriksson et al. 1997 (OL); Cyert & March, 1963; March & Simon, 1958; Sapienza et al., 2005 (OL); Cohen & Levinthal, 1990; Levinthal & March, 1993 & Nonaka et al., 2000); Zahra et al., 2000 (OL); Barkema & Vermeulen, 1998; Bartlett & Ghoshal, 1987; Hitt, Hoskisson, & Ireland, 1994; Huber, 1991	Investigates the factors of early internationalization (N/A)	The innovative and proactive pursuit of entrepreneurial opportunities produces foreign market knowledge (Competencies, Orientation)
49	Zhou, Barnes & Lu (2010)	OL	x		Autio et al., 2000 (OL); Barkema & Vermeulen, 1998; Sapienza et al., 2005 (OL); Cohen & Levinthal, 1990; Levinthal & March, 1993 & Nonaka et al., 2000; Zahra et al., 2000 (OL); Barkema & Vermeulen, 1998; Bartlett & Ghoshal, 1987; Hitt, Hoskisson, & Ireland, 1994; Huber, 1991	Investigates the mechanisms underlying learning advantage of newness related performance advantages in new venture internationalization (Indirect)	Entrepreneurial behavior supports the full potential of learning advantage of newness through the entrepreneur's dynamics of learning to upgrade network and market knowledge (Competencies, Orientation)
50	Zou and Ghauri (2010)	OL	x		Zahra & Hayton 2008 (OL); Argyris & Schön, 1978; Cohen & Levinthal, 1990; Dodgson, 1993; Huber, 1991; Zahra et al., 2005 (OL); Daft & Weick, 1984; Weick, 1995	Investigates how Chinese high-technology ventures internationalize (N/A)	High-tech ventures have the tendency to acquire knowledge at their early entry phases (Dynamics); INVs rely on networks to facilitate learning (Networks); Cultural diversity within the INV influence the knowledge flow (Environment)

Appendix D. The reviewed articles. N = 50

1. Almodóvar, P. & Rugman, A.M. 2014, "The M Curve and the Performance of Spanish International New Ventures", *British Journal of Management*, vol. 25, pp. S6-S23.
2. Anderson, V., Graham, S. & Lawrence, P. 1998, "Learning to internationalize", *The Journal of Management Development*, vol. 17, no. 7, pp. 492–502.
3. Autio, E., George, G. & Alexy, O. 2011, "International Entrepreneurship and Capability Development—Qualitative Evidence and Future Research Directions", *Entrepreneurship Theory and Practice*, vol. 35, no. 1, pp. 11–37.
4. Autio, E., Sapienza, H.J. & Almeida, J.G. 2000, "Effects of Age at Entry, Knowledge Intensity, and Imitability on International Growth", *The Academy of Management Journal*, vol. 43, no. 5, pp. 909–924.
5. Baum, M., Schwens, C. & Kabst, R. 2011, "A Typology of International New Ventures: Empirical Evidence from High-Technology Industries", *Journal of Small Business Management*, vol. 49, no. 3, pp. 305–330.
6. Baum, M., Schwens, C. & Kabst, R. 2015, "A latent class analysis of small firms' internationalization patterns", *Journal of World Business*, vol. 50, no. 4, pp. 754–768.
7. Baum, M., Schwens, C. & Kabst, R. 2013, "International as opposed to domestic new venturing: The moderating role of perceived barriers to internationalization", *International Small Business Journal*, vol. 31, no. 5, pp. 536–562.
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Publication II

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Emergence of an entrepreneurial opportunity: A case within a Finnish telecommunication International New Venture

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Emergence of an entrepreneurial opportunity: A case within a Finnish telecommunication international new venture

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Abstract

This article conducts an in-depth investigation of entrepreneurial opportunity recognition in an international new venture (INV) during the time period before the organizational emergence. While doing so, the study applies a strategic orientation (SO) approach that seems to provide the possibility of observing firm activities from multiple perspectives. A qualitative and interpretive method is used for this purpose. The findings of this study support the notion that the phase before organizational emergence is a significant period for entrepreneurial opportunity recognition. Additionally, this study illustrates the reason and processes involved are the same. Firstly, the findings indicate that the initial opportunity recognition and the development throughout this phase rely on the entrepreneurial orientation of the individuals. Moreover, entrepreneurial opportunity results from information-seeking behavior regarding ways to respond to demand. Such a process seems to require a reconciliation of technological and commercial knowledge domains. Secondly, the findings indicate that the context has a distinct role in the opportunity recognition process. In this study, the support of the parent corporation, particularly, seemed to have a significant impact on the initial discovery and subsequent development of entrepreneurial opportunity.

Resumen

Este artículo realiza una investigación en profundidad del reconocimiento de oportunidades emprendedoras en una nueva empresa internacional (NEI) durante el período de tiempo anterior al surgimiento de dicha organización. En base a ello, el estudio aplica un enfoque de orientación estratégica (OE), que ofrece la posibilidad de observar las actividades empresariales desde múltiples perspectivas. Con este propósito, se utiliza un método cualitativo e interpretativo. Los resultados de este estudio apoyan generalmente la idea de que la fase anterior al surgimiento de la organización es un período altamente significativo para el reconocimiento de oportunidades emprendedoras. Adicionalmente, también se busca ilustrar no sólo la razón, sino también los procesos involucrados en dicho reconocimiento. En primer lugar, los resultados indican que el reconocimiento inicial de la oportunidad y el desarrollo a lo largo de esta fase dependen de la orientación emprendedora del individuo/s. Además, la oportunidad emprendedora constituye el resultado del comportamiento de búsqueda de información con respecto a las formas de responder a la demanda. Dicho proceso parece requerir, además, una cierta conciliación de diversos dominios de conocimiento, tanto a nivel tecnológico como comercial. En

segundo lugar, los resultados indican que el contexto tiene un papel sumamente distintivo en el proceso de reconocimiento de oportunidades. Finalmente, se pone igualmente de manifiesto en este estudio el hecho de que el apoyo otorgado por la empresa matriz tiene un impacto particularmente significativo en el descubrimiento inicial y el desarrollo posterior de la oportunidad emprendedora a través de una NEI.

Keywords International entrepreneurship · Strategic orientation · International new ventures · Entrepreneurial opportunity

Palabras clave Emprendimiento internacional · Orientación estratégica · Nuevas empresas internacionales · Oportunidad emprendedora

JEL L26 Entrepreneurship

Summary highlights

Contributions: This article advances our understanding about the antecedents of entrepreneurial opportunity. The study provides in-depth insights about individual characteristics and contextual features that contributed opportunity recognition during the pre-launch period. In doing so, this study offers novel and significant perspectives for the fields of international entrepreneurship and strategic orientation.

Research questions/purpose: This article conducts investigation of entrepreneurial opportunity recognition during the pre-launch period in an international new venture (INV). While doing so, the study applies a strategic orientation approach. The research question for this article is as follows: How do individuals discover opportunities during the pre-launch period?

Methodology and information: A qualitative and interpretive method is used in a single case setting. The primary data collection method was in-depth interviews conducted with two of the founders of the case company. Moreover, a narrative analysis was applied.

Results/findings: The findings of the study are as follows. Firstly, the findings support the perspective that the pre-launch period represents a significant prerequisite for entrepreneurial opportunity emergence. It was found that this links especially to the characteristics and skills of the individuals, especially reflecting their entrepreneurial orientation. Moreover, it was found that the opportunity discovery was fundamentally information seeking behavior about market imbalances and ways to respond to them. Such a process seems to require a reconciliation of commercial and technological knowledge domains. Secondly, it was found that the context was a significant precondition for the opportunity emergence. In this respect, the most significant elements were the linkage to the MNE and the level of support granted to the project.

Theoretical implications and recommendations: The study offers several in-depth insights about the emergence entrepreneurial opportunity. Firstly, in relation to

entrepreneurial opportunity theory, this study supports the notion that the pre-launch period is quite significant for entrepreneurial opportunity recognition. Consequently, the findings support the insights that the prior experience and knowledge support opportunity recognition and should therefore be included in the equation. In this respect, an essential feature was the intersection of technological and commercial knowhow which enabled the emergence and subsequent development of the opportunity. In addition, the findings can be linked to the discovery and creation debate where this study supports the supplementary insight of the matter and the perspective that the emergence of opportunities occurs in the interaction between individuals and the environment. In addition, the SO perspective adopted in this study offers some very relevant and significant insights. On top of the list is the finding that entrepreneurial orientation can be conceived of as the primary dimension driving the innovation-seeking behavior of individuals. Moreover, the market and technological orientation of the individuals were present in the opportunity emergence process. Finally, there are findings that link to the discussion about the role of context; these particularly reflect the institutional features and firm and institutional level events.

Managerial and policy implications and recommendations: The practical findings of this study provide insights for individuals interested in entrepreneurship and innovation. Firstly, in this case, the MNE was ready to allow individuals to continue the project in a spin-off company. Hence, people employed by large multinational enterprises could consider the spin-off option one alternative to start their entrepreneurial careers. Secondly, the recognition and development of entrepreneurial opportunities seems to require openness. Thus, entrepreneurs and entrepreneurs-to-be need to keep their minds open and to be ready to acquire feedback to recognize and develop entrepreneurial opportunities further.

Limitations: The limitations of this study are as follows. Firstly, findings are based on material involving one company and therefore over-generalization should be avoided. Thus, further research is required in different industries. Secondly, the interview material was retrospective and cross-sectional. Hence, real-time and longitudinal studies are required to provide in-depth findings of entrepreneurial opportunity development.

Introduction

“The process of how ideas come into existence, is, an inherent aspect of entrepreneurial narrative” (Gartner 2007).

The manner in which entrepreneurs recognize opportunities is a central interest of entrepreneurship research (Bergh et al. 2011; Hayton and Cholakova 2012). However, it seems that we still have plenty to explore to explain thoroughly how entrepreneurial opportunities are recognized. In this respect, one of the areas requiring further research is the period before the official establishment of a firm. The reason is that preparations

of international small and medium-sized enterprises (SMEs) can begin well before the firms are set up (Hewerdine and Welch 2013). Consequently, it has been suggested that researchers should focus on activities which take place before the establishment of a firm (Hewerdine and Welch 2013) (henceforth described by the term pre-launch period). Moreover, recent studies have suggested that we could further investigate the antecedents of entrepreneurial opportunity recognition and exploitation to explain the opportunity phenomenon in more detail (Kuckertz et al. 2017). This could be achieved, for instance, by investigating the role of prior knowledge (George et al. 2016) and prior experience (Haynie et al. 2009) in relation to entrepreneurial opportunity recognition.

Accordingly, the aim of this research is to conduct an in-depth investigation of opportunity emergence during the pre-launch period in an INV. For this purpose, strategic orientation (SO) approach seems suitable for fulfilling the objectives of this study. This approach enables the investigation of firm-based activities from several aspects, such as the market, technology, and entrepreneurial orientation (Hakala 2011). Moreover, in previous studies, SO has already been found to support opportunity recognition (Kakapour et al. 2016), the emergence of radical innovations (Kocak et al. 2017) and the use of innovation-based strategies as competitive advantage (Knight and Cavusgil 2004) of SMEs. Additionally, in doing so, this study can offer novel and significant perspectives for SO literature as more knowledge is required regarding the influence of prior experience on strategic orientation dimensions (Presutti and Odorici 2018). However, this study focuses on the individual entrepreneurs and their conception of opportunity emergence (Dimov 2011). Therefore, based on these research gaps and future research suggestions from previous studies, the research question for this article is as follows: *How do individuals discover opportunities during the pre-launch period?*

The abovementioned research question is answered through a study conducted using a qualitative and interpretive method in a single case setting. This approach emphasizes the individual interpretations and enables in-depth descriptions of the studied phenomenon (Walsham 1995). Moreover, a narrative analysis is applied, supporting the in-depth focus of the study (Langley 1999). The case company (codenamed) is *Wireless Telegraph Company* (henceforth abbreviated to WTC), which is an INV operating in the telecommunication sector. WTC was established in 2012, but its entrepreneurial opportunity originated in January 2010 when it was an independent business unit within a multinational enterprise (MNE). This research focuses on the period (2010–2012) when entrepreneurial opportunity was developed as part of the MNE. The research material has been collected from two of the founders who have been working on the opportunity from the beginning. A discussion, below, on the theoretical framework of the study is followed by the description of its aims and methodology. Subsequently, the article goes on to introduce the empirical findings, followed by the discussion section and future research implications.

Theory and literature review

Entrepreneurial opportunity

Opportunity is a central element in the field of International Entrepreneurship (IE). This research focuses especially on the international aspect, as Oviatt and McDougall (2005)

define IE as follows: “*the discovery, enactment, evaluation, and exploitation of opportunities—across national borders—to create future goods and services.*” In INVs, the opportunities are closely connected to the individual founders: “*who see opportunities from establishing ventures that operate across national borders. They are ‘alert’ to the possibilities of combining resources from different national markets because of the competencies (networks, knowledge, and background) that they have developed from their earlier activities.*” (Phillips-McDougall et al. 1994, p. 470). The recent empirical findings support such a notion. For instance, a study by Hannibal et al. (2016) found that opportunity recognition by university-based INVs was closely connected with the abilities and motivation of the individuals. Nevertheless, there is still plenty to do relating to this topic. For instance, there are two primary approaches which have been conceived to increase understanding about entrepreneurial opportunity phenomena. Firstly, there is the insight that we should consider the period before the organizational emergence in our studies (Hewerdine and Welch 2013) and investigate the antecedents of opportunity recognition (Kuckertz et al. 2017). For instance, a recent review by George et al. (2016) suggests that the investigation of prior knowledge is a significant avenue for future research. Secondly, there is the context-aware perspective. This implies that we should acknowledge and investigate further how context affects the conditions for opportunities (Reuber et al. 2017). The context awareness in question suggests that the situational features can influence the occurrence of opportunities; that is to say, opportunity recognition may be affected by (i) country-specific, institutional, and industry-related features, (ii) sociocultural differences and the temporality of time, and (iii) individual, firm, and institutional level events (Reuber et al. 2017).

Entrepreneurial opportunities are essentially new products, services, raw materials, market, or organizing methods that form new means–ends relationships (Eckhardt and Shane 2003; Shane and Venkataraman 2000). These new means–ends can be achieved by satisfying market needs (means) or creating new demand (ends) or by doing both (Eckhardt and Shane 2003, p. 336). Central to the existence and identification of opportunities is the knowledge that individual entrepreneurs possess regarding market imbalances (Eckhardt and Shane 2003). Thus, the opportunity discovery process can be considered an active search behavior (Mainela et al. 2014) and alertness (Kuckertz et al. 2017) for innovative products or services which respond to the market imbalance between supply and demand. Moreover, it seems that opportunities are often discovered in circumstances in which contrasting knowledge domains (Hansen et al. 2011) and knowledge asymmetries meet (Corbett 2005; Eckhardt and Shane 2003).

A very central topic of current opportunity-related research has been the debate on whether opportunities are discovered or created (George et al. 2016; Suddaby et al. 2015). Thus, discovery and creation perspectives are considered separate theories of entrepreneurial opportunity. These theories differ in terms of how they conceive the nature of opportunities, the role of entrepreneurs, and the process of exploitation of the opportunity (George et al. 2016). The discovery perspective considers opportunities to be existing in the environment objectively (Suddaby et al. 2015) and independently of the entrepreneur (George et al. 2016). This viewpoint emphasizes the interaction between the environment and individual entrepreneurs, which may lead to the recognition of market imbalances (Suddaby et al. 2015). The creation perspective views entrepreneurial opportunities as endogenous acts in which entrepreneurs create opportunities through their creative imagination and social skills (Suddaby et al. 2015). In other words, based on the creation perspective, opportunities do not exist independently

but the entrepreneur must create them (George et al. 2016). This viewpoint emphasizes the individual entrepreneur's ability to realize previously non-existent and alternative social and economic arrangements from the environment (Suddaby et al. 2015).

Nevertheless, some recent studies have suggested that the debate regarding whether opportunities are discovered or created may be unnecessary, as there are elements of truth in both perspectives (Renko et al. 2012). This perspective holds that individuals spot opportunities from the objective environment, based on their subjective perceptions of how to address them, as accurately as possible (Renko et al. 2012, p. 1246). Oyson and Whittaker (2015) further explore this matter. These authors suggest that discovery and creation are two separate phases in the opportunity actualization process. Discovered opportunities are the output of the entrepreneurs' imagination, which has not yet exposed to the external environment. Hence, they are still "*broad, vague or incomplete and not ready for exploitation*" (Oyson and Whittaker 2015, p. 329). In order to be exploited, they need to be "*transformed into concrete, entrepreneurial opportunities- in other words, 'created'.*" (Oyson and Whittaker 2015, p.329). Thus, these authors take the ontological stand that the discovered opportunities are only potential ones, until they are actually transformed into opportunities (Oyson and Whittaker 2015).

To conclude, entrepreneurial opportunity is a significant phenomenon in the field of IE. Nevertheless, it is also a topic which requires substantial further research, so that we can accurately describe how and why entrepreneurial opportunities arise. Hence, this article concentrates on one of the key development areas, namely the period before organizational emergence (Hewerdine and Welch 2013). Accordingly, it seems that we should shift our focus from the ontological debate to investigating how individuals recognize entrepreneurial opportunities from the environment based on their perception (Renko et al. 2012). Therefore, opportunity recognition has been strongly linked with the manner of responding to market need (Kuckertz et al. 2017; Mainela et al. 2014). Moreover, opportunity recognition also seems to be linked intricately to the abilities and motivations of the individuals (Hannibal et al. 2016), and this is supported by the interconnection of different levels (Corbett 2005; Eckhardt and Shane 2003; Hansen et al. 2011).

This study implements the strategic orientation (SO) approach because this supports the objectives of this article and provides several advantages related to the aforementioned aspects. Firstly, the SO approach provides several aspects to investigate entrepreneurial opportunity recognition such as the market, technological, and learning orientations (Hakala 2011). Secondly, previous studies have found that SO supports opportunity recognition (Kakapour et al. 2016) and links to the radicality of innovation (Kocak et al. 2017) and how innovation-based strategies are applied as competitive advantage in SMEs (Knight and Cavusgil 2004). These insights are beneficial for this article. Thirdly, by applying the SO approach, this article provides novel insights that can be used to promote the SO discipline. Consequently, through this study, it is possible to promote this field by studying how experience affects different dimensions of SO which is one of the research gaps (Presutti and Odorici 2018). In the following section, the principles of the SO approach and its use in SME-related research have been discussed in more detail.

Strategic orientation

Basically, SO can be considered a set of "principles" that steer the activities of a firm to improve its organizational performance (Balodi 2014; Hakala 2011). According to a

systematic review by Hakala (2011), there are four main dimensions applied regularly in SO research: the market, entrepreneurial, learning, and technology orientation. According to this comprehensive review, market orientation represents the external features of the organization, reflecting its awareness of customers and competitors and the exploitation of the market knowledge. Technology orientation reflects the firm's desire to create customer value and increase competitive advantage by creating new technologies, products, and services. Entrepreneurial orientation reflects the innovative, proactive, and risk-taking behavior adopted by the organization. The learning orientation reflects the organization's overall capability to turn the recognized opportunities into actions (Hakala 2011).

The SO research carries implications for entrepreneurial opportunity theory as well. Therefore, especially, the "outward-looking" features of SO seem to play a significant role in SMEs which provide the "...*market knowledge and lead into new decisions to explore and exploit opportunities for innovation.*" (Kocak et al. 2017, p. 262). Hence, the entrepreneurial orientation manifests in the proactive and opportunity-seeking conduct of entrepreneurs, while discovering and introducing new technological solutions (Odorici and Presutti 2013). Moreover, Kickul and Gundry (2002) contend that entrepreneurs with "prospector" type characteristics are more likely to recognize opportunities for developing new products and markets (Kickul and Gundry 2002). In the field of IE, SO is linked with the internationalization process (Ruokonen and Saarenketo 2009) and international performance (Jantunen et al. 2008) of SMEs. At the individual level, it seems to be linked to the characteristics of the entrepreneurs and the innovation efficacy of the firm (Cooper et al. 2016). Innovation seems to be central to rapidly internationalizing ventures as well. A study by Knight and Cavusgil (2004) concluded that early internationalization and the international performance were related to the innovative nature of the Born Globals (BGs). In their view, these are companies that "...*from or near their founding, seek superior international business performance from the application of knowledge-based resources to the sale of outputs in multiple countries.*" (Knight and Cavusgil 2004, p. 124). Even though these authors do not refer directly to SO literature, they found that the (international) entrepreneurial and marketing orientation of BGs drives them to develop high-quality goods and innovation-based strategies which are the primary prerequisites for international success (Knight and Cavusgil 2004).

Based on the literature review, it seems that SO is a functional approach to investigating the emergence of entrepreneurial opportunity. In terms of this field of research, entrepreneurial opportunity recognition is a result of the unprovoked opportunity-seeking behavior of individuals. Moreover, in relation to IE, it stands out through its emphasis on innovation, which is considered one of the primary competitive advantages of rapidly internationalizing SMEs. Overall, SO offers a versatile set of perspectives to investigate opportunity-related activities in SMEs.

Methodology

The objective of this study is to investigate the emergence of entrepreneurial opportunity during the pre-launch period, by focusing on the knowledge-related aspect (see, e.g., Eckhardt and Shane 2003; Kuckertz et al. 2017). While doing so, the study applies the SO approach which enables investigation of how individual characteristics

influence entrepreneurial opportunity (see, e.g., Kickul and Gundry 2002; Odorici and Presutti 2013). In addition, this study links entrepreneurial opportunity with innovation, which is a central aspect in the field of IE (Coviello and Tanev 2017; Hewerdine and Welch 2013) and SO-related research (Gatignon and Xuareb 1997; Knight and Cavusgil 2004).

This study tackles the task by applying a qualitative methodology, which is considered a promising alternative to advance understanding about entrepreneurial opportunity (George et al. 2016). Moreover, this is an interpretive case study, highlighting as it does the individuals' interpretation of the phenomenon (Walsham 1995). Thus, the study provides a detailed description of the studied phenomenon by revealing its real-life dynamics (Dyer Jr. and Wilkins 1991). The single case setting further enhances the in-depth investigation of the topic (Dyer and Wilkins 1991). Overall, the aim of this article is not to generalize (McGaughey 2006) or to present an extreme case for theory (Eisenhardt and Graebner 2007) but to provide an extensive description of what is happening in this particular context (Walsham 1995; Welch et al. 2011). Hence, it is anticipated that this research will offer new insights in the subject of entrepreneurial opportunity and SO and provide novel future research avenues for both streams of research.

Data collection and analysis

This is a cross-sectional and retrospective study (see Fig. 1). The observation period covers the timeframe from the initial opportunity discovery in January 2010 until the establishment of the case company in August 2012. The primary data collection method was in-depth interviews conducted with Mike and Tom (codenamed), who have worked on the opportunity from the beginning till this day (as of December 2018). The interview method was selected because it emphasizes individual interpretations of the actions and events related to the phenomenon (Walsham 1995, p. 78). Moreover, the use of open-ended interviews may raise novel insights and, in doing so, promote theory building of the phenomenon (Suddaby et al. 2015). The data collection and analysis are discussed in greater detail in the following sections.

The primary data comprised in-depth interviews conducted with Mike and Tom. The in-depth interview with Mike took place in April 2016, and Tom was interviewed later in December 2016. Both were interviewed separately, and the interviews took place in the office space of WTC, which was situated at that time in a metropolitan area of Finland. The duration of the interview with Mike was 86 min, whereas Tom's interview was for 101 min; the interviews were tape recorded and transcribed into word documents. Interview questions were related to (i) the personal education and work histories before the initial opportunity discovery, (ii) motives for working with the opportunity, (iii) the description of the events and activities during the pre-launch period, and (iv) the current state of the entrepreneurial opportunity at the time of the interview. In addition, these interviews included informal discussions on entrepreneurship and the innovation. Notes were also taken during the interviews, for instance, on the general atmosphere of the interviews and the mood of the interviewees.

The secondary data comprised the introductory interview, as well as follow-up interviews, an email discussion, and social media publications. The introductory interview was conducted with Mike. This was partly a negotiation about participating in the research project and partly an introduction to WTC and their innovation initiatives and occurred in

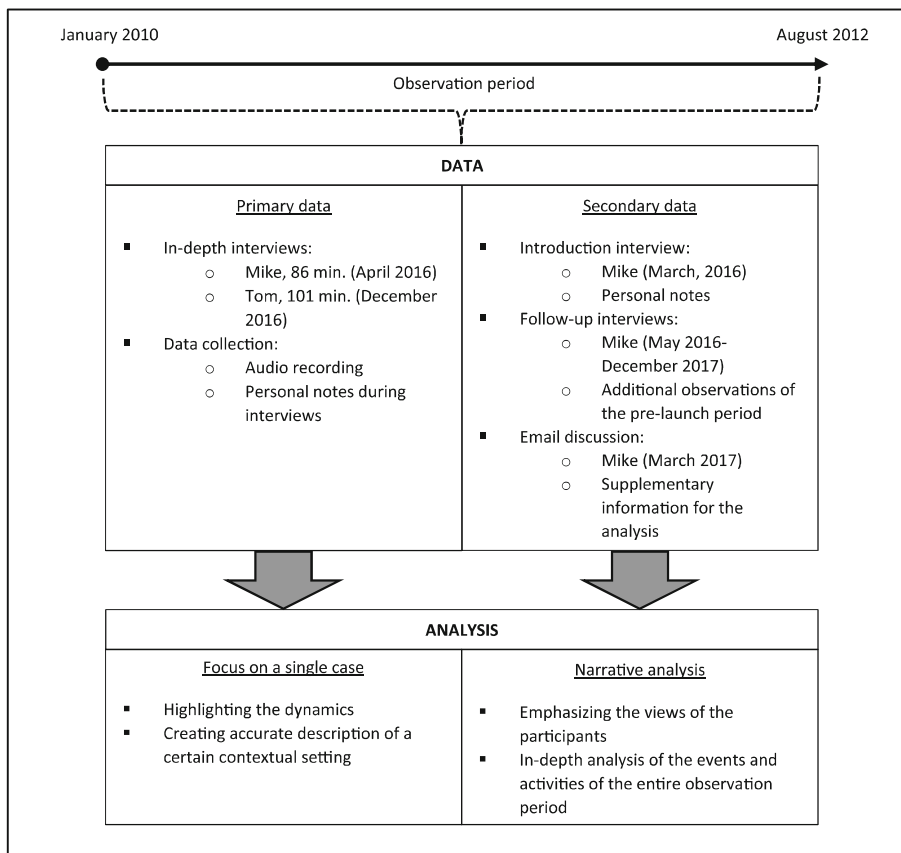


Fig. 1 Research design

March 2016. This involved no prior questions and was very informal in nature. Only personal notes were made during this event. Moreover, the researcher resorted to follow-up interviews (conducted during 2016–2017), whenever issues related to the emergence of the opportunity arose. This happened regularly when Mike evaluated the progress of innovation. In the case of this article, only Mike's interviews were applied in the analysis, as he was the only one who had been involved in the pre-launch period. Moreover, a comprehensive email discussion was carried out with Mike during the analysis, with more specific questions about entrepreneurial opportunity emergence. Social media observation included the blog published by the case company and Mike's activity on LinkedIn.

The analysis focused on a single case company, seeking to obtain an in-depth description of a particular social setting (Dyer Jr. and Wilkins 1991). In other words, the objective was to highlight the dynamics of the phenomenon and attain an accurate description of the aspects of this carefully restricted context (Dyer Jr. and Wilkins 1991). The data analysis followed the ideas of Dawson and Hjorth (2012) regarding narrative analysis. In the first phase, all the critical events and activities contributing to the entrepreneurial opportunity were summarized. This was accomplished by constructing a "multivoiced story" of both the interviewed individuals. The second phase included an in-depth analysis of how these observed events and activities contributed to entrepreneurial opportunity. In the third phase, the complete

story of the entrepreneurial opportunity emergence was written. The fourth and final phase of the analysis involved the construction of a “third story” in which the findings were compared with the theoretical framework of this study (Dawson and Hjorth 2012). This implies that special attention was paid to observing the role of prior experience (Haynie et al. 2009) and prior knowledge (George et al. 2016) in opportunity emergence. In relation to the SO literature, the analysis focused on how the SO of the individuals affected their ability to recognize opportunities (Kakapour et al. 2016).

Findings

The case company (codenamed Wireless Telegraph Company, abbreviated WTC), is a Finnish INV that operates in the telecommunications industry. The selection criterion of the case company followed Oviatt and McDougall's (1994, p. 49) definition of an INV: “...that, from inception, seeks to derive significant competitive advantages from the use of resources and the sale of outputs in multiple countries”. These conditions were met in the following way. WTC was established officially in August 2012, as a spin-off from an MNE where it had been an independent project since January 2010. WTC began to seek overseas access, immediately after establishment. Therefore, WTC has been engaged in several development projects of various mobile network solutions in North America, Central America, South America, Scandinavia, Continental Europe, South Asia, Middle East, South Africa, and Eurasia since its establishment.

Nevertheless, the innovation was based on an opportunity that emerged during the pre-launch period (2010–2012). During this time, the team created a prototype of a telecommunication solution for fixed networks which was soon changed into a mobile network solution. These phases, including the critical events and activities related to entrepreneurial opportunity emergence and development (see Fig. 2), are described in detail in the following section.

The people interviewed (see Table 1) for this research are Mike and Tom (codenamed) who have been part of the entrepreneurial opportunity since its commencement in January 2010. Mike is an engineer belonging to a Nordic country and has worked in various positions in the MNE from 1997 to 2012. The job description included management of several product launches, similar to what became the entrepreneurial opportunity for WTC. Moreover, his responsibilities included working with various innovations and cooperation with external technology startups. In addition, business trips and stays abroad were common as Mike was stationed in North America, South Asia, and Central Europe during his career. He founded WTC in August 2012 and has been working full time on it since then.

Tom, hailing from southern Europe, has a PhD degree in software and computer sciences. He started working for the MNE in 2009 and had various tasks there until the end of 2017. The job description included software engineering and management work. Moreover, he participated regularly in the innovation competitions held in the MNE. During his employment, Tom lived in North America and Central Europe, and the constant traveling around the world was a part of his job description. He met Mike for the first time during the innovation competition held in January 2010 and has been involved in the opportunity since then. Currently, he is a small-scale investor in WTC where he works full time on technological development.

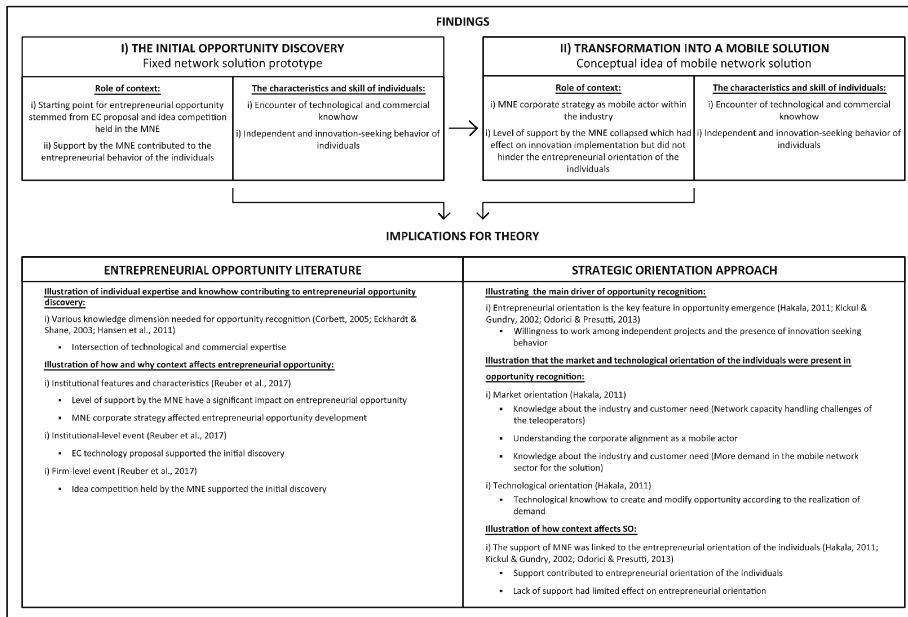


Fig. 2 Entrepreneurial opportunity emergence and development

The initial discovery of the entrepreneurial opportunity

The starting point for this entrepreneurial opportunity stemmed from an idea competition held in the MNE in 2009. The task was to create a new line of business for the MNE, by exploiting new technologies. Here, a separate team ran into a European Commission proposal which suggested that a certain technology could be employed in the telecommunication sector. The result was a conceptual idea about how this

Table 1 Presentation of the interviewees

	Educational background	Work history in MNE	Entrepreneurial activity in MNE	Role in opportunity recognition	Motivation for entrepreneurship
Mike	<ul style="list-style-type: none"> Automation engineer Bachelor's degree 	<ul style="list-style-type: none"> 1997–2013 Program manager, product management 	<ul style="list-style-type: none"> Several independent product launches 	<ul style="list-style-type: none"> Commercially oriented knowhow (industry-market interface) 	<ul style="list-style-type: none"> Strong attachment to the opportunity Long-term dream to establish own software firm
Tom	<ul style="list-style-type: none"> Computer science, PhD 	<ul style="list-style-type: none"> 2009 onwards Software engineer, team leader, senior architect, system architect 	<ul style="list-style-type: none"> Participating in several innovation competitions 	<ul style="list-style-type: none"> Technological knowhow (hands-on knowledge about the innovation) 	<ul style="list-style-type: none"> Strong attachment to the opportunity Desire to create new things

technology could be applied as a network solution which was then forwarded to a subsequent development stage that was the innovation competition.

The innovation competition was a three-month technology development project that took place in Northern America in January 2010. The objective was to create business prototypes for the MNE based on the conceptual level ideas that originated from the previous event. Mike decided to participate in this project and was assigned a five-member team to transform the idea into a prototype. The team consisted of Mike, Tom, and three other employees originating from the Baltics, Central Europe, and South Asia. The premise seemed to be excellent for such a project. Mike and Tom stated that it was the most productive and pleasant period in the entire history of their work on the opportunity, including the time after it became their own business. Consequently, the team was given total independence to proceed with the project which Mike described as “*working already in a startup mode.*” Moreover, it seemed that the setting was appropriate to motivate the participants on site; Tom describes this as follows: “*And people who were willing to do some stuff. It was fun. It was the reality of multicultural teamwork in a multicultural team. As a team, it was... I used to be a researcher previously, it was more like alone work. You know about that.*” (Tom).

The conceptual idea was based on a solution that the network capacity could be transmitted to the network operators. Mike described how during the innovation competition they: “*...took it then step or two further...*” (Mike, Email 2017). Based on their personal experience, Mike and Tom knew that the allocation of fixed network capacity between the operators at the time was done manually. They realized that there was an opportunity to automate this process. Hence, the team began working on a software solution that would enable this. The task was executed under Mike’s leadership as line manager, and the actual implementation was mostly possible due to Tom and the rest of the team’s technological knowledge and coding.

The prototype was finished in March 2010, after 3 months of work. As a result, the team was rewarded with “*a half of funding*”, meaning that the project was relocated in Central Europe for a year. However, only Mike and Tom were willing to follow the project there. Thus, the rest of the team in Central Europe were new members: one originating from Central Europe and the rest from the Middle East. The relocation caused a serious setback to the opportunity development and that year was considered unsuccessful. For instance, Tom stated that it was not “*a very good year*”. When asked why, he described that the general atmosphere within the MNE was changing at that time, especially because it was not investing in the innovation development anymore. Moreover, due to the reduced availability of resources, the internal competition with the other teams at the site turned critical. Tom described this competition as a sort of battle for survival such that the teams were fighting for the budget by downsizing the others; as Tom describes it, “*... it also seemed, if he killed our project, he will get the budget. Simple as that.*” (Tom).

Similarly, Mike described that the time in Central Europe “*was bad.*” The first reason according to him was that the team they had in North America was dispersed as most of the team simply did not want to be relocated to Europe. This disruption meant that a significant part of the knowhow for the project was lost. The second issue according to him was the incompatibility of the new team members. The team in Central Europe experienced strong cultural clashes, making it nearly impossible to make any technological advancements in such a situation. Mike describes this as follows: “*There was maybe like a professional experience that there can be too much*

diversity [within a team]” (Mike, Follow-up interview #11). Nevertheless, the intellectual efforts of Mike and Tom eventually paid off at the end of the project as, “*During this time, the decision was made that we need to start watching mobile network*” (Mike, Follow-up interview #11). Essentially, this meant a new direction for the opportunity. With this in their pocket, they were sent to a new location in the Middle East in the summer of 2011.

The findings (see Fig. 2) related to the initial discovery of the opportunity indicate that the premise for the innovation was set before any actual work had been done. In this study, the starting point can be traced to the proposal by the European Commission, which initiated the chain of events leading to the initial opportunity discovery. Moreover, the findings indicate that the support by the MNE was crucial for the opportunity emergence. At this stage, this contributed significantly to the entrepreneurial behavior of individuals. With respect to the research setting, these findings support the insight that context can have a significant impact on entrepreneurial opportunity recognition (Reuber et al. 2017). In this case, the findings demonstrate that the support of MNE was especially linked to the entrepreneurial orientation of individuals (Hakala 2011). Moreover, the findings support the insight that entrepreneurial orientation is crucial to discovering new technological solutions (Odorici and Presutti 2013) and that the prospector type strategic orientation promotes opportunity recognition (Kickul and Gundry 2002). In addition, the findings indicate that the collision of different professional expertise has significantly impacted opportunity recognition. This was especially linked to the intersection of technological and commercial knowledge; hence, this finding validates the insight regarding contrasting knowledge domains (Hansen et al. 2011) and knowledge asymmetries (Corbett 2005; Eckhardt and Shane 2003) contributing significantly to the opportunity discovery process. If these findings are compared with SO literature, these are similar to technological and market orientation (Hakala 2011). These findings are further discussed in Sect. 5, which provides an in-depth analysis of how these influenced the initial opportunity discovery and the implications of these findings in relation to the research setting of this article. However, before this, another significant phase of opportunity emergence during the pre-launch period has been explored in the following section.

Transformation into a mobile network solution and the aftermath

From the Central European posting, the project was relocated to the Middle East in the summer of 2011. Now, the team consisted of Mike, Tom, and a salesman from their previous location in Central Europe, whereas the rest were new, local members from the site. This time the rearrangement of the team was considered a success as the new members turned to be: “*Good engineers and great persons.*” (Tom). Moreover, the new members confirmed the insight that innovation could be applied within mobile networks. Thus, it was decided to switch the opportunity and its development to a mobile network solution. The reason for the switch was two-fold. Firstly, it was evaluated that the innovation had more commercial value in the mobile networks. Secondly, there was the realization that this was more aligned with corporate strategy as the MNE was a high-profile mobile actor within the telecommunication industry. Thus, the end of 2011 proved to be a significant turning point for the entrepreneurial opportunity. The team decided to focus on developing the wireless network solution instead of the original idea of fixed networks. This deviated from the previous approach in that the mobile

solution was more about differentiating the network capacity between different customer groups and according to their preferences, whereas earlier it involved guaranteeing the fixed broadband quality between the teleoperators. Nevertheless, the original opportunity was not abandoned but was put aside for the time being to be executed, as Mike described it, “*When the world is ready for it...*”.

However, the project did not get further support from the MNE which was cutting down its operations and laying off people at the time. Therefore, despite the team’s best efforts, no decision maker was ready to endanger their employment in the MNE by allocating resources for a product which was still in its early developmental phase. For the opportunity development, it meant that no significant technological advancements could occur. Mike describes the stand-off as follows:

“In the Middle East there was a technologically really capable team, but it was maybe in a sort of early stage. In a sense it was annoying that it would have been great to continue, because we could have developed it into a peak team, but they [decision makers] were in a sort of double-lock mode, and who had gone through a couple of codeterminations, it ended so that I had to dismiss these people, before [dismissing] myself.” (Mike, Follow-up interview #11)

During this time, the team realized that things were no longer the same in the MNE. Tom mentioned that the MNE was not investing any more in the implementation of innovation as it had done previously in its history:

“Yeah if you think about the golden age of MNE, they were creating new stuff. And suddenly, no. The last ten years they never created something new. They just evaluate the things, like 3G, 4G, data. But not something new, something changing stuff...This is something that, you know, it’s the lifecycle. It must be done, because you cannot be at the top all the time.” (Tom)

Regardless, Mike and Tom at this stage were willing to continue working on the opportunity even on their own. Hence, the initial discussions about spinning off the company took place in the spring of 2012 between Mike and Tom. Nevertheless, the idea of establishing a company was something that Mike especially held dear. As Tom mentioned in the interview, “*No, I think in the planning process, about being a company, it was only Mike*” (Tom). Moreover, Mike’s motive of launching his own business seemed to have taken root years ago as he had been collaborating with several startups. Mike got acquainted with various innovations while working in the MNE and was impressed by the capabilities of these firms, as he describes:

“During the time in the MNE. And well, that of course many. Many firms approached us then and I got familiarized to many technological solutions and I searched new suppliers for my own practices... persons with skills, new knowhow... And well, there was always like that. Dream that someday I will establish an own software company in North America...” (Mike)

When Mike was offered the possibility of developing a spin-off from the project in the spring of 2012, he mentioned that it was the change required to fulfill a long-held

dream. Thus, the offer was difficult to refuse, even though his employment in the MNE was not in immediate danger. For Tom, the reasons were quite different. He had experienced the drawbacks of working in the MNE as an employee and found that the working style that he preferred was no more possible:

“Of course I like, doing something, being part in a big corporation you spend your time with politics and your managerial stuff than actually doing. Creating new stuff, or... just work. Enjoying your work and go to enjoy it, not just discussing all the time and create all kind of problems there. These are the main reasons why I left the MNE.” (Tom)

Nevertheless, the connecting factor for both individuals was their strong commitment to the opportunity in which they had invested for 2 years. For instance, Tom describes his connection to the opportunity in the following words: *“I’m always in love with WTC because it’s more like my baby there. It also runs some algorithms that I was... invented, let’s say, during my PhD studies...”* (Tom). Similarly, Mike states that *“I have these own... children. I say that I have four children with the MNE and I regard them with a great passion, like my children.”* (Mike).

The second phase of the opportunity emergence process represents findings similar to those existing in the first one (see Fig. 2). Furthermore, in this case there was an encounter of different knowledge domains (Corbett 2005; Eckhardt and Shane 2003; Hansen et al. 2011) which enabled switching of the opportunity to a mobile network solution. Moreover, as mentioned previously, this was linked to the encounter of technological and commercial knowhow, considered similar to the market and technological orientation described in the SO literature (Hakala 2011). However, the contextual findings differ significantly from the previous phase and thus provide new insights on the matter (Reuber et al. 2017). Although these findings were strongly related to the MNE, this did not support the development of innovation in the same way as before. Moreover, this time, the development of innovation followed the MNE’s corporate strategy, which emphasized the mobile technology particularly. This was a major factor in switching the innovation into a mobile solution. In addition, this perception particularly reflected the commercial expertise of the individuals. However, the level of support by the MNE had collapsed at this point and thus the opportunity did not progress to the prototype stage as it had done previously. Nevertheless, the lack of support did not hinder the entrepreneurial orientation of the individuals who were at this point ready to continue with the opportunity independently. The findings of this article have been analyzed in more detail in the following section.

Analysis and discussion

The first part of the findings supports the notion that prior experience plays a significant role in the opportunity discovery process (Kraus et al. 2017). Moreover, this article advances our understanding about the antecedents of entrepreneurial opportunity (Kuckertz et al. 2017) by offering in-depth insights about how prior knowledge (George et al. 2016) and prior experience (Haynie et al. 2009) contribute to the

opportunity emergence process. Firstly, the individual characteristics that drove the initial opportunity discovery and its subsequent development represented features related to the entrepreneurial orientation of SO. This was predominantly visible in the innovative (Hakala 2011) and proactive behavior (Hakala 2011; Kickul and Gundry 2002; Odorici and Presutti 2013) of the individuals. Hence, the entrepreneurial manner of working was central to both interviewees and was regarded as somewhat different from the normal practice in the MNE. For instance, as Tom describes his role, “*The crazy doing different crazy things...you got to do that...But on the other hand, I was the crazy guy that has the crazy ideas*” (Tom). Moreover, Mike had participated in similar independent projects several times before this event. Thus, the individuals seemed to possess the tendency to engage in innovations entrepreneurially even while working for an MNE. In addition, these findings are somewhat in agreement with those made in the field of IE. In this case, characteristics such as creativity, self-efficacy, the need for achievement, and the need for independence have been found to facilitate new firm emergence (George et al. 2016). These were all present in this study but differ from the previous research in the sense that they relate to the entrepreneurial opportunity and not to organization creation. Thus, it seems that entrepreneurial orientation and similar characteristics of the individuals are the key features in opportunity emergence. Hence, the entrepreneurial dimension deserves all the attention it has received so far and more in the fields of IE and SO.

The second part of the findings relates to the discussion on how opportunities come into existence. The chief cause for the same seems to be information-seeking behavior (Eckhardt and Shane 2003), active search behavior (Mainela et al. 2014), and alertness (Kuckertz et al. 2017) to market imbalances. In this case, the opportunity was mirrored from the beginning to match customer requirements and can be therefore be considered crucial to the process. Moreover, it was found that the reconciliation of the customer demands and suitability of innovation required a combination of commercial and technological knowhow. In this case, the commercial knowledge linked especially to Mike’s expertise, who had an overall outlook of the industry and market interface within the telecommunication sector. However, the opportunity would not have reached the prototype stage without technological expertise. This involved Tom’s competence as well as that of the rest of the team who had much more rigorous and hands-on knowledge about innovation at the product level. As Tom says of his role, “*I know the whole product very well. Usually when there’s a big problem, then I’m just trying to solve it or something like that.*” (Tom). These findings agree with the previous insights that entrepreneurial opportunities result from the interaction between individuals and the environment (Dimov 2011) and that entrepreneurial opportunities are discovered in situations where various knowledge domains meet (Hansen et al. 2011). However, the findings indicate that the ratio of environmental influence and the balance between the knowledge domains evolve over time. Firstly, what started from a very extensive realization of customer demands moved rapidly towards the development of a specific technological solution. Secondly, it appears that technological knowhow was the dominant dimension during the implementation of the opportunity. Hence, these findings support the perspective that opportunity discovery and creation are complementary processes (Renko et al. 2012). However, the findings are insufficient to elucidate whether discovery and creation are separate phases (Oyson and Whittaker 2015). Nevertheless, they do suggest that entrepreneurial opportunity development can

be considered a longitudinal process that requires constant refinement. Thus, future studies are required to investigate the longitudinal development of entrepreneurial opportunities.

The third part of the findings is linked to the influence of the context. The following findings advance our understanding of how and why the context affects entrepreneurial opportunity (Reuber et al. 2017). In this case, the influence of the context was present from the very beginning as the government level initiative marked a starting point for the opportunity emergence during the observation period adopted in this study. Thus, the findings suggest that government level actors can influence the availability of opportunities not only with financial aid (Eckhardt and Shane 2003, p. 341) but by openly engaging in the technology discussion. Moreover, it seems that the individuals were actively following the technological development and regulation of their field. In this case, the most immediate context was the MNE linkage. What started almost as a startup-like activity transformed soon into a more careful development program chiefly due to the financial downturn that the MNE was facing soon after the innovation competition. This implied that it was nearly impossible to implement any new technology at that moment. The entire organization seemed to be in mental lockdown as no one was willing to be held accountable for any potential failure. Moreover, the MNE linkage seemed to impact the availability of knowledge. In this case, the team had an abundance of technological knowledge throughout the pre-launch period but seemed to lack the customer-related feedback. This was probably due to the fact that the opportunity was never fully implemented by the MNE. Hence, this finding supports the insight that access to information can be crucial for entrepreneurial opportunity development (Hayton and Cholakova 2012). However, this topic requires further study for a thorough understanding. Overall, it is anticipated that these findings will encourage researchers to consider the contextual features when investigating entrepreneurial opportunities in future studies.

Conclusions

The following conclusions emerge from this study. Firstly, it seems that the pre-launch period represents a significant prerequisite for entrepreneurial opportunity emergence. This links especially to the characteristics and skill of the individuals. In this case, it was found that an entrepreneurial orientation drove the opportunity discovery behavior and can thus be considered central to this process. Moreover, it was found that opportunity recognition fundamentally resulted from information-seeking behavior about market imbalances and ways to respond to them. Such a process required incorporation of commercial and technological knowledge domains which was also central to opportunity emergence and its subsequent development. Secondly, it was found that the context was a significant precondition for opportunity emergence. In the studied case, the most significant elements were linkage to the MNE and the level of support granted to the project.

Reflection upon the findings within the theoretical framework of this study offers several significant insights. Firstly, in relation to entrepreneurial opportunity theory, this study supports the notion that the pre-launch period is quite significant for innovation (Hewerdine and Welch 2013) which has been linked to entrepreneurial opportunity

recognition in this study. Consequently, the findings support the insights that the prior experience (Haynie et al. 2009) and knowledge (George et al. 2016; Kuckertz et al. 2017) support opportunity recognition and should therefore be included in the equation. Moreover, this article provides new insights as to why this is so. In this case, an essential feature was the intersection of technological and commercial knowhow which enabled the emergence and subsequent development of the opportunity. This finding supports the insight that contrasting knowledge domains (Hansen et al. 2011) and knowledge asymmetries (Corbett 2005; Eckhardt and Shane 2003) contribute to the opportunity discovery process. In addition, the findings can be linked to the discovery and creation debate (see: George et al. 2016; Suddaby et al. 2015). The findings of this study support the supplementary insight of the matter (Renko et al. 2012) and the perspective that the emergence of opportunities occurs in the interaction between individuals and the environment (Dimov 2011). In addition, the SO perspective adopted in this study offers some very relevant and significant insights. On top of the list is the finding that entrepreneurial orientation can be conceived of as the primary dimension driving the innovation-seeking behavior of individuals (Hakala 2011; Kickul and Gundry 2002; Odorici and Presutti 2013). Moreover, the market and technological orientation of the individuals were present in the opportunity emergence process (Hakala 2011). Finally, there are findings that link to the discussion about the role of context (Reuber et al. 2017). These particularly reflect the institutional features and characteristics (1st dimension) and individual, firm, and institutional level events (3rd dimension) affecting the preconditions of entrepreneurial opportunity (Reuber et al. 2017).

Limitations and future research

The first limitation of this study is the fact that the findings are based on material involving one company and therefore over-generalization should be avoided. Secondly, the interview material was retrospective and limited to only two individuals, although this was complemented by applying follow-up interviews and email discussion with Mike. Moreover, the observation period concerned only the pre-launch period. Thus, based on the results of the study, it is not possible to comment on what happens to the opportunity once it meets the market. Thirdly, the findings should be viewed according to the context. In this case, the MNE attachment had a significant impact on the emergence of the entrepreneurial opportunity. However, the conditions for opportunity emergence can vary in different settings, for example in different industries and countries. Consequently, we need further research of other industries. Additionally, the research would benefit from real-time studies, focusing especially on what happens to entrepreneurial opportunities, when they are introduced to the market.

On the agenda for future research is the need for longitudinal investigation of how entrepreneurial opportunities develop over time. In this study, it was discovered that entrepreneurial opportunity had already changed during the pre-launch period. It is likely, therefore, that similar development will continue, for instance when the opportunity is introduced to the markets and starts to gain customer feedback. In this case, for instance, a learning-based study could be a practical alternative as it would allow us to investigate how opportunities are updated when more information is accumulated

(McCann and Vroom 2015). Overall, the most significant utility of longitudinal studies on this topic would be the clarification of the discovery–creation debate (George et al. 2016; Suddaby et al. 2015). Already in this cross-sectional study, features pertaining to both perspectives were observed. It seems, in addition, that their significance changed with the development.

Practical implications

This article also offers practical implications for those interested. According to the findings, it seems that MNEs may provide an innovative environment, thereby supporting the recognition of entrepreneurial opportunities. Moreover, at least in this case, the MNE was ready to allow individuals to continue the project in a spin-off company. Hence, people employed by MNEs can also work in an entrepreneurial way. More importantly, individuals in similar situations could consider the spin-off option as one alternative to start their entrepreneurial careers. In addition, the recognition and development of entrepreneurial opportunities seems to require openness. Thus, entrepreneurs and entrepreneurs-to-be need to keep their minds open and to be ready to acquire feedback to recognize and develop entrepreneurial opportunities further. Accordingly, the interaction of various knowledge domains seems to be essential. Moreover, even though this research did not explore market contact, it can be expected that feedback becomes even more crucial when the innovation is launched. Thus, entrepreneurs, especially those operating in the high-technology sector, should be prepared to make (possibly major) modifications to the innovation based on market and customer preferences.

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Compliance with ethical standards

Conflict of interest The author declares that he has no conflict of interest.

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Publication III

Tuomisalo, T. and Hannibal, M.

**The evolution of entrepreneurial opportunity within a Finnish Telecom
International New Venture**

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Title: The evolution of entrepreneurial opportunity within a Finnish Telecom International New Venture

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Abstract

This article conducts a longitudinal in-depth investigation of entrepreneurial opportunity development in an International New Venture (INV). While doing so, we pay special attention to the dynamics and context specificity of the phenomenon, according to the recommendations. A qualitative and narrative approach is used for this purpose. The findings indicate that entrepreneurial opportunity is a truly dynamic phenomenon in which context becomes significant. The findings indicate that in the center of the development process was individuals' realization of the technological and commercial usage of the opportunity, which significantly affected the direction of entrepreneurial opportunity. Additionally, this development seemed shaped by the specificities of the telecommunication industry. Overall, the study provides an in-depth description of this process that is hoped to yield new insights for entrepreneurship theory building and novel avenues for future research.

Keywords: International entrepreneurship, entrepreneurial opportunity, International New Venture

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1 Introduction

This research investigates a significant yet understudied topic, entrepreneurial opportunity (George, Parida, Lahti & Wincent, 2016). While doing so, this study focuses on the long-term development of entrepreneurial opportunity, over about five years. The reason is that dynamic aspect is thought of as one of the cornerstones advancing our understanding of entrepreneurial opportunity (Reuber, Dimitratos & Kuivalainen, 2017). This viewpoint is also a starting point for this whole study. Based on previous studies, we can expect entrepreneurial opportunity development to include a dynamic decision-making process, where opportunity is updated when more information is obtained (McCann & Vroom, 2015). Thus, entrepreneurial opportunities cannot be thought of as one-off deals; the opportunity development is an iterative and dynamic process that can reshape initial perceptions (Renko, Shrader & Simon, 2012) and generate evolving perspectives for the opportunity (McCann & Vroom, 2015).

More precisely, we conduct a longitudinal and an in-depth investigation of opportunity development in an International New Venture (INV) in the telecommunication industry. We strive to advance our understanding about entrepreneurial opportunity by taking into account theoretical and methodological recommendations. Firstly, an issue in demand is the acknowledgement of the role of context (Reuber et al., 2017). In other words, we should acknowledge the situational factors that may contribute to entrepreneurial opportunity (Reuber et al., 2017). In the case of high-tech SMEs, we can expect some peculiarities to arise, for example, from product characteristics (Pellegrino & McNaughton, 2017) and industry conditions (Coviello & Tanev, 2017; Mikhailova & Olsen, 2016; Stayton & Mangematin, 2016). Nevertheless, knowledge about them is limited and warrants further research. We tackle this contextual challenge by conducting a single case study and pay special attention to the potential impact of situational features that may arise from the data.

Secondly, it has been suggested that future studies should focus on the individual level of analysis (Dimov, 2011) and micro-foundations of entrepreneurial action (Shepherd, 2015), which in turn enables the prospect of revealing the complexity and real-life

dynamics of entrepreneurial opportunity. This research takes up this challenge by applying a much-requested qualitative method (Renko et al., 2012; Suddaby, Bruton & Si, 2015). Moreover, this is a process-based study, where the focus is on the evolution of opportunity-related events over time (Langley, 1999; Pentland, 1999; Smith, 2002). All this is done by applying a narrative approach, which emphasizes the richness of the studied phenomenon and possible contextual features contributing to it (Langley, 1999).

The case company in this study is a Finnish INV, founded in 2012, in the telecommunication sector. It is codenamed *Wireless Telegraph Company* (WTC). The longitudinal data consist of follow-up interviews with key people conducted over 21 months between 2016 and 2017. In-depth interviews, which took place at the beginning of the data collection period in spring of 2016, were also part of the study. The findings are consistent with the insight that entrepreneurial opportunity should be thought of as a dynamic phenomenon. We went into this process thoroughly and discovered that the central feature was how individuals realized the technological and commercial suitability of entrepreneurial opportunity, based on market requirements and industry conditions. This in turn contributed significantly to the development of entrepreneurial opportunity, linked especially to its intended use. Contextual features, namely understanding industry conditions, seemed important in this process.

The structure of the article is as follows. The discussion of theoretical framework and research gaps is followed by the description of the research aims and methods. Then the article moves to introducing the empirical findings, followed by the discussion and future research implications.

2 Literature review

Entrepreneurial opportunity is a key element in the field of entrepreneurship (Chell, 2013; Shepherd, 2015; Suddaby et al., 2015). Much of its discussion wraps around the ontological nature of the opportunity. Basically, this is a debate on whether the opportunities are objectively discovered (*the discovery perspective*) or subjectively

created (*the creation perspective*) (Ramoglou & Tsang, 2016; Suddaby et al., 2015). The differences between these viewpoints seem to reflect philosophical standpoints, where discovery falls into an empiricist theory and creation into a constructivism theory category (Ramoglou & Tsang, 2016). The main difference between these opposite viewpoints is that the discovery perspective thinks of opportunities as pre-existing entities waiting to be discovered (Ramoglou & Tsang, 2016). This viewpoint sees opportunities as objective realities in the environment and their discovery is dependent on the unique characteristics of entrepreneurs (Suddaby et al., 2015). The creation perspective, in turn, discards the objective view, where opportunities could exist without the awareness of entrepreneurs. This viewpoint thinks of opportunities more as endogenous acts, where entrepreneurs create opportunities through their creative imagination and social skills (Suddaby et al., 2015).

However, there is an alternative way of looking at this matter: to incorporate these perspectives of opportunity, as entrepreneurial opportunity includes elements from both (Renko et al., 2012). According to this viewpoint, entrepreneurs “*spot*” objective opportunities (the market need and currently available solutions) and perceiving them “*as accurately as possible*” (Renko et al., 2012, p. 1246). Entrepreneurs recognize opportunities from the objective environment, based on their subjective perceptions (Renko et al., 2012). Here, the realist school has highlighted the “*actualization*” perspective of entrepreneurial opportunity. Entrepreneurial opportunities are “*propensities*” of the potential market demand that exists objectively “*...that can be actualized into profits.*” (Ramoglou & Tsang, 2016, p. 413). Accordingly, entrepreneurial opportunity is defined as “*...the propensity of market demand to be actualized into profits through the introduction of novel products or services.*” (Ramoglou & Tsang, 2016, p. 416). Similarly, Oyson and Whittaker (2015) suggest that the discovery and creation are two separate phases in the opportunity actualization process. This means that the discovered opportunities are still potential, until they “*...are creatively transformed by entrepreneurial cognition and action into actual international opportunities...*” (Oyson & Whittaker, 2015, p. 305).

Here, Zahra (2008) suggests that the newly developed knowledge must be “*converted*” into new ideas, before they become the basis of the opportunity discovery and/or creation. More precisely, “*Conversion means changing knowledge from one form to another.*” (Zahra, 2008, p.251). According to Zahra (2008), the conversion can happen in two ways: *horizontally* and *vertically*. The horizontal conversion means that the technological discoveries are converted to a form that people with different professional (technology and business) backgrounds can understand. This, in turn, exposes the technological discoveries in various interpretations of its potential and, through this, provides a more detailed picture of their potential application. The vertical conversion, on the other hand, happens, for example, when technological discoveries “...*lead to additional and varied discoveries within the same domain of research.*” (Zahra, 2008, p. 251).

It has been suggested that the initial recognition of the opportunity is the start point of a much longer process. Thus, opportunities should not be thought of as “*single insights*” but as “...*emerging through the continuous shaping and development of (raw) ideas that are acted upon.*” (Dimov, 2007, p. 723). It has been suspected that entrepreneurial opportunities are still at a preliminary stage before they are introduced to the outside world, and that as soon as they are, they become a target of revision (Shepherd, 2015). Opportunity perception has been suggested as an iterative and dynamic process that can reshape initial perceptions (Renko et al., 2012). Thus, opportunities are still potential, until they “...*are creatively transformed by entrepreneurial cognition and action into actual international opportunities...*” (Oyson & Whittaker, 2015, p. 305). This development seems to be increasingly representative of market demand, as Chell (2013) states that: “...*it is not sufficient to identify what entrepreneurs do when they identify a social/market need, but with what proficiency they execute the subsequent steps to develop it into a social/market value proposition.*” (Chell, 2013, p. 22). In practice, it seems that entrepreneurs move rapidly from conceptual analysis to active experimentation, with the aim of validating and developing the recognized ideas, or abandoning them. (Gemmel, Boland & Kolb, 2012). Hence, it has been suggested that

entrepreneurial opportunity pursuit is a dynamic decision-making process, where opportunities are revised and updated once more information becomes available (McCann & Vroom, 2015). Overall, it has been suggested that dynamic aspect of entrepreneurial opportunity is a worthy avenue for future research (Reuber et al., 2017; Shepherd, 2015), which is what we do in this article.

In doing so, we tackle another cornerstone of the development of entrepreneurial opportunity, context awareness (Reuber et al., 2017): we acknowledge the situational features that may influence the opportunity (Reuber et al., 2017). These may arise, for example, from i) *institutional characteristics* (e.g. industry), ii) *sociocultural differences* (e.g. type of networks), iii) *the temporal dimensions of time* (e.g. the transient nature of government incentives) and iv) *the impact of events* (at individual, firm and institutional levels) (Reuber et al., 2017).

In high-technology oriented SMEs, the contextual features seem to be particularly pronounced in relation to industry conditions, product characteristics and SMEs' own characteristics. Firstly, in product characteristics, it has been suspected that they affect SME operations to the extent that it warrants further studies (Pellegrino & McNaughton, 2017). Secondly, in the case of industry conditions, there appear to be different levels of requirements in various industry sectors, which influence firm's growth possibilities. This can be realized, for example, when we compare internet-based ventures with those operating in the medical technology sector. It has been suggested that internet-based ventures (Stayton & Mangematin, 2016) or "*finger-push firms*" (Coviello & Tanev, 2017) may pursue international market instantly after establishment. However, organizations operating, for example, in the medical technology industry are bound to a heavy regulatory system, which may impede the start of the internationalization (Mikhailova & Olsen, 2016). Nevertheless, in all these cases, the authors call for more action to investigate industry features further (Coviello & Tanev, 2017; Mikhailova & Olsen, 2016; Stayton & Mangematin, 2016). The third contextual feature presented in the research is SMEs' characteristics that can largely affect how these firms operate. For example, high-tech startups seem to exploit the first mover advantage as their

competitive advantage. Thus, high-tech startups are working deliberately on innovative products that ride the wave of industry change (Jolly, Alahuhta & Jeannet, 1992). Hence, when time is an asset, startups need to be the first ones to launch the products and establish industry standards to guarantee their competitive advantage (Stayton & Mangematin, 2016).

3 The research setting

In this study, entrepreneurial opportunity is thought of as follows. Firstly, entrepreneurial opportunity is linked to the innovative product of the case company, as it seems to be a central element for technology startups (Stayton & Mangematin, 2016). Secondly, this study takes the stand that opportunity emerges in the interaction between the individual and the environment. More precisely, entrepreneurs spot opportunities from the objective environment, based on their individual reasoning (Renko et al., 2012). Thirdly, this study takes the stand that entrepreneurial opportunity has the tendency to transform from a potential idea into more concrete product and services (Oyson & Whittaker, 2015; Ramoglou & Tsang, 2016). This means that opportunities are developed based on the conceived market requirements. Fourthly, there is no state of equilibrium; entrepreneurial opportunity development is thought of as an ongoing process (Dimov, 2007; McCann & Vroom, 2015; Renko et al., 2012). Thus, this study acknowledges the possibility that entrepreneurial opportunity can reshape or take new directions during development.

Based on the literature review, there are a few aspects to be acknowledged to conduct a successful study on entrepreneurial opportunity. Firstly, we aim to advance the understanding of entrepreneurial opportunity, by focusing on the individual level of analysis (Dimov, 2011). Here, we focus on the “*micro-foundations*” of entrepreneurial action, namely by investigating the activity of the individuals to provide a rich description that represents a more real-life illustration of opportunity development (Shepherd, 2015). Secondly, we emphasize role of the context (Reuber et al., 2017) by

applying a single case study. By doing so, we pay special attention, for example, to industry conditions and product characteristics contributing to entrepreneurial opportunity development. With all these considerations in mind, this study aims to answer the following questions:

1. *How do individuals perceive opportunity development?*
2. *What are the features that contribute to entrepreneurial opportunity process and how they do it?*

3.1 Methodology

We tackle the objectives of this study by applying qualitative research. This method allows us to provide new and valuable insights for entrepreneurship theory by situating ourselves close to entrepreneurial opportunity and giving the freedom of expression to those at its center, namely the interviewed individuals in the case company (Suddaby et al., 2015). This is a process-based study, where we focus on the patterns of events and how these evolve over time (Dimov, 2011; Langley, 1999; Smith, 2002) and on the causalities between those events (Pentland, 1999). Our sole objective is to raise indicators for underlying process theory. This is done by providing a rich description of the relationships between the observed events and reflecting the individual sensemaking about their actions (Pentland, 1999). Nevertheless, the event-sequences alone are not enough to tell a whole story; we should also acknowledge other aspects in the analysis, including narratives and context (Pentland, 1999, p.721). Hence, an interpretive/narrative approach is applied with the aim of understanding the phenomenon through “...*the perspective of those who experience it...*” (Cope, 2005, p.168). The main reason for using the narrative strategy is that it allows the construction of a detailed story that can reveal the richness and complexity of the studied phenomenon. The application of narrative analysis also emphasizes the time linkage and contextual detail (Cope, 2005; Langley, 1999), which are both strong objectives in this study.

3.2 Data collection

This is a part real-time and part retrospective study based on a longitudinal data (see Appendix A). The observation period was from August 2012 to the end of 2017. The data collection period was from March 2016 to the end of 2017, and the primary method was semi-constructed open-ended interviews. The reason for the choice was that we wanted to gain in-depth understanding about the studied phenomenon by emphasizing how the individuals living this experience described it (Cope, 2005). No prior assumptions were made that affected the interview process (Cope, 2005); rather, the interview questions were related to the research objectives, where we tried to gain knowledge of the personal experiences related to entrepreneurial opportunity emergence and subsequent development.

Interviews were carried out in two phases. In the first, in-depth phase, the interviewees were asked about the antecedents of entrepreneurial opportunity and organizational emergence, and their current situation and future objectives. In the second phase, we started to conduct follow-up interviews, which focused on the real-time development of entrepreneurial opportunity. Nevertheless, inevitably, people make reflections on the past and future, which were naturally allowed. Even though interviews semi-constructed, we allowed the individuals to speak freely. This meant all of the interviews were free-flowing discussions of sorts about the “*spiritual life*” of startup entrepreneurship. The composition of the participants changed during the observation period, because we had to consider the individuals’ schedules, which did not always meet. All but one of the interviews were conducted in the case company’s office. One interview (follow-up 12) was conducted by Skype. All interviews were audio recorded and later verbatim transcribed. Personal notes were made during all the interviews. The main data (see Appendix A) of this study contains 26 interviews and over 30 hours of audio recorded and transcribed interview material. The material also contains email interviews and a rich set of secondary data (see Appendix A).

3.3 Analysis

The analysis followed the examples of process-based (Langley, 1999; Smith, 2002) and interpretive (Cope, 2005) studies and had four stages. The first phase was a “*full transcription*” of the interview material (Cope, 2005). Here, the objective was to highlight all the issues and experiences (Cope, 2005) and events (Smith, 2002) that bore significance for the opportunity development process. Here special attention was paid to observing all units and actors, in and outside the case company during the longitudinal observation period (Van De Ven & Poole, 1995). In the second phase of the analysis, the focus moved to the individuals. Here, we analyzed how the participants thought about the opportunity development and wrote a chronological and thematical narrative based on this analysis (Cope, 2005; Smith, 2002). The third phase of the analysis was a cross-case comparison of the participant interviews, where we identified the commonalities and differences among the interviews (Cope, 2005). The fourth phase of the analysis was to develop: “...*theoretical themes that contributed to a deeper understanding...*” (Cope, 2005, p. 179) of entrepreneurial opportunity development. This meant that we wrote theoretical propositions based on the interview material, so that the data spoke for themselves (Cope, 2005). We also illustrated the entrepreneurial opportunity development process (see Figure 1). The reason was that visual mapping is effective for working on a phenomenon which represents activities on multiple dimensions that may overlap (Langley, 1999). This phase of the analysis was finalized by comparing the inductively emerged themes with the theoretical framework of this study, which are discussed in the discussion chapter.

4 Findings

4.1 Description of the case company and the team members

	2012	2013	2014	2015	2016	2017
Team members	Mike, Tom, Jack	Mike, Tom, Jack, Sam	Mike, Sam, (Tom)	Mike, Sam, Terence (Tom)	Mike, Sam, Terence, (Tom)	Mike, Sam, Tom, Tommie
Segments	Media	Media, Broadcasting, Misc	Broadcasting, PS, Misc	Broadcasting, PS, IPTV, Misc	Broadcasting, PS, IPTV, Misc	Broadcasting, PS, IPTV, Misc
Opportunity development	-	Focusing on broadcasting, introducing the miscellaneous-segment	Turning point #1: PS Segment	Turning point #2: IPTV Segment	-	-
Countries active	-	Finland	Finland, Central Europe, North America, Middle East	Finland, Central Europe, British Isles, North America, Scandinavia	Finland, North America, Central America, South America, Middle East, Baltics	Finland, North America, Central America, South America, Middle East, Baltics, Central Europe, South Asia

Table 1. Descriptive table of the company, staff, opportunity development and internationalization activities

The case company (codenamed *Wireless Telegraph Company*, WTC), is a Finnish INV in the telecommunication industry. The case selection criterion followed Oviatt and McDougall's (1994, p. 49) definition of an INV: "...that, from inception, seeks to derive significant competitive advantages from the use of resources and the sale of outputs in multiple countries". These conditions were met in the following way. WTC was established (see Table 1) in August 2012, as a spin-off from an MNE where it had been an independent project since January 2010. WTC began to seek overseas access immediately after establishment. As a result, WTC has been engaged in several development projects of various mobile network solutions in North America, Central America, South America, Scandinavia, Continental Europe, South Asia, Middle East, South Africa and Eurasia since its establishment.

The team composition (see Table 1) in WTC (all individuals codenamed) has developed as follows. Mike and Tom have been working on entrepreneurial opportunity since its beginning when it was part of an independent business unit in the MNE. WTC was originally launched by Mike, Tom and Jack in 2012. However, manpower declined in the coming months as Tom decided to stay in the MNE and worked only part-time as a consultant for WTC from 2014 onwards. Jack left the company in summer of 2014. In

spring 2013, WTC was supplemented by Sam. He bought a share of the company and became the second owner of WTC and was appointed head of R&D. WTC was reinforced again spring 2015 by a new CEO, Terence, who had several years of experience of sales management in various teleoperator organizations, but he left the firm in late 2016. Tom eventually joined WTC full-time in 2017 as an employee working in R&D. The last addition to WTC was Tommie, who joined the firm in spring 2017 as a sales manager. He had several years of sales experience in large multinational telecommunication companies and SMEs in various high-technology industries.

4.2 The development of the entrepreneurial opportunity during the observation period

The starting point for WTC after establishment (see Figure 1) was that the team were evaluating their possibilities for implementing entrepreneurial opportunity. Mike described this situation thus: they thought of the Internet of Things (IoT) as offering various “*verticals*,” or segments, as they are referred in this study, of which they decided to pursue the media-related one (Media Segment). The decision was based on their supposition, that the demand for live video broadcasts over the internet would increase rapidly in the near future and therefore be a promising avenue for the firm. The work with the media segment started in Finland in summer 2013 with several small-scale projects where live events were broadcast over mobile networks. These were soon followed by a project with a Finnish sport broadcaster in spring 2014, with a more comprehensive solution. Encouraged by its success in the domestic sport broadcasting sector, WTC turned its sights abroad. The internationalization attempt started in central Europe in 2013, then moved to North America in 2014 and reached the UK and Ireland in summer 2015. Nevertheless, WTC failed to attract teleoperators into the broadcasting business, which marked the end of this line of business abroad. However, the broadcasting project in North America led to negotiations with government officials, which needed to provide prioritized network connections for their officials. This Public Safety (PS Segment) marked a new avenue for WTC and this can be seen as the first “turning point” related to entrepreneurial opportunity. The PS segment has evolved later

into new negotiations with governmental operators in Central America and Scandinavia and a private aerospace company. In spring 2015, WTC had a second turning point. This was based largely on the realization that the broadcasting sector did not offer enough growth potential for teleoperators. Here they applied a new segment and decided to offer internet-based TV services over the mobile networks. In addition, WTC has had miscellaneous projects (Misc Segment) in the observation period. These included solutions in healthcare, electric car charging and augmented reality.

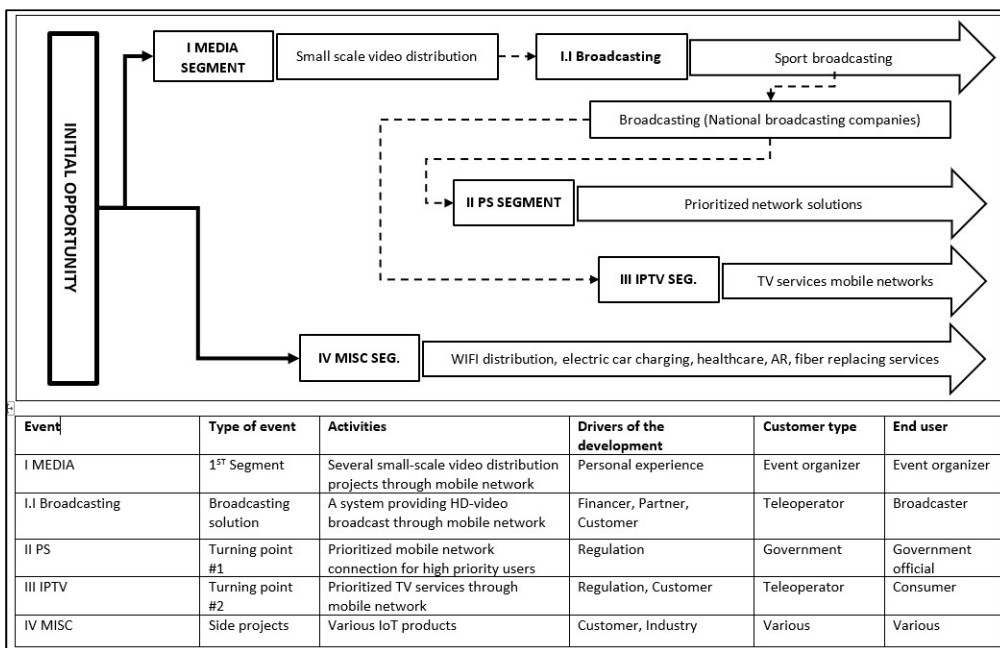


Figure 1. Development of entrepreneurial opportunity

As presented above, the entrepreneurial opportunity development (see Figure 1) in WTC represents four different avenues of innovative solutions: i) *Media Segment*, ii) *Public Safety (PS) Segment*, iii) *Internet TV (IPTV) Segment* and the iv) *Miscellaneous (Misc) Segment*. These, along with the in-depth description of the driving features and

subsequent development of entrepreneurial opportunity, are presented in the following sub chapters.

4.2.1 The Media Segment

At the time of establishment, the people in WTC evaluated the potential of the entrepreneurial opportunity on the market. They decided to pursue the media sector, which was based mostly on the individual perceptions of future demand. As explained by Mike, they: “...saw that this *Periscope* type of things are coming.. and that.. *the video is like the drive out factor.. and that media is like the sector where we want to go.*” (Mike, In-depth interview). The first projects in this segment were small scale pilot programs in Finland in summer 2013 for customers who were introduced to WTC by its partners and a funder. These demo-type projects involving providing live video across mobile networks at music and TV- related events. Even though these pilot projects were not considered financially significant, they provided the possibility to test entrepreneurial opportunity in practice. They boosted the team’s confidence in the functionality of the opportunity and paved the way for the next stage.

The next event related to the media segment occurred when a government-based funder requested WTC to seek domestic customers, mainly because they wanted to have feedback from them. Following the instructions, WTC contacted Finnish teleoperators and started a pilot program with one of them in the January 2014. This cooperation took entrepreneurial opportunity in a new direction. The technological tool provided by the teleoperator made it possible offer prioritized mobile network services for broadcasting live high-definition television. WTC’s first customer in the broadcasting sector was a Finnish sport broadcaster, with whom they started sales negotiations in spring 2014. The interaction with the broadcaster turned out to be an eye-opening experience for WTC. It was clear from the beginning that the sport broadcaster was not just interested buying a partial solution, but needed a service that would cover the whole function. This meant that they needed the entire system and equipment to broadcast sport events, not just the

SIM cards that WTC initially tried to sell. As Mike explained several years later about the meaning of this event:

“First that kind of like big ‘aha’ moment was when we went to tell that sport broadcaster that we have these solutions that would help you prioritize your connection, and they said that they are not interested in those, we want the entire system from you. That was like big. That the end user is not interested on the technology, that it wants. It has a need, where the solution needs to match and that they are ready to pay quite a lot for it.” – Mike, Follow-up #19

The work with the sport broadcaster began soon after the initial negotiations in spring 2014. Here, the core idea was to provide high-quality video sport broadcasts over mobile networks, which was done successfully at several events in the following months. WTC continue to offer these services for sport broadcasting at the end of the observation period, as of December 2017. The success here not only give the confidence about the functionality of technology, but it also encouraged WTC to proceed with a similar type of solution into international markets. Hence, it was decided to offer similar internet-based TV services to large international broadcasters, mainly in the hope of financial growth. WTC attempted to sell the broadcasting service in the central Europe in 2013, followed by North America in 2014 and The UK and Ireland in 2015, but they all came to an end by summer 2015. The main reason was thought to be that the business case was not large enough for the teleoperators. Nevertheless, WTC soon returned to work with the teleoperators, with an innovative product, as explained in more detail in Chapter 4.2.3. The broadcasting segment also opened a new avenue for WTC, the PS segment, as explained in the following chapter.

4.2.2 Public Safety (PS) Segment

The failure to implement the broadcasting product abroad was a remarkable setback for WTC, but it did not happen in vain. On the same business trip on which they brought the broadcasting product to North America in spring 2014, WTC was introduced to a

government agency which worked in the *Public Safety* (PS) network. For the benefit of WTC, the agency had a direct government-level order to create a system that would guarantee network connection availability for high-priority users. A brief familiarization made the individuals of WTC realize the challenge the agency had. The team was able to demonstrate, with a previously developed technological solution, how the technology could be applied to solve one of the agency's challenges. This was done in the form of body cameras, worn by ice hockey players, thus providing real-time in-game video, initially made for the sport broadcasting segment. Additional support came from the MNE-funder, which provided the much-needed credentials for WTC.

The individuals thought that: "...[PS Segment] *is a kind of unique case because it has a natural slipstream, that someone [from the government] has written requirements of that kind...*" (Sam, follow-up #8). Hence, this event marked the first "turning point" for entrepreneurial opportunity development in WTC, which was to provide a solution that prioritized network services for government authorities. Activities in North America led to technological cooperation with a government-run PS project in fall 2015. This included a set of evaluation projects on how the PS network could provide guaranteed capacity for the end users. Nevertheless, progress on the PS project in North America slowed in the following years and months. The first reason was that the government decided to order the service from a local teleoperator, meaning their cooperation with WTC ended. The content provided by WTC was now dependent on what features the teleoperator would include in the network. Secondly, at this moment it became a negotiation between the local teleoperator and potential network provider, which was in this case funding WTC. Hence, the negotiation results between the teleoperator in North America and the MNE funder would eventually determine the framework for the PS-related opportunity for WTC. In December 2017, the situation was still open. The PS segment of WTC has been supplemented by later negotiations about similar solutions with government authorities in Central America and Scandinavia. These projects are similar to the one in North America, with a need to provide prioritized network connections for important users. The situation with these was still open in December

2017. WTC has also negotiated with an aviation MNE in relation to a PS segment. However, this was at the early stages at the end of the observation period.

4.2.3 Internet Protocol Television (IPTV) Segment

The idea for the *Internet Protocol Television* (IPTV) dates to spring 2015 and can be considered as the second “turning point” for the entrepreneurial opportunity. The first issue realized by the individuals in this situation was why they were not able to sell the broadcasting product to teleoperators abroad. According to them, it was that the broadcasting segment was too marginal a business for teleoperators to put into practice, and as explained by Sam: *“That it was a big wake up call, that like the product you’re taking to the teleoperator has to be like. Hit in a certain percentage. For that consumer business that you get. You get it through there [to teleoperator] and they start to do it.”* (Sam, In-depth interview). This certain percentage was expressed by the consultants thus: *“...teleoperator does not move if over half of its customers do not have the possibility to buy that service...”* (Mike, In-depth interview).

The second issue realized was the kind of technology with which the above-mentioned critical percentage could be exceeded. This related to the recruitment of an outside CEO, Terence, in spring 2015. He was highly experienced in teleoperators’ sales management. As he explains his contribution to WTC: *“...roughly said, I brought some, like, teleoperator understanding.”* (Terence, In-depth interview). This understanding concerned the features that drove the demand for teleoperators, which were technological and commercial. Firstly, Terence explained the current technological challenges teleoperators were wrestling with: *“...the biggest handicap for the teleoperators is that [internet-based TV-services] can only be sold to customers on fixed networks”*. Secondly, it seemed that IPTV service was financially much more attractive for teleoperators. As Terence compares this with the broadcasting segment: *“So, if you think which is the more interesting option for the teleoperator: to sell to, like, to a million households, or to five broadcasters?”* (Terence, In-depth interview). Because of

this, the team realized that this was a good possibility to use the opportunity, to meet the technological and commercial conditions of the customer: “...consumers would like to do it. but they do not like the quality. we thought that okay, this could be the angle where we could enter and that we have productized. that how teleoperator could get some money that there is that video that can be watched from home.” (Mike, In-depth interview).

This type of product was simultaneously being considered by other actors. Firstly, there was the national and European-Union level regulation, which directed teleoperators to improve the availability of video-based services for consumers in mobile networks. As explained by Terence, the demand for IPTV was: “...born through regulation...” (Terence, in-depth interview). Secondly, the large telecommunication organizations were presenting their estimates about the features included in the future 5G network, which were according to Terence: “...well in line with what we do.” (Terence, in-depth interview). Thus, as Terence described it was: “...these kinds of external factors that started to push us forward...” (Terence, in-depth interview).

The initial negotiation to implement the IPTV solution started in spring 2015 with a Scandinavian teleoperator. This was largely due to Terence’s contacts in this corporation. However, the pilot project began with its Baltic subsidiary in spring 2016. The reason for this was that this subsidiary was: “...very independent. The control is moderately light.” (Mike, Follow-up #1). In this case, the autonomy of the subsidiary was even greater because the local government owned over half of the company. For WTC, this meant that they could develop and implement their technology directly with the R&D and sales departments, without the heavy bureaucracy often present when working with MNEs. WTC saw this project, above all, as a proof of concept which could broaden their business to other countries in the parent company, if successful. During this pilot program, WTC demonstrated several times in small-scale tests that the technology functioned. Nevertheless, it became obvious in fall 2017 that the Baltic subsidiary was not commercializing at any time soon for its household customers. The people in WTC saw two reasons for the postponement. First, the subsidiary was not

certain about the regulator's opinion of the use of this type of new technology. This was because the field of telecommunication is highly regulated and innovative solutions need to be approved before they can be commercialized. This in turn, requires substantial legislative investments to acquire permission and in this case, it seemed that the subsidiary was not ready to do so. Secondly, the TV sales department had difficulties in selling the product to its household customers, which was a requirement for further investments in the project. Hence, the project was suspended for the times being as of December 2017. In addition its business in the Baltics, WTC has had several other sales negotiations on the implementation of IPTV in South America, Eurasia, the Middle East and Central Europe. Nevertheless, they have not progressed as far as the above-mentioned project in the Baltics, as of December 2017.

4.2.4 Miscellaneous (Misc) Segment and summary

In addition to the above, WTC has been carrying out various side projects, since the establishment of the firm, as Sam described: *“Of course in the picture we were drawing besides the media sector like consumer business and healthcare and IoT and other.”* (Sam, In-depth interview). These are treated as the Miscellaneous segment in this study. These projects did not represent any particular trend in customer type or intended use of the opportunity, but included a wide scale of prototypes, including wireless network capacity brokering, electric car charging solutions, healthcare products, Augmented Reality (AR) solutions and fiber replacing services. Overall, this segment seemed to represent a different strategic role to the rest, as Sam describes:

“There are two kinds of projects. Others are strategic and profitable projects, where money comes in. So, we have now done these demos for the MNE where you get some money. These won't necessarily take the product forward, but with them it is possible to demonstrate [the functionality of technology], you get publicity and they provide the

compensation of dealings. For example, this [AR] is one of them.” –Sam,
Follow-up #17.1

The reason for this experimental behavior seemed to reflect the development of the telecommunication industry, which explored what type of functions are involved in the future 5G technology. Thus, it was a grey area, where the entire industry was figuring out what features will be included in the coming 5G network. Mike describes the situation as follows: *“That there is that kind of [situation] that they want something new and wonderful, in spite of it not having any commercial potential at the moment. That management wants to see that they are doing something new.”* (Mike, Follow-up #11). The challenges here were: *“They don’t know themselves what that something like this is.”* (Tommie, follow-up #19). Nevertheless, the overall motive for such movement was thought to be teleoperators’ need to grow their business: *“There are reasons teleoperators don’t grow. It is logical, if you don’t do anything new and settle in the business that you have at the moment, then it inevitably leads to your business coming to a halt.”* (Mike, Follow-up #9). For WTC, the Misc segment did not represent any particular solution, but broader use of their entrepreneurial opportunity. The activities here related to experimentation by various teleoperators, where WTC did its best to solve these technological puzzles, in the hope that they could further validate their innovative product.

At the end of this chapter it is good to sum up the findings for all segments. As presented above, there were four segments that WTC was working on partly simultaneously. The main issue, according to the team, was that *“a normal”* startup focuses on a single product or service (Sam, Follow-up #13), as WTC in turn had: *“...[potential business cases] a thousand times more than we can do.”* (Tommie, in-depth interview). This especially reflected the resource scarcity between the platform development and product finalization. In other words, the challenge was balancing between the choice of: *“Do we do some feature that could be interesting for our customers or that do we do this production [side], that maybe we get to sell faster and install a version [of the solution].”* (Sam, follow-up #17.1). Thus, the challenge here

was balance between developing new features in the solution and increasing the functionality of the core technology linked to the opportunity.

The findings also reflected the total readiness of the opportunity. Hence, it seemed that the opportunity could only be implemented as a prototype. The extent of the opportunity was aptly described by Tom: *“We are trying to build a product that usually takes more than 100 developers to do... I think, as a proof of concept we can do it, as a product we cannot do it”* (Tom, in-depth interview). Nevertheless, this seemed to be part of the plan, as described by Mike: *“...we have reached the limit with this setup, that, okay in the next setup we continue. Like demonstrating and promoting and so on, but we can really scale it. In practice it means that someone must buy this [firm].”* (Mike, Follow-up #7). Hence, according to Terence, there were three alternatives for proceeding: *“... either it [WTC] dies at this point, has incredible luck and gets a customer... or third, is bought.”* (Terence, In-depth interview).

Overall, it seems that the team’s objective was to focus their limited resources on the segments and use cases that provided the most growth potential for WTC. This presented scalable business thinking, as described by Mike: *“Or we do it for everyone, that telecom world functions like that, in short. You have the product, then you conduct the system test and then spread it to the world.”* (Mike, follow-up #11). Thus, the objective, in all segments, was: *“...to make a few commercial deliveries. And after that we try to scale it rapidly to dozen. That is what we are trying to do.”* (Mike, follow-up #11). When asking, hypothetically, would they focus all their efforts on a single segment, in the event of a possible breakthrough, the answer was: *“In practice, yes”* (Mike, follow-up #15). The reason was: *“...if there is a big business case, we go down that path... [We] Have to choose the one where the business comes.”* (Mike, follow-up #18). However, this was not an easy task. For example, the sport broadcasting sector was seen afterwards as a sort of a misstep, which was made in the distraction of revenues, but where the scaling was not possible, as explained by Sam:

“...is clearly that kind of adjacent square, and in startups the focus is the relevant issue, that you have to go to that adjacent square, those

transmitters are easy to sell, we could sell them around with hard legwork, but it is not that kind of exploding business what we are looking for, but once you get money from something, it easily steers your starting to do that and the focus moves there, and we have not avoided that fully, in some sense it is something that have had to do to arrive at this point, but you cannot go too deep into those adjacent squares” –Sam, Follow-up #8

5 Discussion and future research

In this study, we encountered a dynamic process (see Figure 2), where the realization of technological and commercial use of the opportunity was central. This also reflected understanding of the contextual features, linked especially to the technological change and legislative boundaries of the telecommunication industry. The effect of this process seems twofold. Firstly, the team started to better understand the characteristics of entrepreneurial opportunity and its purpose. Secondly, in some cases, the opportunity segmented, to match the requirements of certain customer groups. The following chapters will go into the entrepreneurial opportunity development process and its outcomes in depth.

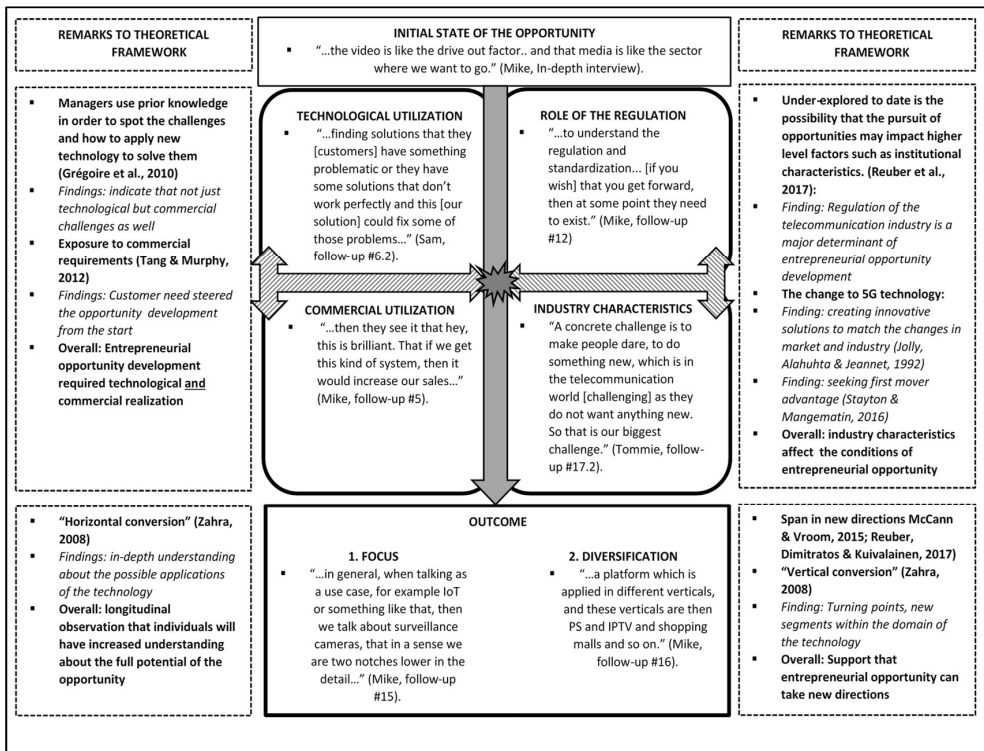


Figure 2. Individuals' perceptions of opportunity development

5.1 The development of entrepreneurial opportunity

5.1.1 Technological and commercial realization

The entrepreneurial opportunity development process seemed increasingly to represent customer influence. In the center of this process was individuals' realization of the i) technological and ii) commercial use of entrepreneurial opportunity linked to the customer need. The first part of the process was to understand how the opportunity could solve the potential customer's technology-related challenges. This meant: "...finding solutions that [customers] have some problems with, or they have some solutions that don't work perfectly, and [our solution] could fix some of those problems..." (Sam, follow-up #6.2). By doing so, the team was: "...getting into the single-use cases and to the problems you need to solve..." (Mike, follow-up #15). This

insight was supported by the sales director, Tommie, who described that : “...*but if there were something concrete which could improve [the customer functions], that is what we are learning more about all the time...*” (Tommie, follow-up #17.2). This was visible in the switch to the IPTV segment, for example. This decision was based on the realization about the main “*handicap*” of teleoperators in their mobile network services (Terence, in-depth interview). The handicap was that teleoperators could not offer high-definition TV broadcast to their mobile network customers. However, it seemed that the teleoperators were not as interested in technology per se as in how this could solve the challenge. Thus, it was more important for the team to demonstrate how to solve the problem than to describe the technological details of the opportunity. As described by Mike: “...*it is way easier to sell something, if someone has a problem and then you say that I can fix that for you, than saying that here is this new possibility that you can sell more of.*” (Mike, Follow-up #12).

The second part of the process was to demonstrate the commercial benefit of the opportunity. The absoluteness of teleoperators in the financial sense became obvious from the very beginning when the broadcasting sector faded. Mike described the lesson they learned soon after: “...[there is] a ‘*statement*’ that if you want to sell some solution to a teleoperator, then over half of its customers need to be able to use it.” (Mike, follow-up #19). This was a wall that the team hit several times. The same was repeated in the IPTV segment in Baltics, where the “[financial] ...*penetration was too small...*” (Tommie, follow-up #19). Thus, it seems that the teleoperators mirrored the opportunity based on their own sales forecast, as described by Mike: “...*then they see that hey, this is brilliant. If we get this kind of system, then it would increase our sales...*” (Mike, follow-up #5). This naturally meant that WTC had to consider the commercial benefits of the opportunity for the potential customer. This was not an easy task. As Terence already mentioned in 2016, the challenge was: “...*how we can take it [the opportunity] to a form that it is easy to buy*”. (Terence, in-depth interview). Nonetheless, this was an issue that the team was still pondering in late 2017, as Tommie described the situation:

“...we don't really know yet what to do and how we can get money out of this.”

(Tommie, follow-up #19).

5.1.2 Contextual features

To understand the whole extent of the opportunity development process, we also need to acknowledge the contextual features contributing to it. In this case, technological change to the 5G network in the telecommunication industry seemed to play a key role. Teleoperators had reached the limits of growth and were ready to expand their business, as explained by Mike: *“There are reasons teleoperators don't grow. It is logical that if you don't do anything new, then your sort of settle in the current business, and it necessarily drifts until your growth stops.”* (Mike, follow-up #9). For this reason, teleoperator and network corporations were engaged in the discussion of 5G implementation and evaluating the type of features that could be used to expand their business. The team paid particular interest to this discussion, to develop their opportunity to match the industry conditions and customer preferences.

In this case, the technological advancement of the telecommunication industry was considered strongly linked to regulation. This had already shown its power in the PS and IPTV segments, where the government actors had made network corporations and teleoperators to develop products and services based on their recommendations. However, the regulation also worked the other way around. It set limits for the technology and thus the type of products and services that could be offered. This was emphasized in the case of teleoperators, because the regulator was able, in the extreme case, to shut down operations. Thus, individuals said that teleoperators were the *“most afraid”* of the regulatory officials (Mike, Follow-up #7) and therefore their recommendations had: *“...to be taken into account because the sanctions are hellish for them...”* (Mike, Follow-up #15). This meant that teleoperators were quite wary of interfering with the often unclear and complicated regulations, fearing considerable sanctions. A good example was the slowdown of the IPTV project in central Europe,

which: "...went away because they were afraid of the regulation so much that they did not dare do anything." (Tommie, follow-up #17.2). This situation was not made any easier by teleoperators unwillingness to implement new technology, due to the series of redundancy negotiations they had just undergone. As aptly described by Mike: "*The conservatism of this industry or like..fear, is almost tangible.*" (Mike, follow-up #19). Thus, there was "*A concrete challenge to make people dare, to do something new, which is in the telecommunication world [challenging] as they do not want anything new. So that is our biggest challenge. We have had several cases in situation that make the proof of concept decision, but there they [still] waiting.*" (Tommie, follow-up #17.2).

However, the team did not fall into despair, as they knew eventually to expect that "...someone has to do something first." (Tommie, follow-up #17.2). Sam compared the situation with: "...opening a ketchup bottle. Someone goes okay, this has been done, it is used there. We have not dared to take the risk, but now, when someone else has done it then we can take it." (Sam, follow-up #17.1). For this reason, the team was actively introducing new solutions to get things moving, as Mike described: "...the problem isn't selling for them but the affirmation that you [teleoperators] should start selling, because for ages the teleoperator business has been about selling the same telephone subscription, the same bread in different size pieces and we are now saying that if you want to grow, then you need to start to sell the system..." (Mike, follow-up #8). Here, the individuals of WTC thought that they were the spearhead of progress, who were "...pretty much only one who can do anything concrete at the moment." (Mike, follow-up #12) and "...no one else but us so far has shown how you can make money with network slicing with this 5G..." (Mike, follow-up #15). This thinking seemed to represent the first mover advantage what the WTC was chasing in the midst of all this industry change. As described by Mike: "*Of course there is always a dilemma of a startup, that you must do things that no one else is doing, because otherwise you're helplessly late.*" (Mike, follow-up #12).

5.2 Influence on the entrepreneurial opportunity development

This chapter explores how all the above-mentioned features contributed to the development of entrepreneurial opportunity. Individuals' realization about customer preferences and contextual conditions seemed to be in the center of this process. This had a significant impact on how entrepreneurial opportunity developed during the observation period. Based on the findings, it seems that opportunities are not in a permanent state, but undergo a series of fundamental and cosmetic transformations, as suspected (Dimov, 2007). Thus, we support the notion that there is a need to dissociate the initial and subsequent opportunity (Kraus, Niemand, Angelsberger, Mas-Tur & Roig-Tierno, 2017). The findings are consistent with the insight that entrepreneurial opportunity can expand in new directions (McCann & Vroom, 2015; Reuber et al., 2017), with a total of four segments in this study. However, even though the opportunity was developed according to the industry characteristics and customer preferences, this did not change the nature of the opportunity itself, but merely the purpose of use. As Mike described: *“Technically we are still in this [initial] model, but we have taken it by commercializing in a different direction. When the world is ready for it, we can implement [the initial opportunity] very fast. This is going to be maybe somewhere between 2020–2025, in the time of the 5G anyway”* (Mike, Email, March 2017). Here, individuals thought that they were working on with *“...a platform which is applied in different verticals, and these verticals are then PS and IPTV and shopping malls and so on.”* (Mike, follow-up #16). Hence, the overall objective of these segments was to demonstrate the usefulness of technology and thereby make the industry move: *“...we bring the impulses of those solutions there, that like do healthcare solution, do broadcasting solution and because they do it first they notice how it can be sold, they think like how the strategy changes in those verticals we are going into...”* (Mike, follow-up #8). In our opinion, this outcome seems to more or less reflect the “vertical conversion” of knowledge (Zahra, 2008) which manifested itself in the case of the turning points of entrepreneurial opportunity. This type of evolutionary aspect of entrepreneurial opportunity development is worthy of additional research.

In relation to segmentation, we seem to have approached a critical phase of an INV. Here, the team was considering on which segment to concentrate their efforts to make a breakthrough. Unfortunately, we could not witness this. The findings indicate that at the moment of truth they would proceed with a single segment based on perceived scalability. With this observation, it seems reasonable to assume that the amount of resources (Chandra, Styles & Wilkinson, 2012), or in this case lack of thereof, can affect the scale of entrepreneurial opportunity. More studies are needed to investigate this issue. For example, does internationalization really happen with the price of new opportunity discovery? (Baum, Scwhens & Kabst, 2011). We also invite researchers to further study the transformation of entrepreneurial opportunity between pre- and post-entry phases. Here, it seems reasonable to acknowledge and investigate other “successful” alternatives that may occur at the edge of a commercial breakthrough of an INV. The reason is that, in this case, the purchase of WTC was thought a more probable option than the explosive growth of sales. We also need to acknowledge that this seems to be the moment of truth in terms of entrepreneurial opportunity; it either succeeds or does not. Nonetheless, in both alternative cases, we would lose track of these ventures, and more importantly the track of entrepreneurial opportunity, before the research community even notices them.

The other type of knowledge conversion that took place in the opportunity development process, was what Zahra (2008) would call “*horizontal*”, at least in our opinion. According to this author, horizontal conversion present itself in increasing specificity of potential applications (Zahra, 2008). Similarly, in this case, individuals seemed increasingly to understand the usage of the opportunity. As Mike described this development: “...*in general, when talking as a use case, for example IoT or something like that, then we talk about surveillance cameras, in a sense we are two notches lower in detail...*” (Mike, follow-up #15). This was not just about technology, but required a much broader viewpoint. This was strongly linked to understanding what the opportunity meant from the customer’s perspective, as explained by Tommie:

“The more we come back to ‘the use cases’, that they need to be clear, that the operator understands, how they do it... you can do IPTV quality. How am I going to do it? What’s all about? How does it respond to ‘net neutrality’? How do I get my money out? What is the benefit for me? All these should be clear, per ‘use case’” – (Tommie, follow-up #19).

Based on these findings, this type of customer-oriented reasoning was present in the opportunity development process as soon as the team began a discussion with potential customers. The findings support the insight that i) innovation and ii) introduction of a new product or service are different stages in the innovation process (Tang & Murphy, 2012). The findings also support the insight that rapidly internationalizing firms respond to small-scale opportunities in the initial stages (Chandra et al., 2012, p.93), but also add to the discussion, by illustrating that the initial entrepreneurial opportunity can be large, as it was in this case study. We agree that individuals can have a radical innovation advantage, due to their rich technological knowledge and tolerance for existing customer preferences and market norms (Marvel & Lumpkin, 2007), but add to the discussion in the sense that subsequent development cannot take place in such a vacuum. We suggest, similarly to Tang and Murphy (2012), that the deal breaker between the stages of innovation and introduction of a new product or a service is for the initial innovation not yet to be exposed to the commercial requirements encountered in the market. We also provide in-depth description of how this affected entrepreneurial opportunity development. These insights can help understand why certain venture ideas attract customers more than others (Dimov, 2011) and how the benefit of the innovation is modified or translated according to customer perceptions of its value (Webb, Ireland, Hitt, Kistruck & Tihanyi, 2011). The findings suggest that the subsequent development of the opportunity can be described as an experimental, customer-oriented and iterative process, which reflects similar features to the *“lean start-up approach”* (Blank, 2013). Based on the findings, the central function seems the demonstrating of the technological problem-solving capacity and commercial growth potential of entrepreneurial opportunity. Here, there are some similarities with a study of Grégoire, Barr and

Shepherd (2010). These authors found that managers used their knowledge to spot the challenges of particular markets and mirrored use of new technologies to solve them (Grégoire et al., 2010). We extend this insight by showing that is not limited to the prior knowledge but is an active and iterative process in which individuals seek to develop the discovered entrepreneurial opportunity further. We add to the discussion by illustrating what type of technological and commercial challenges there were to solve and how the individuals responded to them. More studies are needed to confirm these insights and investigate how individuals can spot such development areas. Overall, we invite researchers to explore the longitudinal development of entrepreneurial opportunity further and hope that our findings provide some initial insights for those interested. Here, we think that it would be necessary to investigate how the scale of entrepreneurial opportunity develops under market pressure. Here, it could be useful to observe the intersection of technological and commercial realization. We recommend focusing on individual differences, linked to the knowledge asymmetries and other personal characteristics. In this study, there were some indications that individuals' background affected how they evaluated the potential of the opportunity, but more studies are needed to confirm this insight.

To conclude, we want to highlight one more significant feature that arose from the findings: the context where the entrepreneurial opportunity development process took place. Overall, the findings indicate that the industry condition was a significant feature here. In this case, the telecommunication industry was on the edge of technological breakthrough to 5G technology. The case company, in turn, tried to introduce innovative solutions that would make this breakthrough. However, when we talk about the telecommunication sector, an issue that cannot be bypassed, is the regulation in it. This did not directly affect the opportunity development in WTC, but was still something that the team had to acknowledge. Hence, it seems that WTC was balancing on a razor edge, between being legal and breaking the industry standards. Here, Mike aptly described that the main difference between a startup and a large corporation: “...*a startup has a sort of a slogan that if you don't break the law, then you're not a good*

one, or if you don't move around, you know, in the gray area..." (Mike, follow-up #15). The team still had to know exactly what was legal and what was not to maintain the desirability of the opportunity for the customers, as Mike stated: "...*you cannot do it like Uber, let's do something and then look at what legislation says afterwards.*" (Mike, follow-up #12). Based on these findings, it seems that context truly is an issue to be considered when investigating entrepreneurial opportunity (Reuber et al., 2017). As suspected (Reuber et al., 2017; Webb et al., 2011), the findings indicate that the institutional characteristics can affect the pursuit of entrepreneurial opportunities. Based on the findings, it seems regulation is a major actor in the telecommunication industry, but its role was further emphasized as the industry was facing a major technological change. However, there was more to this. Teleoperators were, in a way, cautious and uncertain towards the technological change to 5G technology. In any case, WTC had to be among the first to implement their solution in order to fully exploit their competitive advantage when this change would eventually happen. In other words, the individuals thought that it was critical to be the first one to launch new technology, because in the telecommunication sector dominated by large multinationals, one would otherwise "*surely lose the race*" (Mike, follow-up #12). With this observation, we return to an insight presented nearly three decades ago and confirm that, at least in this case, a high-technology startup sought the major changes in the markets and industry, by developing its own innovative solutions (Jolly et al., 1992). It also seems that time is an asset for high-technology startups if they want to establish industry standards to guarantee their competitive advantage by introducing new products (Stayton & Mangematin, 2016). Overall, we consider that there is plenty to do in the near future to clarify the role of the context in relation to entrepreneurial opportunity. For example, future studies could investigate how the preconditions for entrepreneurial opportunity recognition and development vary between industries. We recommend acknowledging and investigating the characteristics of the opportunity itself. In this case, WTC made an informed decision in developing groundbreaking innovation with the aim of causing change in their industry. An avenue for future research could be to investigate how INVs, or startups in general, respond to major industry changes when working with

entrepreneurial opportunity. To conclude, we hope that these findings will motivate future research to acknowledge the role of the context and provide more empirical findings of this significant feature.

6 Conclusion

The main objective of this study was to provide new perspectives on research into entrepreneurial opportunity. This chapter reflects on how these findings relate to the theoretical framework of this study. In our opinion, the findings are linked to the ontological discussion about entrepreneurial opportunity and, more importantly, to the empirical discussion about how entrepreneurs perceive the development of entrepreneurial opportunity.

In light of the findings, it seems that the binary choice between the opportunity discovery and creation perspectives (Ramoglou & Tsang, 2016; Suddaby et al., 2015), is one between quite extreme alternatives. Based on our findings, the features of either aspect cannot be completely excluded. Fortunately, these perspectives have one thing in common: emphasis on the individual. Thus, whether objective or subjective reality, it is individuals' unique characteristics (discovery) and creative imagination (creation) (Suddaby et al., 2015) that make opportunity recognition possible. This thinking reflects the realist school (Oyson & Whittaker, 2015; Ramoglou & Tsang, 2016; Renko et al., 2012), which thinks that individuals spot entrepreneurial opportunities from their objective environment, based on their subjective perceptions (Renko et al., 2012). Based on our findings, we are inclined towards this perspective.

The next question to be answered is how individuals perceive opportunity emergence and the development of entrepreneurial opportunity (Dimov, 2011). Based on the empirical findings, the central feature was the realization, between the technological and commercial suitability stages, of the opportunity in relation to customer need and industry conditions. There were some indications here that the individual differences affected entrepreneurial opportunity development. This reflected the professional

asymmetries of technological and commercial knowledge domains. These findings were quite preliminary and warrant further research. We think that investigating entrepreneurial opportunity by focusing on such individual differences could significantly increase our understanding about this phenomenon. We are not alone in thinking so (Dew, Velamuri & Venkataraman, 2004; Shane & Venkataraman, 2000; Zahra, 2008).

We also want to highlight the dynamics of the entrepreneurial opportunity phenomenon. Based on the findings, entrepreneurial opportunity underwent significant development. With this observation, we join the group that considers entrepreneurial opportunities actively assessed and modified (Dimov, 2007; McCann & Vroom, 2015; Renko et al., 2012; Reuber et al., 2017; Shepherd, 2015). We hope this insight will encourage future researchers to think of opportunities as developing entities, rather than one-off deals. Finally, we hope that the contextual findings of this study will increase our understanding of this important feature (Dimov, 2007; Reuber et al., 2017) and encourage academics to acknowledge this matter in future research.

7 Practical implications

This study also sought to provide practical insights for entrepreneurs operating in similar conditions. Based on the findings, entrepreneurs should take the time to evaluate both, the technological and commercial side of the innovation. Individuals should carefully evaluate how their innovation can solve a technological customer challenge and its commercial potential. Here, we urge entrepreneurs to acquire external feedback or hire external staff to gain better understanding of both aspects, if necessary.

For large multinational corporations, this study does not offer too many new insights. However, as pure bystanders, we observed a paradox in the cut-growth situation which seemed to cause far-reaching consequences. Hence, as Mike pointed out, keeping employees in a “*state of fear*” through financial cuts and redundancy negotiations is not

good for the introduction of new products and services, especially, if a major technological breakthrough is planned.

The last observation is for governmental investors. These seem to have a significant role in supporting high-technology startups and their innovation development overall. The findings of this study suggest that R&D is not the main development area for a high-tech startup; rather, the pain threshold seems to relate to the commercialization of the innovation. In other words, the main challenge for the case company was to sell its solution, as it required significant resources. However, in the case of Finnish governmental funding, this sector was not supported, according to the former CEO of WTC, with a single “*euro or yen.*” This last notion may be relevant only in the context of governmental funding in Finland, but we still consider it relevant.

	Time	Interview type	Length	Interviewee
	09.03.2016	<i>Negotiation interview</i>	-	Mike
1	07.04.2016	In-depth	1:27:02	Mike
2	07.04.2016	In-depth	1:19:04	Terence
3	12.04.2016	In-depth	1:33:43	Sam
4	11.05.2016	Follow-up #1	1:17:02	Mike
5	24.05.2016	Follow-up #2	0:51:17	Mike
6	21.06.2016	Follow-up #3	1:09:39	Mike
7	05.07.2016	Follow-up #4	0:49:18	Mike
8	02.08.2016	Follow-up #5	1:25:26	Mike
9	02.09.2016	Follow-up #6.1	1:02:38	Mike
10	02.09.2016	Follow-up #6.2	1:29:49	Sam
11	04.10.2016	Follow-up #7	1:13:32	Mike, Sam
12	15.11.2016	Follow-up #8 (Presentation)	1:47:39	Mike, Sam
13	29.12.2016	In-depth	1:42:18	Tom
14	20.01.2017	Follow-up #9	1:21:10	Mike, Sam
15	03.02.2017	Follow-up #10	1:21:40	Mike, Sam
-	07.03.2017	<i>Email</i>	-	Mike
-	15.03.2017	<i>Email</i>	-	Sam
16	24.03.2017	Follow-up #11	1:11:16	Mike
17	12.04.2017	Follow-up #12 (Skype)	1:19:04	Mike, Sam
18	10.05.2017	Follow-up #13	1:01:39	Mike, Sam
19	26.05.2017	In-depth	1:21:53	Tommie
20	20.06.2017	Follow-up #14	1:14:55	Mike, Tommie
21	18.09.2017	Follow-up #15	1:06:11	Mike
22	27.10.2017	Follow-up #16	1:31:06	Mike
-	27.10.2017	<i>Email</i>	-	Sam
23	15.11.2017	Follow-up #17.1	1:40:04	Sam
24	15.11.2017	Follow-up #17.2	1:11:40	Tommie
25	19.12.2017	Follow-up #18	1:21:15	Sam
26	22.12.2017	Follow-up #19	1:46:16	Mike, Tommie

Appendix A. Data

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Publication IV

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**Learning and entrepreneurial opportunity development within a Finnish Telecom
International New Venture**

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Learning and entrepreneurial opportunity development within a Finnish Telecom
International New Venture

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Abstract

This article aims to promote our understanding of one of the most central topics of entrepreneurship research currently: entrepreneurial opportunity. This study approaches the topic through a learning-based perspective, which has been suggested as a reasonable option for advancing our understanding about the opportunity phenomenon. The objective is to provide in-depth descriptions of how individuals learn and how this learning process contributes to the development of entrepreneurial opportunity. This is a longitudinal study based on a real-time interview material. The research was carried out by applying a qualitative and interpretive method, where the aim was to emphasize the individual viewpoints of the opportunity development process. Based on the findings, it seems that learning is a key element in opportunity development process. In this case, the understanding of customer need seemed to play a significant role. Individual differences in know-how significantly affected the way individuals understood this development. The learning process influenced the scope of the opportunity, where conceptual ideas became more accurate technological solutions, based on the observed real-life demand.

Keywords: International entrepreneurship, entrepreneurial opportunity, International New Venture, learning, social learning

1 Introduction

Entrepreneurial opportunity is one of the key concepts in entrepreneurship research (Chell, 2013; Shepherd, 2015; Suddaby, Bruton & Si, 2015). This is rightly so, as opportunities are conceived as the main ways for entrepreneurs to meet market demand (Eckhardt & Shane, 2003; Ramoglou & Tsang, 2016; Renko, Shrader & Simon, 2012; Shane & Venkataraman, 2000). However, at the same time, the field of International Entrepreneurship (IE) lacks in-depth knowledge on opportunities (Mainela, Puhakka & Servais, 2014) and how opportunities are recognized (George, Parida, Lahti & Wincent, 2016). The reason for this seems twofold. Firstly, opportunity-related research has spent considerable resources on the ontological discussion about entrepreneurial opportunity, namely whether opportunities are discovered or created (George et al., 2016; Suddaby et al., 2015). Secondly, prior studies in the field of IE have focused on investigating opportunities in relation to organizational formation or development and internationalization, not the opportunities themselves (Mainela, et al., 2014).

Consequently, it has been suggested that we should focus more on the epistemological nature of the phenomenon. We should emphasize the aspect of “...*how individuals perceive their environment and conceive of future possibilities within it.*” (Dimov, 2007, p. 724). Based on the prior opportunity-related research, it seems that opportunities arise from how individual entrepreneurs respond to environmental changes by seeking benefits from these changes (Grégoire, Barr & Shepherd, 2010). This means that entrepreneurial opportunity should be conceived as “...*the propensity of market demand to be actualized into profits through the introduction of novel products or services.*” (Ramoglou & Tsang, 2016, p. 416). It seems that opportunity recognition process links to the knowledge-seeking behavior of individuals. For example, according to Kuckertz, Kollmann, Krell & Stöckmann (2017, p. 92), opportunity recognition is “...*being alert to potential business opportunities, actively searching for them, and gathering information about new ideas on products or services.*” It has been suggested that a learning-based perspective could enable the observation of how individuals use their creativity to detect market gaps (Mainela et al., 2014). A learning-based study can help

to mediate between the conflicting ontological insights (discovery and creation perspectives) about the opportunity construct, and thus enable us to move forward in the research (Dutta & Crossan, 2005). This study approaches this phenomenon by applying a learning-based approach.

Another recent insight is that entrepreneurial opportunity should be thought of as an evolving and dynamic phenomenon. Accordingly, the moment of initial opportunity recognition marks just a beginning in an ongoing process of learning about the opportunity (McCann & Vroom, 2015). Initially discovered opportunities are still conceptual level ideas which need to be transformed into concrete opportunities before they are ready for exploitation in the external environment (Oyson & Whittaker, 2015, p. 329). Consequently, entrepreneurial opportunity includes a dynamic decision-making process, where, for example, opportunities are updated when more information becomes available (McCann & Vroom, 2015). Overall, the dynamic aspect of opportunity is believed to play a significant role in advancing the fields of entrepreneurship (Shepherd, 2015) and IE (Reuber, Dimitratos & Kuivalainen, 2017).

Thus, based on the research gaps and future research suggestions from the previous studies, this study conducts an in-depth investigation of entrepreneurial opportunity development. This is done, as requested, by observing entrepreneurial opportunity in a longitudinal manner (Reuber et al., 2017), with the objective of capturing the real-time thoughts and actions of the individuals as they run their business (Mason & Harvey, 2013). While doing so, this study applies a Social Learning Theory. The reason is that this theory supports the aims of this study, which is to focus on the social process (Yeoh, 2004) and non-economic motives of learning (Kauppinen & Juho, 2012) as requested. The task is carried out by using a qualitative and interpretive method, in a single case setting. The reason is this approach emphasizes the individual interpretations and enables in-depth descriptions of the studied phenomenon (Walsham, 1995). Consequently, the research questions for the study are as follows: i) *how and what entrepreneurs learn during the observation period* and ii) *how learning process influences the entrepreneurial opportunity development*.

The case company of this study (Wireless Telegraph Company, WTC) is a Finnish INV operating in the telecommunication industry, which was established in 2012. The primary data consists of real-time interviews with the key individuals within the WTC during a 21-month period between 2016 and 2017. The findings of this study indicate that the main objective of the individuals was to facilitate market demand by introducing groundbreaking innovation. While doing so, they were engaged in a learning process, which provided in-depth understanding about the technological and commercial requirements of the opportunity. They became more aware of the telecommunication industry condition that drove the demand. Overall, this learning process provided increased understanding how to develop the innovation to match these requirements. A social learning process was observed. Consequently, individuals' field of know-how affected significantly how they perceived the opportunity development. This especially reflected the position between technological development and customer interaction.

A discussion, below, about the theoretical framework is followed by the description of the aims and methodology of this study. The article then moves to introducing the preliminary findings.

2 Literature review

2.1 Entrepreneurial opportunity

Much of the discussion about entrepreneurial opportunity research is linked to the ontological debate about the phenomenon. In essence, the question seems to be whether the opportunities are objectively discovered (*the discovery perspective*) or subjectively created (*the creation perspective*) (Ramoglou & Tsang, 2016; Suddaby et al., 2015). The main difference between these opposite viewpoints is that the discovery perspective thinks of opportunities as pre-existing entities waiting to be discovered (Ramoglou & Tsang, 2016). This viewpoint sees opportunities as objective realities in the environment and their discovery is dependent on the unique characteristics of

entrepreneurs (Suddaby et al., 2015). The creation perspective, in turn, discards the objective view, where opportunities could exist without the awareness of entrepreneurs. This viewpoint conceives opportunities more as endogenous acts, where entrepreneurs create opportunities through their creative imagination and social skills (Suddaby et al., 2015).

There is an alternative way of looking at this matter. According to this perspective, individuals spot opportunities in the objective environment based on their subjective perceptions of how to answer for them, as accurately as possible (Renko et al., 2012, p. 1246). Thus, opportunities emerge in situations when there is “...*a gap between market needs and the means to satisfy those needs.*” (Renko et al., 2012, p. 1242). However, this does not happen without the perception of the individual entrepreneurs about the market needs and means to satisfy those needs (Renko et al., 2012). It has been suggested that, from a realist standpoint, entrepreneurial opportunities represent a realization process of unactualized into actualized. Entrepreneurial opportunity is conceived “...*as the propensity of market demand to be actualized into profits through the introduction of novel products or services.*” (Ramoglou & Tsang, 2016, p. 416). Nevertheless, it has suggested that the opportunity-related research should move forward from the ontological discussion and focus more on the “*epistemological nature of opportunities*” (Dimov, 2007). The opportunity phenomenon should be approached by investigating “...*how individuals perceive their environment and conceive of future possibilities within it.*” (Dimov, 2007, p. 724).

If we look at the origins of entrepreneurial opportunities, it has been suggested that opportunities arise from changes, such as the development of knowledge of people or organizations, a change of behavior of the actors in the economy and changes in the macroenvironment itself (Grégoire, et al., 2010). It is necessary to acknowledge that opportunities do not arise by themselves, but opportunities are “...*courses of action that seek to derive benefits from these changes.*” (Grégoire, et al., 2010, p. 415). Thus, opportunity recognition, according to Grégoire, et al. (2010), involves the interpretation of change signals, which is applied in the decision of pursuing with the opportunity, in

the hope of benefits. These authors found that opportunity recognition process included cognitive processes where entrepreneurs reflected how, for example, new technology was appropriate to the context. Entrepreneurs were “...*finding market domains that could be aligned with the technology...*” (Grégoire, et al., 2010, p. 425).

Moreover, it has been suggested that entrepreneurial ideation is a social and ongoing learning and experimentation process, where entrepreneurs work in teams and with partners to solve the recognized problems (Gommel, Boland & Kolb, 2012). Overall, the social interaction perspective is considered as significant aspect for future research, as it can be applied to broaden the perspective of how potential opportunities are conceived as social interaction between a community and the entrepreneur (Shepherd, 2015). This takes us to a very important insight of opportunity phenomenon: how people with varied backgrounds and prior information contribute to the opportunity emergence and development. Here, individual differences are suspected to be a major factor explaining the opportunity emergence and its subsequent development. For example, it has been suspected that the reason certain people discover certain opportunities, may be due to their backgrounds, linked to the prior information and cognitive properties to identify and value entrepreneurial opportunities (Shane & Venkataraman, 2000, p. 222). The dispersion of knowledge is suspected to be an essential element in the opportunity recognition process, which may lead to heterogeneous expectations and through this promote the opportunity recognition of the individuals (Dew, Velamuri & Venkataraman, 2004).

However, the initial recognition of the opportunity seems to be just a starting point in a much longer process. Opportunities are still potential, until they “...*are creatively transformed by entrepreneurial cognition and action into actual international opportunities...*” (Oyson & Whittaker, 2015, p. 305). Chell (2013) states that: “...*it is not sufficient to identify what entrepreneurs do when they identify a social/market need, but with what proficiency they execute the subsequent steps to develop it into a social/market value proposition.*” (Chell, 2013, p. 22). These insights are supported by an empirical study which found that entrepreneurs moved rapidly from conceptual

analysis to active experimentation, with the aim of validating and developing the recognized ideas, or alternatively abandoning them (Gemmel et al., 2012). According to Zahra (2008), the newly developed knowledge must be “*converted*” into new ideas before they become the basis of the opportunity discovery and/or creation. More precisely, the “*Conversion means changing knowledge from one form to another.*” (Zahra, 2008, p.251). According to Zahra (2008), this can happen in two ways: *horizontally* and *vertically*. The horizontal conversion means that the technological discoveries are converted in a form that people with different professional (technology and business) backgrounds can understand it, which in turn exposes the technological discoveries to diverse interpretations and through that increase understanding about the potential use of the technology in question. The vertical conversion, on other hand, happens when technological discoveries take: “*additional and varied discoveries within the same domain of research.*” (Zahra, 2008, p. 251).

Based on prior research of entrepreneurial opportunity, we have several avenues to advance our understanding about this phenomenon. Firstly, rather than focusing on the ontological nature of opportunities, we should focus more on how individuals perceive opportunities in the environment (Dimov, 2007) and respond to the changes in their knowledge base and to external changes (Grégoire, et al., 2010). In the center of this process seems to be knowledge-seeking behavior of entrepreneurs, who are constantly looking for new opportunities (Kuckertz et al., 2017). Secondly, we should take a more interactive perspective on the matter (Shepherd, 2015). For example, individual differences in relation to cognitive properties (Shane & Venkataraman, 2000) and dispersion of knowledge (Dew, et al., 2004) are suspected as essential elements in how people recognize opportunities. Thirdly, we need to adapt a more dynamic aspect when investigating entrepreneurial opportunities. The reason is that the moment of initial recognition is just a start in a longer development process (Chell, 2013), where opportunities are transformed (Oyson & Whittaker, 2015), actualized (Ramoglou & Tsang, 2016) and validated (Gemmel et al., 2012) to respond to real-life requirements.

2.2 International Entrepreneurship (IE) and international opportunity

As in entrepreneurship research, opportunity is a central feature in the field of IE, but here, the focus is on the internationalization aspect, as Oviatt & McDougall (2005) aptly define the field: “...*the discovery, enactment, evaluation and exploitation of opportunities that crosses the national borders*”. Consequently, the internationalization perspective has had significant impact on how opportunities has been studied and through the outcomes in the field. According to Mainela, et al. (2014), it seems that the majority of prior research has focused especially on investigating i) how international opportunities are exploited to establish and develop ventures or ii) to support the internationalization of ventures (Mainela et al., 2014). Accordingly, the opportunity itself has been overlooked and we thus lack the in-depth knowledge about international opportunities and their recognition (Mainela et al., 2014). However, these authors state there are some aspects that could increase our understanding about opportunities. Firstly, we could adopt a more social and dynamic perspective when investigating opportunities. International opportunity should be conceived as an outcome of iterative processes driven by the cognitive activities of the entrepreneurs. Here, international opportunities seem to emerge “...*from sense-making and enactment in a continually changing social situation.*” (Mainela et al., 2014, p. 118). Secondly, we could focus more on “...*the action-based and interactive nature of the international opportunity development.*” (Mainela et al., 2014, p. 118). We could focus on the “...*daily practices, exchanges and joint acts in the international opportunity creation.*” (Mainela et al., 2014, p. 118), in our quest to deepen the understanding of the phenomenon.

According to a recent review by Reuber et al. (2017), opportunity is a central element in developing the field of IE. Here, these authors suggest that there are certain aspects that should be acknowledged in future research related to opportunities. Two of these are i) *the dynamics* and ii) *the context* (Reuber et al., 2017). Firstly, by highlighting the dynamics of opportunities, we can avoid the static view of internationalization (Reuber et al., 2017). Thus, according to Reuber et al. (2017), we should treat opportunity recognition and pursuit as events with duration, acknowledge the possibility that

entrepreneurs can pursue multiple opportunities over time, investigate how processes related to opportunity pursuit change over time and include greater variety of actors while studying the pursuit of international opportunities. Secondly, according to Reuber et al. (2017), we should acknowledge the context. We should investigate the situational features that influence the opportunity (Reuber et al., 2017). According to these authors, contextual features may arise, for example, from i) *institutional characteristics* (e.g. industry), ii) *sociocultural differences* (e.g. type of networks), iii) *the temporal dimensions of time* (e.g. the transient nature of government incentives) and iv) *the impact of events* (at individual, firm and institutional levels) (Reuber et al., 2017).

Overall, it seems that there is considerable amount of work to be done in order to advance our understanding about international opportunity phenomenon. Above all, it has been suggested that we should conduct an in-depth analysis of this phenomenon (Mainela et al., 2014). Here, we could focus on the individual sense-making and social interaction perspectives, when investigating the iterative process of international opportunity (Mainela et al., 2014). The focus of future research should be on the daily activities linked to international opportunity (Mainela et al., 2014). The corner stones to be noticed in the future research are the dynamics and contextual features affecting opportunities (Reuber et al., 2017). All these perspectives are acknowledged within this article.

2.3 International New Ventures (INVs) and Learning Advantage of Newness (LAN)

The field of IE has given considerable attention to internationalization of SMEs (McDougall-Covin, Jones & Serapio, 2014). One popular target group under investigation is small ventures that internationalize straight from inception (Servantie, Cabrol, Guieu & Boissin, 2016). One type of these organizations, and the focus of this study, are International New Ventures (INVs): “...that, from inception, seeks to derive significant competitive advantages from the use of resources and the sale of outputs in multiple countries” (Oviatt & McDougall 1994, p. 49). One of the main advantages of

INVs is their intangible strength (Zahra, 2005; Zahra, Matherne & Carleton, 2003). The intangibility in question refers to knowledge-based or human-based strengths (Autio, George & Alexy, 2011; Phillips McDougall, Shane & Oviatt, 1994) and social and human capital (Andersson & Evers, 2015) that have been found to promote their rapid internationalization and survival in the global markets (De Clercq, Sapienza, Yavuz & Zhou, 2012; Sui & Baum, 2014) and opportunity recognition process of entrepreneurs (Kraus, Niemand, Angelsberger & Mas-Tur, 2017).

The strengths of INVs can be traced back to the entrepreneurs who run them. The article by Phillips McDougall et al. (1994) describe the INV founders as “...*individuals who see opportunities from establishing ventures that operate across national borders. They are ‘alert’ to the possibilities of combining resources from different national markets because of the competencies (networks, knowledge, and background) that they have developed from their earlier activities.*” Nevertheless, it has been suggested that experience alone is not sufficient to maintain rapid internationalization (Zheng, Khavul & Crockett, 2012); rather, entrepreneurs need to acquire and adopt new information as soon as they enter global markets (Prashantham & Floyd, 2012). The significance of learning cannot be underestimated, as it is a basic requirement for any firm that wishes to enter and operate in highly competitive and dynamic foreign markets (Bingham, Eisenhardt & Davis, 2007; Ruijgrok & Wagner 2003; Santos-Vijande, López-Sánchez & Trespalacios, 2012). It seems that learning steers the direction of the organizational transformation (Tallott & Hilliard, 2016) and supports the opportunity recognition (Wolff, Pett & Ring, 2015) in SMEs.

However, learning is also a function that INVs seem to master and apply better than other firms. A possible explanation for this has been suggested by Autio, Sapienza and Almeida (2000). It is that new firms have the cognitive and organizational flexibility to learn the competencies necessary to achieve and sustain the international growth; thus, these firms enjoy what has been termed *Learning Advantage of Newness* (LAN). This is a crucial advantage when there is a need to adjust organizational processes within the turbulent and unstable global markets (Autio, et al., 2000). Autio’s et al., (2000)

reasoning about learning links to how new knowledge is adopted and distributed within organizations and how this knowledge is applied to promote their internationalization in market of which the organizations have limited knowledge (Autio et al., 2000).

According to Zahra, Zheng & Yu (2018), this advantage has been linked in previous research to lack of routines, flat organizational structures, commitment to customers, automatic learning and active experimentation.

However, it seems that the application of organizational learning theory has somewhat limited our views here. It has been suggested that we should extend our views beyond the marketing and technological contexts and investigate the social process of learning of new ventures (Yeoh, 2004). It has been suggested that we need to acknowledge and investigate the social side and non-economic motives of learning (Kauppinen & Juho, 2012). Thus, based on these suggestions, this study applies a social learning theory, which is presented in more detail in the following paragraph.

2.4 Social learning theory

Social Learning Theory states that learning at the individual level is based largely on how people interpret the externality. They modify observable knowledge, behavior, and events from the environment into practicable guidelines that steer their own actions (Bandura, 1986, p. 51). However, people do not rely blindly on what they observe. Thus, individual behavior represents an interplay between the self-regulative system and external influence (Bandura, 1991, p. 249). According to this account, a considerable proportion of learning is *Observational Learning*, where individuals increase their knowledge-base and skills by modelling real-life examples (Bandura, 1997, p. 440). The same rule applies to innovativeness, as innovations are often created by refining the pre-existing knowledge into new products or services (Bandura, 1997, p. 372).

Bossan, Jann and Hammerstein (2015) suggest that only a small proportion of our knowledge is based solely on our independent ideas; for the most part, learning is based on something we see others do (Bossan et al., 2015). Their evolutionary (economy-

based) simulations revealed two types of learners: i) individual and ii) social learners. The first type represents individuals who learn by relying on their own experience and the latter type learns by imitating the choices of the “*most wealthy*” individual example they observe. The simulation indicated that the benefits of these two learning styles varied according to the environment. Firstly, imitating the examples whose decisions are based on a successful interpretation of the environment may lead to more favorable results than interpreting the environment. According to Bossan et al., (2015), the reason is that imitators are more likely to choose the “*better option*” than individual learners. Secondly, however, this composition changes when the environment begins to change. In this case, individual learners can adapt their decision-making according to the change, better than those who mimic each other. Overall, the simulation reflects the amount of information within the markets. Markets are powerful indicators of change, but only if there is enough information “*flowing*” into them. Here, it seems that individual learners play a key role providing the information flow. However, when the information flow is weak, the decision making seem to become “*self-referential*”, and thus learning follows the terms of imitating. If we rely entirely on the information of others, we will fail to perceive what is really happening in our surrounding reality (Bossan et al., 2015, p. 278).

Another significant element of the social learning theory is the concept of *expansive learning*, which focuses on how learning is transformed from the individual level into collectives (Engeström & Sannino, 2010, pp. 5). According to Engeström and Sannino (2010), this is a cyclical process where the ideal type learning process takes place in the following order: *questioning, analyzing, modeling, examining, implementing, reflecting* and *consolidating*. These authors suggest that these actions occur in the following way. The first type of action, *questioning*, includes criticizing or rejecting some of the accepted practice and existing wisdom. The second action, *analyzing*, involves mental transformation of the situation to find out the exploratory mechanisms contributing to it. In the third action, the discovered explanatory mechanisms are *modeled* in an “*observable medium*”. This means that a tentative model of a new idea is constructed

and reflected against problematic situation. The fourth action is thoroughly *examining* the model to make most out of its dynamics, potentials and limitations. The fifth action is the *implementation* of the model, which takes place through: “...*practical application, enrichment and conceptual extension*.”. The last two actions are *reflecting* the process and *consolidating* “*its outcomes into a new stable form of practice*.” (Engeström & Sannino, 2010).

A relevant example of expansive learning in practice is a study by Kauppinen and Juho (2012). They applied the cycle of expansive learning by Engeström (2000; 2001) in their empirical investigation of new international software firms and found that it manifests as follows. The first phase (*questioning*) occurred when both entrepreneurs discovered that the only way to achieve their personal goals was to establish an own business. The second phase (*analysis*) occurred when the entrepreneurs started to discuss the possibilities they had in common. The third phase (*modelling the new solution*) occurred when the entrepreneurs evaluated if it was possible to develop a more functional system than the potential customer currently had. The fourth phase of expansive learning (*examining and testing the new model*) occurred when the idea was transformed into an actual product, as an outcome of the collaboration of the entrepreneurs. The fifth phase (*implementing the new model*) occurred when the entrepreneurs started to evaluate the business opportunity based on the customer need. In the sixth phase (*reflection of the process*), the entrepreneurs applied their interdisciplinary knowhow to modify the product according to the customer need. In the final phase (*consolidating and generalizing the new practice*), the whole process returned to the beginning, as the entrepreneurs started to evaluate how to achieve their personal goals through their international business opportunity (Kauppinen & Juho, 2012).

3 The research setting and aims of the study

The objective of this study is to conduct an in-depth investigation of entrepreneurial opportunity development. This study acknowledges the key cornerstones in the advancement of opportunity-related research. The first one of these is the acknowledgment of dynamics, which is answered by applying a longitudinal and real-time research. Thus, the objective is to avoid the static “*snapshot*”-type manifestation of the opportunity phenomenon (Reuber, et al., 2017). This study seeks to avoid “*retrospective judgement*” of opportunity development, which may restrain us from observing the vibrant nature of the phenomenon (Popp & Holt, 2013). To avoid these faults, this study relies on real-time observations. The second cornerstone for advancing our understanding about opportunity phenomenon (Reuber et al., 2017) and LAN (Zahra, 2018) is to acknowledge the role of the context. This is answered by applying a single case study. This study immerses itself in a particular social setting, with the objective of going deep into the dynamics of the studied phenomenon (Dyer & Wilkinson, 1991). With this procedure, the objective is to provide such empirical results that manifest as rich descriptions of the phenomenon and its context and by doing so unveil the dynamic nature in all its richness (Dyer & Wilkinson, 1991). Overall, accordingly to the “*classic case studies*” the objective of this study is to create “*...good stories more than testable theory.*” (Dyer & Wilkinson, 1991, p. 617).

While doing so, this study utilizes a learning-based approach. The reasons for the choice are as follows. Firstly, it seems that a learning-based study provides a “*...synthesis between*” the opposing ontological perspectives of opportunity (Dutta & Crossan, 2005, p. 427), which is required if we want to build a “*...complete explanation of the process of entrepreneurial opportunities...*” (Dutta & Crossan, 2005, p. 433). Dutta and Crossan (2005), with their *4I* framework, found that learning has elements from both discovery and creation perspectives. Secondly, the application of a learning-based study supports the objectives of this study, as it can help us to observe how individuals apply their creativity in order to detect the market gaps (Mainela et al., 2014). The learning-based study supports the longitudinal investigation of opportunity, as it enables observation of how opportunities are updated once more information is accumulated (McCann &

Vroom, 2015). Here, this study highlights the social (Yeoh, 2004) and non-economic (Kauppinen & Juho, 2012) aspects of learning, by applying a social learning theory. Thus, the research questions of this study are as follows i) *How do individuals learn?* and ii) *How does the learning process affect entrepreneurial opportunity development?*

Before moving on to presenting research methodology, the main concepts of the study will be defined. Firstly, in this study, entrepreneurial opportunity is linked to the technological solution of the case company, that is, innovation. The objective of this procedure is not to diminish the role of multidimensionality of international SMEs, which are simultaneously operating among innovative product development, organizational creation and internationalization (Stayton & Mangematin, 2016). The objective is to maintain the in-depth focus of the study. The innovation perspective is considered a significant avenue for promoting the field of IE (Coviello & Tanev 2017) and increasing our understanding of the INV phenomenon (Hewerdine & Welch, 2013).

4 Data collection and analysis

4.1 Data collection procedure

This is longitudinal study based on real-time data (see Appendix A). The data collection, and at the same time the observation period, was from March 2016 to December 2017. The primary data collection method was semi-constructed and open-ended interviews, 26 in total. All but one of the interviews were conducted on the premises of the case company. One of the interviews (follow-up #12) was conducted through Skype. Follow-up interview #8 was accompanied by a report on the company's operations, based on the findings during the observation period. All interviews were audio recorded and later on verbatim transcribed. Personal notes were taken in all interviews. Several email interviews were conducted during the analysis when more detailed information was needed.

4.2 Analysis

In principle, this study focused on the individual level of analysis (Coviello, 2015; Odorici & Presutti, 2013). While doing so, an interpretive/narrative method was applied for the purpose. This approach highlights the interpretation (Walsham, 1995), “stories” (Gartner, 2007, p. 613) and language (Chell, 2013) of the individuals. Overall, a narrative approach supports theory building by providing “...*an intimate connection to empirical realities.*” (Dawson & Hjorth, 2012, p. 340) and emphasizing the “*processual aspect*” of the empirical material (Dawson & Hjorth, 2012, p. 341). Consequently, the dynamics of lived reality, such as acting, deciding and organizing, manifest for researchers as small narratives (Dawson & Hjorth, 2012). Thus, the advantage of this approach is that it reveals the vibrant side of reality, in: “...*a form where life is still in language, which is the form of everyday knowledge.*” (Dawson & Hjorth, 2012, p. 342). The result of narrative analysis can be thought as “*high resolution data*”, based on the dynamics of real-life (Dawson & Hjorth, 2012, p. 342).

To be precise, the analysis of this study follows the examples, propositions and guidelines of process-based (Langley, 1999; Smith, 2002) and interpretive/narrative (Cope, 2005; Dawson & Hjorth, 2012) articles. Consequently, the analysis of this study was a four-step process. The first step included a “*full transcription*” of the transcribed material (Cope, 2005, p. 178). This included a “*personal sense-making process*”, which meant going through the transcripts several times and highlighting the issues and experiences (Cope, 2005) and events (Dawson & Hjorth, 2012; Smith, 2002) which indicated potential significance, in relation to the opportunity development process. In the second phase, the focus moved to the individuals. Here, it how participants conceived the opportunity development was analyzed and a “*thematic*” construction was made based on these personal accounts (Cope, 2005, p. 178). The third step was a “*cross-case comparison*” between the participants to discover commonalities and differences (Cope, 2005, p. 178). In the fourth step of the analysis, the gathered “*evidence*” that showed relationships with entrepreneurial opportunity development was put together (Cope, 2005, p. 179). While doing so, the inductive integrity was

maintained so that “...*emergent theoretical propositions*...” are based entirely on the data, completely isolated from theory (Cope, 2005, p. 179). The fourth step of the analysis was finalized by comparing these inductively emerged themes with the theoretical framework of this study (Cope, 2005).

4.3 Description of the case company and team composition

The case company (codenamed Wireless Telegraph Company, WTC), is a Finnish INV that operates in the telecommunications industry. The selection criterion of the case company followed Oviatt and McDougall’s (1994, p. 49) definition of an INV: “...*that, from inception, seeks to derive significant competitive advantages from the use of resources and the sale of outputs in multiple countries*”. These conditions were met in the following way. WTC was established in August 2012, as a spin-off from an MNE where it had been an independent project since January 2010. WTC began to seek overseas access, immediately after establishment. As a result, WTC has been engaged in several development projects of various mobile network solutions in North America, Central America, South America, Scandinavia, Continental Europe, South Asia, Middle East, South Africa and Eurasia since its establishment.

	EDUCATIONAL BACKGROUND	PRIOR WORK HISTORY	JOINED WTC	ROLE IN WTC
Mike	<ul style="list-style-type: none"> ▪ Automation engineer ▪ Bachelor’s degree 	<ul style="list-style-type: none"> ▪ Program manager, product management 	<ul style="list-style-type: none"> ▪ 2012 fall 	<ul style="list-style-type: none"> ▪ Founder, entrepreneur
Sam	<ul style="list-style-type: none"> ▪ Software engineer ▪ Bachelor’s degree 	<ul style="list-style-type: none"> ▪ Software designer, team leader and project manager (in software design of telecom) ▪ Entrepreneur (severance payment), product management and consulting 	<ul style="list-style-type: none"> ▪ 2013 spring 	<ul style="list-style-type: none"> ▪ Entrepreneur
Tommie	<ul style="list-style-type: none"> ▪ Information technology (International business and strategy major) ▪ Master of Science in Technology 	<ul style="list-style-type: none"> ▪ Coding (during studying), project manager (sales), international sales 	<ul style="list-style-type: none"> ▪ 2017 spring 	<ul style="list-style-type: none"> ▪ Sales manager

Table 1. Team composition of WTC

The team composition (see Table 1) in WTC (all individuals codenamed) has developed as follows. Mike and Tom have been working on entrepreneurial opportunity since its beginning when it was part of an independent business unit in the MNE. WTC was originally launched by Mike, Tom and Jack in 2012. However, manpower declined in the coming months as Tom decided to stay in the MNE and worked only part-time as a consultant for WTC from 2014 onwards. Jack left the company in summer of 2014. In spring 2013, WTC was supplemented by Sam. He bought a share of the company and became the second owner of WTC and was appointed head of R&D. WTC was reinforced again in spring 2015 by a new CEO, Terence, who had several years of experience of sales management in various teleoperator organizations, but he left the firm in late 2016. Tom eventually joined WTC full-time in 2017 as an employee working in R&D. The last addition to WTC was Tommie, who joined the firm in spring 2017 as a sales manager. He had several years of sales experience in large multinational telecommunication companies and SMEs in various high-technology industries. Of these people, Mike, Sam and Tommie participated in the follow-up interviews in this study and thus focus in the analysis.

The starting point for this study was the following. The team had been working on entrepreneurial opportunity for three years before the start of the interviews. Since establishment, the initial opportunity had taken several new “*verticals*” or segments. This meant that the technology applied had been modified according to customer requirements, and these new segments represented smaller and more specified product streams. Accordingly, entrepreneurial opportunity had developed in the following way. The team started with the media segment, first with small scale video distribution services, which was followed by sport broadcasting solutions. Following the media segment, WTC has been engaged in Public Safety (PS) and Internet Protocol Television (IPTV) segments. WTC has been working among a miscellaneous set of IoT products (MISC); for example, among WIFI distribution, electric car charging, healthcare and AR solutions. Overall, this seemed to represent a platform strategy, where the team sought to develop innovation according to customer needs.

5 Findings

“There you have something to transcribe.. Mmm. you can try to find out, if will there be [laughs] any common thread.” (Mike, follow-up #6.2)

The outline of the findings is represented in Figure 1. Based on the findings, it seems that WTC approached the market with a new technology to create demand. By doing so, they were engaged in a learning process in which they began to understand what kind of requirements customers had in relation to the innovation. During the learning process, the technological and commercial aspects of the customer were emphasized. The team became aware of other features that affected the demand in the industry, such as the legislation in the telecommunication industry and the technological development of this sector. Thus, they were able to develop the innovation accordingly. A social learning process was observed. The interface between technological implementation and customer interaction was emphasized. These findings are presented thoroughly in the following chapters. The first chapter immerses itself in the learning process and its effect on entrepreneurial opportunity. The second chapter focuses on the mutual learning within the team.

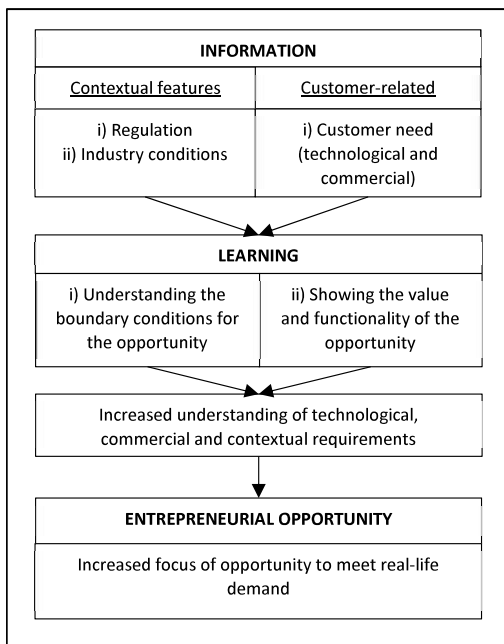


Figure 1. Learning and entrepreneurial opportunity development

5.1 Learning process and entrepreneurial opportunity development

“Good if someone sees some learning process in this.” (Mike, follow-up #10)

“Feels like not learning anything has been a rough day...” (Sam, follow-up #10)

The initial setup was that the team conceived that the telecommunication industry was on the edge of transformation to the 5G technology. The reason was the industry had reached a point where no more growth could be achieved. Thus, teleoperators and other potential customers were searching for a new avenue of business, by evaluating what type of new technologies could be applied in order to do so. Nevertheless, teleoperators were quite cautious about making significant investments in new technology. As Tommie mentioned, the team had “...a concrete challenge is making people to dare...” (Tommie, follow-up #17.2). This seemed to reflect the whole industry where no one had dared to take the risk. Sam described the general situation of the industry was as

follows: *“It is like opening a bottle of ketchup. That then someone sees that, hey this is done, this has been applied there. Okay. We have not dared to take the risk, but is someone else has taken it, then we can take it too.”* (Sam, follow-up #17.1).

Nevertheless, the technological transformation was considered a clear possibility in the eyes of the team to implement and commercialize their technology. Their main task was to convince teleoperators that their solution could offer the business growth that they were seeking. Thus, the team was actively offering *“impulses”* (Mike, follow-up #8) that represented different verticals or segments of their technology in question. However, this was also the main challenge for the team, which was trying to figure out what the *“big players”* were doing in the *“field”* (Tommie, follow-up #17.2) and adjust technology based on their preferences.

Hence, the customer-related source of feedback was considered an essential element for the team since the establishment to understand the markets and the customer need in relation to their innovation. Accordingly, the very early lesson for the team was that the most important sources of feedback were not necessarily those customers who offered the most commercial potential, but those corporations and people *“...who were willing to work with you...”* (Mike, follow-up #3). Customer interactions were thought of as valuable because they helped learn about the need of potential customers and through that evaluate the desirability of the innovation. Every discussion with the potential customer was regarded with great importance, as described by Mike: *“...they are good cases to learn, the more you expose yourself to the market, the more you understand.”* (Mike, follow-up #5). The reason was these discussions were considered of great value, was that they helped the team *“...to understand what they [potential customers] are doing.”* (Mike, follow-up #6.1). By engaging in these discussions, the team was trying to figure out what type of solution would be the customer interested in, so that it met its needs. The more the team engaged in these discussions, the more they learned about the need of each customer and were able to make the requirement adjustments in each solution. For example, the project in Baltics with IPTV solution had, according to Mike, *“...forced us [WTC] to make the right decisions...”* (Mike, follow-up #15). Moreover,

these interactions provided “...possibilities to try and search for the solution...” (Mike, follow-up #15). The feedback was crucial in order to “...get the interface just as they want it...” (Mike, follow-up #15). This meant that the team had to be extremely receptive based on customer feedback, and if necessary, make “corrective procedure[s]” based on it (Mike, follow-up #14). Consequently, the team had to be “...as flexible as possible, do almost anything that customer asks...” (Sam, follow-up #6.2). This meant that the team had to adjust the solution based on customer feedback, even though if it meant that they were “...doing things that do not necessarily belong to you.” (Sam, follow-up #12).

The starting point for the customer-based interaction seemed to reflect customer-related challenges. This was evident, for example, in the case of product spearheads in North America and Baltics. In the first one, the government-based actor had a need for network capacity prioritizing services for high-priority users, such as law enforcement. In the latter one, teleoperators in Baltics were struggling to offer video-based services for mobile network consumers. How innovation could solve the problem was often the cornerstone of the negotiations. When we observe in-depth the content of these discussions, they seemed to reflect two different dimensions of the customer need, commercial and technological aspects. The reason for it, seemed to reflect the organizational structure of the telecommunication corporations, which subjected the team “...to first convince the business owner that this is a good thing and then we need to convince technological group that this works...” (Mike, follow-up #2). The team had to be able to demonstrate the commercial potential and technological functionality of their solution.

The business side of the story meant that the team had to demonstrate how the solution would provide new revenues or lower current operational expenses. According to Mike, those who considered buying the whole company (WTC) were not looking so much at how much revenue WTC as a company had made but interested in “...that if I'll put that [solution] into our sales channel, how much can I sell it.” (Mike, follow-up #3). The other part of the story was demonstrating the technological functionality of the

innovation. However, the customers were not so much interested in the technological details of the innovation, but its usefulness. Here, the functionality of the solution was emphasized. It seemed that the customers were interested in how the solution was implemented and that “...*the customer sees that there is really benefit of this function.*” (Sam, follow-up #6.2). Overall, the customer interactions were considered significant. The reason was that they offered the possibility to reflect the real-life suitability of the innovation and by doing so provided a “*concrete*” basis for its development, rather than just “*throw the ball in the air*” (Mike, follow-up #15).

A much of these discussions seemed to be “*revolving around*” “*use cases*” (Mike, follow-up #19). The team was trying to demonstrate with specific solutions the technological and commercial benefits of the innovation for the customer. By engaging in these use cases, the team was getting “...*into the problematics what you need to solve...*” (Mike, follow-up #15) within the new applications of 5G related technology. The team became more aware of the commercial requirements. In order to “...*learn how to sell...*” meant that the team had “...*to see to whom you are selling through its business.*” (Mike, follow-up #16). According to Tommie, this was what they were “*learning more all the time*” (Tommie, follow-up #17.2). Based on the findings, it seemed that the team felt that they needed to learn about “...*what to do and how can we make money out of this.*” so that “...*the teleoperator don't have to think about too much, what we are doing.*” (Tommie, follow-up #19). Mike even came out with a theory that, according to him, explained this situation. The theory in question was labeled as “*a nail theory*”. Basically, this meant that “...*we don't talk about the idea, but we're talking about what you can do with that idea.*” (Mike, follow-up #16). Thus, working with these uses cases helped the team to understand innovation from the customer's perspective, and this learning process seemed to reflect the scale of the innovation. Innovation was transformed into smaller segments from the original idea. The reason, according to Mike, was that “...*no one wants to buy a platform, they want to buy use cases...*” (Mike, follow-up #9). These use cases represented more detailed and smaller scale ideas how the opportunity “...*could be applied.*” (Mike, follow-up #19). Thus, the

development of use cases sharpened the focus of the innovation and its application. This meant that the team had “...*a clear product that we are selling...*” (Mike, follow-up #14) and hence they were “...*talking about surveillance cameras, that we are kind of two steps lower, or like in detail what there is...*” (Mike, follow-up #15).

The other dimension the team began to understand was the regulation and standardization within the telecommunication industry, which had a significant impact on demand. Based on the findings, these sorts of actions drove and limited the demand in the industry. In the first case, the beginning of the PS product in North America and IPTV solution in Baltics could be traced to regulative and standardization initiatives that network actors were responding to. Being involved in the standardization process meant increased the credibility of WTC. If WTC had solution which had implications in relation to standardization “...*then it has immediately stronger weight, than just saying that we have made this kind of thing in our laboratory...*” (Sam, follow-up #12).

However, regulation was considered also a major constriction in the implementation of a new technology. Thus, teleoperators were wary of breaking it, because the authorities were able to place considerable sanctions and, at least on a theoretical level, they had authority “*stop the whole business*” in the network (Sam, follow-up #7). Because of this, teleoperators followed the strictest interpretation of regulation. For example, in the case of the net neutrality principle, teleoperators interpreted it “...*that there must be nothing different.*” (Mike, follow-up #19). In connection with the innovation development, this meant that the regulation was encountered in every case, as it steered the demand of potential customers. A good example was the end of the IPTV project in Central Europe, which “...*went completely away because for the reason that they were afraid of that net neutrality rule...*” (Tommie, follow-up #17.2).

Based on these findings, it seems that the starting point was that the team was trying to figure out how their innovation would be able to meet customer requirements. Thus, it seems that this was a learning process, where the team sought to understand how innovation should be developed so that the customer would be ready to implement this. Consequently, during this learning process, they became increasingly aware of customer

preferences, which reflected two different aspects of the matter. Firstly, the team began to understand what technological and commercial requirements customers had for the innovation. Secondly, the team became familiar about other industry conditions, namely the regulation, that drove and the demand of the customer. This learning process significantly influenced the development of innovation. This was particularly evident as the innovation seemed to transform from a conceptual level of ideation, into much a more tangible level, in the form of various customized solutions.

5.2 Mutual learning

“I think that I know... That you can tell how different views we have had during this mess.” (Mike, follow-up #7).

Based on the findings, it seems that personal differences affected on individuals' perceptions of entrepreneurial opportunity. Thus, even though all individuals were engineers by training, they approached the innovation from different perspectives, which reflected their educational background and work experience. Mike and Sam had a long work history in the same corporation, but their duties differed significantly. Mike had been more engaged in project management, while Sam participated in projects as team leader and thus taking part in the coding as well. Tommie on the other hand, had previously worked in many different companies, but specialized in sales, if one does not count the coding he did during university studies. Individuals' work experience was also reflected in their current job at WTC. Thus, Sam did the hands-on coding of the technology, while Mike had more holistic view of technology and its utilization within the industry and Tommie had a strict sales orientation. On the paper, these differences did not cause problems, and thus the distribution of work seemed to be straightforward. As described by Mike, the work allocation represented a sort of linear process, where he *“...finds these new launches...”* then *“Tommie takes the ball and we start to take it to a contractual state...”* and *“...after which when we get it to a technical state then the product development responsibility is with Sam...”* (Mike, follow-up #15).

Consequently, it seems that everyone was in charge of his own sectors. This in turn reflected the level of which individuals influenced the development of the opportunity. Based on the findings, it seemed that Sam was in the last hand responsible for the technological implementation of the opportunity. This became evident during the early stages of the interviews, when Mike stated that he was “...*not so much help in the configuration of the network.*” and it was up to Sam if the solution “*works or doesn't*” (Mike, follow-up #1). Sam was looking “...*more that we have something valid to sell and then we could go forwards with those projects.*” (Sam, follow-up #6.2). However, it seems that Sam lacked the knowledge of what was happening in the sales negotiations, and thus had limited understanding how the solutions were marketed to the customers. However, it seems that Sam and Mike had some kind of consensus of opportunity. For example, as Mike describes the ideation process during a previous project “*I said that I would do it like this...Then Sam told that yes, that's pretty good. In principle the same way he has thought, but here is this kind of parameter that we can use.*” (Mike, follow-up #6.1).

Mike on the other hand had a much broader picture of the opportunity. As he mentioned already during the in-depth interview, his responsibility in relation to the opportunity was “*Taking the strategy forward... where we are going.. that what the product should be and where it fits.*” (Mike, in-depth interview). According to Mike, this meant “...*sort of evangelizing for the system, like which way we should go from here.*” (Mike, follow-up #11). This meant that it was Mike and Tommie “...*who run around the world as much as they can. In all sorts of... tasks of representing and with customers...*” (Sam, follow-up #17.1). Tommie resigned from the others because he had straightforward sales responsibility from the moment when he was hired to the company in the spring of 2017. As mentioned by Mike, Tommie was hired “... *for sales...*” and their intention was to “...*move all the customer interface to Tommie.*” (Mike, follow-up #11).

Tommie, in turn, saw that his objective was to bring “...*a little bit more structure, process for the sales...*” in order for WTC to live “...*to the first sales...*” (Tommie, follow-up). The reason why he decided to take the job was that he saw that the solution

that WTC was working on a solution could “...*break it big.*” (Tommie, follow-up). Nevertheless, as an engineer by education, he had the technological awareness of the solution, as described by Sam, “...*that he understands these prioritizations, which is important now to make to the product.*” (Sam, follow-up #17.1).

The findings indicate that the distribution of work and differences of knowhow reflected significantly on individuals’ perceptions of the innovation. Overall, it seemed that the job description caused coordination challenges in WTC, because “...*everyone is doing their own job pretty alone.*” (Sam, follow-up #9). When the company was expanding in spring 2017, it seemed that this challenge was growing. According to the team, this meant that “...*the possibility of misunderstanding is of course quite big...*” (Sam, follow-up #17.1) and thus it was “...*harder to synchronize things and understand what the other is meaning.*” (Tommie, follow-up #17.2). Here, it seemed that the gap between customer interaction and technological implementation was emphasized. Thus, the team seemed to be divided in two. On one side, Sam described that he was not fully aware of what was happening in the discussion with customers and what was promised for them, which he considered as a “*dilemma*” (Sam, follow-up #13). Nevertheless, Sam seemed to be aware about “*casting*” and understood that Tommie was “...*responsible for the sales...*” (Sam, follow-up #18). It seemed that Tommie was more in touch with Mike. For example, Tommie described that if there was a question “...*that does this work technically and can you do this and do we want to research and do something like that, of course it is Mike from whom I am talking from the travels...*” (Tommie, follow-up #17.2). However, it seemed that Tommie did not do this to unsettle Sam or other coders in WTC, but he did not want to “...*to burden them with these kinds of things.*” (Tommie, follow-up #17.2).

Consequently, above mentioned division reflected the knowledge gap between technological implementation and the sales process. These two extremes were not always on the same level in terms of conceptual development and technological implementation. From the technological side this meant that it was “...*hard to be at the same level in discussions... even though we’ve tried to make all kind of meeting and*

documented things...” (Sam, follow-up #18). The other side of the story was that Mike and Tommie were trying to figure out which type of solutions or segments had a “...*high chance of realization...*” before they were sent to Sam (Mike, follow-up #19). It seemed that Mike and Tommie were trying to save Tom from the “*spinning*” of the solutions (Mike, follow-up #19). This meant that “...*these cases come and go and their content shape all the time, before we can really understand what someone buys.*” (Tommie, follow-up #19). Nevertheless, according to Tommie, he understood that at some point of time they had to “...*end up building sand castles with customer that we get [the solution] to a situation where we and Sam and customer agree somehow what is coming out of it.*” (Tommie, follow-up #19).

Based on the findings, it seems that individual differences affected the way individuals understood entrepreneurial opportunity and its potential. This reflected especially the junction between technology and customer interface. One side sought to clarify the needs of the customers, which formed the conceptual basis for the opportunity. The other side tried its best to implement these in form of working solutions.

6 Discussion

The findings suggest that entrepreneurial opportunities emerge and develop as of interaction between individual interpretation and environmental changes. The individuals in this study were actively seeking solutions that would promote the industry change. Thus, the findings are in line with those insights that opportunities emerge from profit seeking activity in relation to environmental changes (Grégoire et al., 2010) and to meet market demand (Ramoglou & Tsang, 2016). The findings support the complementary viewpoint in the ontological discussion of opportunity (Renko et al., 2012). It seems that the potential of opportunity exists in an objective environment, but these require subjective perception from individuals to be recognized. Here, this study confirms that this happens especially through the cognitive activities of the individuals (Mainela et al., 2014).

Additionally, based on the findings, entrepreneurial opportunity development represented a longitudinal process, as it has been suspected (Reuber et al., 2017). Here, it was discovered that individuals reflected a learning process throughout the observation period, which steered the development of entrepreneurial opportunity. In the center was increased understanding of technological, commercial and contextual requirements, in relation to the opportunity. Consequently, this learning process steered opportunity development in the sense that the opportunity in question started to manifest as more focused, real and accurate products and services. This line of findings aligns with the insight that entrepreneurial opportunities have the tendency to move from potential into actual (Oyson & Whittaker, 2015). Lastly, the findings of this study confirm that the individual differences linked to cognition (Shane & Venkataraman, 2000) and knowledge-base (Dew, et al., 2004) played a significant role in the opportunity development process. Individuals were engaged in a mutual learning process that reflected these differences. In the following paragraphs these findings are presented in more detail.

6.1 Learning and entrepreneurial opportunity development

The opportunity related behavior observed in this study reflected the insights of Kuckertz et al., (2017), who propose that opportunity recognition is information-seeking behavior. Opportunities were developed based on new information, as McCann and Vroom (2015) suggest. The findings of this study provide in-depth insights of what features contributed to this learning process and how the learning process affected entrepreneurial opportunity development. As suspected by Shepherd (2015), a significant aspect is to observe opportunity development by focusing on those activities that shape individuals' beliefs. In this case, this linked on how individuals perceived the innovation in connection with market requirements. The interaction with potential customers seemed to be especially significant for creating a more in-depth understanding about the potential of the innovation on which basis this was developed. In principle, this seemed to be a problem-solving behavior, where the individuals were

finding solutions for customer-related challenges in relation to the innovation. While engaging in this process, the individuals became more aware of the technological and commercial requirements of the customers and were able to develop the opportunity accordingly. While interacting with customers and observing the industry development, the team became increasingly aware of the industry condition that drove their demand. In this case, the regulative features had significant impact, and thus these findings add to the discussion (Reuber et al., 2017) of how contextual features can contribute to opportunity development. Overall, this learning process helped the team to develop the innovation to meet real-life requirements. Innovation seemed to transform from a conceptual idea into much more specific technological solutions. Thus, this study supports the idea that initial ideas are just the beginning of a much longer process that requires development of the opportunity based on the external requirements (Chell, 2013; Oyson & Whittaker, 2015).

6.2 Mutual learning

Overall, the findings support the notion that the team members were engaged in an ongoing and problem-solving process while developing their innovation (Gemmel et al., 2012). They were actively scanning how the innovation could be applied to solve customer-related challenges. It seems that the team had a mutual objective to develop the opportunity according to the observed functional and commercial requirements of the customers. However, it seems that the individual differences in knowhow had a significant effect on how these individuals experienced these. These findings help us to increase our understanding about how different cognitive properties (Shane & Venkataraman, 2000) and dispersion of knowledge (Dew, Velamuri & Venkataraman, 2004) affect entrepreneurial opportunity and its development. In this case, this reflected especially how individuals were positioned between technological implementation and customer interaction. One side was trying to understand how the product could be developed to meet the customer requirements, while the other side had to figure out how to implement these features in the technology. These findings are in line with the

horizontal conversion by Zahra (2008) and provide empirical findings how this can take place in the reality.

This study has some implications for social learning theory as well. Based on the findings, it seems that environmental observation is an important part of individual learning. Individuals increased their knowledge base by trying to understand what happened in their surroundings (Bandura, 1986). In this case, however, it seemed that individuals had differences in the way they perceived it. This reflected especially the differences in their professional knowhow. Thus, this can help to understand how the self-regulative systems affect learning in practice (Bandura, 1991). As for expansive learning, there were also similarities. For example with the study of Kauppinen and Juho (2012), who applied the cycle proposed by Engeström (2000; 2001). However, it should be noted that this cycle is hardly ever the same. Even though the individual ambitions were emphasized in this study as well, understanding of customer needs and its impact on the development of opportunity was more prominent in this case.

7 Conclusion

This article carried out a comprehensive investigation of entrepreneurial opportunity and its development. The objective, above all, was to provide in-depth insights about this phenomenon (Mainela, et al., 2014). This was done by emphasizing the individual perceptions (Dimov 2007; 2011) and by focusing on a single context (Reuber et al., 2017). It was a longitudinal and real-time study aimed to increase our understanding of the dynamics of this phenomenon (Reuber et al., 2017; Shepherd, 2015). This study utilized a social learning theory, which emphasizes individual and collective learning. The objective of this procedure was to provide new insight for the study of rapidly internationalizing ventures (Cavusgil & Knight, 2015).

While doing so this article provides several new insights for entrepreneurial opportunity-related research. Firstly, the findings support the ontological stand that opportunity discovery and creation are complementary viewpoints (Renko et al., 2012).

The realization of entrepreneurial opportunities is based on the subjective perceptions of objective environment. Here, it seems that the creativity of individuals was a key element in recognizing the demand of customers (Mainela et al., 2014). Secondly, the findings indicate that entrepreneurial opportunity is a dynamic phenomenon, as suspected (Reuber et al., 2017; Shepherd, 2015). This study illustrates how. Based on the findings, the individuals were engaged in a learning process where the opportunity was developed according to the market requirements. These findings are in line with the insights that opportunities are being constantly modified (McCann & Vroom, 2015). The findings help to understand where this was based. In this case, opportunity was reflected, especially through the customer's commercial benefits and technological suitability. Thirdly, it was found that the differences of knowhow contributed significantly, how individuals perceived the development of entrepreneurial opportunity. Consequently, this article advances our knowledge about the role of knowledge asymmetries (Dew, Velamuri & Venkataraman, 2004) and individual background (Shane & Venkataraman, 2000) in relation to entrepreneurial opportunity development. Lastly, if we consider the impact of this whole learning process on entrepreneurial opportunity, this seemed to impact especially on its scale. Opportunity was transformed from a conceptual level ideation into concrete solutions. Thus, these findings support the insights (Chell, 2013; Oyson & Whittaker, 2015; Ramoglou & Tsang, 2016) and advance our knowledge about how opportunities transformed to match the real-life demand.

Appendixes

PRIMARY			
Time	Interview type	Length	Interviewee
11.05.2016	Follow-up #1	1:17:02	Mike
24.05.2016	Follow-up #2	0:51:17	Mike
21.06.2016	Follow-up #3	1:09:39	Mike
05.07.2016	Follow-up #4	0:49:18	Mike
02.08.2016	Follow-up #5	1:25:26	Mike
02.09.2016	Follow-up #6.1	1:02:38	Mike
02.09.2016	Follow-up #6.2	1:29:49	Sam
04.10.2016	Follow-up #7	1:13:32	Mike, Sam
15.11.2016	Follow-up #8 (Presentation)	1:47:39	Mike, Sam
20.01.2017	Follow-up #9	1:21:10	Mike, Sam
03.02.2017	Follow-up #10	1:21:40	Mike, Sam
24.03.2017	Follow-up #11	1:11:16	Mike
12.04.2017	Follow-up (Skype) #12	1:19:04	Mike, Sam
10.05.2017	Follow-up #13	1:01:39	Mike, Sam
20.06.2017	Follow-up #14	1:14:55	Mike, Tommie
18.09.2017	Follow-up #15	1:06:11	Mike
27.10.2017	Follow-up #16	1:31:06	Mike
15.11.2017	Follow-up #17.1	1:40:04	Sam
15.11.2017	Follow-up #17.2	1:11:40	Tommie
19.12.2017	Follow-up #18	1:21:15	Sam
22.12.2017	Follow-up #19	1:46:16	Mike, Tommie
SECONDARY			
Time	Interview type	Length	Interviewee
09.03.2016	<i>Negotiation interview</i>	-	Mike
07.04.2016	In-depth	1:27:02	Mike
07.04.2016	In-depth	1:19:04	Terence
12.04.2016	In-depth	1:33:43	Sam
29.12.2016	In-depth	1:42:18	Tom
07.03.2017	<i>Email</i>	-	Mike
15.03.2017	<i>Email</i>	-	Sam
26.05.2017	In-depth	1:21:53	Tommie
27.10.2017	<i>Email</i>	-	Sam

Appendix A. Data

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