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Title: INV growth and the role of decision-making logic in network structure development

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ABSTRACT

A network approach calls for profound understanding of relationship tie creation and development. Particularly the connection between entrepreneurial decision-making logic and a firm network structure development is yet unknown during a different growth phases of international new ventures. This paper examines how and why four high-technology case firms from a small and open economy are able to create the required network structure for survival and rapid international growth. The results are based on a cross-case analysis and two propositions are formulated. The results highlight the key role of an effectual approach in the development of a network structure including changes in range, size, location and strength of dyadic relationships. Furthermore, the results show how an effectual approach through the development of a firm's network structure influences the growth phases of a new international venture. We contribute to the earlier research into effectuation and networks by showing that new relationships are found from the current networks of entrepreneurs but that entrepreneurs also need to actively seek secondary partnerships outside their existing networks. Additionally, relationships with multinational industry leaders become crucial when progressing from one growth phase to another. For practitioners, this study provides implications especially related to network structure management. Existing network relationships further the creation and survival of young international ventures by strengthening their core knowledge and credibility. However building new relationship ties outside entrepreneurs' inherited networks requires dedication and the capability to engage in interactions with individuals from several industries.

Keywords: International new venture, Networks, Effectuation, Relationships, Strong ties, Weak ties

INTRODUCTION

International new ventures (INVs) have received lots of attention from international scholars in entrepreneurship. According to McDougall (1989) these start-up firms engage in international business from the moment of their inception. Later Oviatt & McDougall (1994) defined an INV as "a business organization that, from inception, seeks to derive significant competitive advantage from the use of resources and the sale outputs in multiple countries".

In order to survive and achieve rapid international growth, these firms need to overcome three types of liabilities that relate to their newness, smallness and foreignness (Zahra 2005). Accordingly, INVs are often inexperienced and unknown to the public and this influences their ability to acquire resources and positions in local and foreign networks. Additionally, their small size sets limitations

on their resource base and they need desperately more resources for survival and rapid internationalization. Lastly, the associated foreignness that INVs suffer from reflects on the firms so that they have to overcome entry barriers, build networks with suppliers and other interest groups, as well as to identify and convince their potential customers.

Several authors have encouraged focusing on the internationalization context in order to study the internationalization process firms go through, and thus urge examining the business environment and relationships of the firm (Servais & Madsen 1997). Inter-organizational networking is already a widely recognized phenomenon that has been studied in different contexts and from different perspectives. From a network perspective Johanson & Mattsson (1988) have argued that other players hold requisite resources and to gain access to these resources the firm must develop its position inside the network. Since then, several studies have indicated that inter-organizational relationships are vital for international growth of new ventures (see e.g. Ylirenko et al. 2002; Coviello & Munro 1997; Coviello 2006).

This study focuses on dyadic network relationships between an INV and its network partners. When considering the strengths of these dyadic relationship ties, previous studies (see e.g. Granovetter 1973; Sharma & Blomstermo 2003; Söderqvist & Chetty 2013) have provided divergent findings about the effectiveness of the different strengths of different relationship ties. Some studies have found strong ties to be more beneficial, whereas others suggest young ventures should establish weak relationship ties with their network partners. However previous studies are unable to explain how inter-organizational relationships of different tie-strengths are actually created.

This study focuses on different growth phases of four high technology ventures and investigates how these firms are able to create network ties that help them to survive and achieve rapid international growth. Earlier research suggests that entrepreneurs adopt effectuation logic under higher levels of uncertainty and the logic should be emphasized especially in the first stages of venture creation (Sarasvathy 2001). Next to these results, previous studies call for more research focused on the internationalization processes of new ventures and research into effectuation. More attention in particular is needed on the “pre-start” phase of the ventures (Chandra et al. 2009). Moreover, Perry et al. (2012) have specifically encouraged scholars to adopt the effectuation perspective because in their view the theory has the potential to explain individuals’ behaviour in situations where more classic strategies (causal strategies for instance) cannot. Therefore this research attempts to address the following questions:

1) How do INVs create inter-organizational relationships of different tie-strengths by utilising an effectuation process?

2) How do changes in network structure enable business development into new growth phases?

THEORETICAL BACKGROUND

An effectual approach

Sarasvathy (2008) describes effectuation as "a logic of entrepreneurial expertise, a dynamic and interactive process of creating new artefacts in the world." When observing from the effectuation theory perspective, both individuals and the firm in which the individual operates are included. Sarasvathy (2001) suggests that this approach is useful in new, unpredictable situations and therefore entrepreneurs often adopt this decision-making logic under high level of uncertainty, and this is emphasized especially in the first stages of venture creation (Sarasvathy, 2001). Uncertainty relates closely to international new ventures and hence this decision-making logic is connected with INVs and their networking in this study.

The entrepreneur who adopts effectuation takes "a set of means as given and focuses on selecting between possible effects that can be created with that set of means" (Sarasvathy 2001). The entrepreneur's background and identity, combined with the knowledge and networks that the entrepreneur has all work together to start the effectuation process when the entrepreneur asks the following three questions: "who am I?", "what do I know?" and "who do I know?" (Sarasvathy et al. 2013). This dynamic process is based on five dimensions. Firstly means orientation which refers to how an entrepreneur focuses on available resources and networks in inception. Secondly by adopting an affordable loss principle the entrepreneur invests not more than she is willing to lose in case of failure. Thirdly commitment of partners, especially in strategic alliances becomes important in effectual approach. Fourthly unexpected situations are seen as an opportunity in effectuation and therefore the entrepreneur utilizes randomness. Lastly the entrepreneur follows a control logic in her decision-making and hence instead of following market trends, she focuses on controlling and shaping the market with her own actions (Sarasvathy 2001; Sarasvathy et al. 2013).

Recent research has suggested that effectuation may moderate the relationship between firm resources and growth, thereby overcoming resource limitations and enabling more rapid growth advancement (Gabrielsson and Gabrielsson, 2013). Here the important part of the effectuation process is how

networks provide the resources necessary for INVs. From the outset of the effectuation process the entrepreneur starts to connect with other people to acquire tangible, intangible and organizational resources from new relationships. In this study we are interested in how these new bilateral relationships are created and how the different strengths of the relationships influence the rapid growth of high technology INVs.

Network structure

In this study we are interested in the network structure of international. The network structure has been defined as a pattern of direct and indirect ties between actors of the network (Hoang & Antoncic, 2003). Both inter-personal and inter-organizational cooperation based on the relationships between the co-operating organizations (Kumar et al. 1994; Vlaar et al. 2006) will be covered in the study. This cooperation is used especially as a tool for solving problems within organizations. It creates new opportunities (Anderson and Narus, 1990; Vlaar et al. 2006) and it provides resources that organizations could not access alone (Hardy et al. 2003). Therefore a competitive advantage which would be impossible to achieve alone becomes the main object of cooperation (Boonstra and Vries 2005; Vlaar et al. 2006) which is based on a willingness to share power (Kumar et al., 1994).

Our focus is on bilateral relationships between an INV and their network partners. According to Boonstra and Vries (2005), inter-organizational cooperation aims to improve the effectiveness, flexibility and speed of business. Despite the strengthening effects for the cooperating organizations, inter-organizational cooperation has also been described as a conflicting, ambiguous and complex relationship (Babiak and Thibault 2009; Vlaar et al. 2006; Vlaar et al. 2007b). The study will examine a range of relationships which will be defined in terms of size by the number of direct links between the focal firm and other actors. Aldrich & Reese, 1993). Moreover our study focuses on the size of the partners, whether the INVs network with small and medium-sized or multinational enterprises and where these partners are located (local, national or global).

Earlier studies have showed that INVs leverage both strong and weak ties to compensate for the liabilities of their newness, smallness and foreignness. It is interesting to study the strength of these relationship ties and Granovetter (1973) has defined strengths of ties based on time, intimacy, emotional intensity and mutual services. This study adopts the view and defines a strong tie as a relationship that is intimate, and is based on a high level of trust and respect from both sides. The

relationship is difficult or impossible to be replaced, and both parties are highly committed to the relationship (Granovetter 1973; Uzzi 1997; Jack 2005; Söderqvist & Chetty 2013).

It has been argued that a balanced set of both strong and weak relationship ties may be the most beneficial for firm survival (Uzzi, 1996; 1997). Nevertheless Sharma and Blomstermo (2003) found that inter-firm relationships, and especially weak, "arm-length" ties to other network partners, are effective in acquiring intangible resources and have an influence on decisions about foreign markets and what sorts of entry modes are selected. According to the earlier literature, firms' experiences through their own "blood, sweat and tears" (i.e. hard work), recruiting and networks were good sources of intangible resources.

For example, Oviatt and McDougall (2005) found that weak ties are faster, require less work to build and positively influence a firm's performance. A young firm who has many strong ties may face high costs to develop and maintain these relationships (Han 2006). The author suggests that start-up firms therefore establish more weak and only a few strong ties in the early phase of internationalization. Also Levin and Cross (2004) found in their study that weak ties provide access to valuable information.

Respectively Aldrich and Zimmer (1986) have suggested that strong relationship ties are fruitful because the members of these relationships are more motivated towards co-operation and their mutual trust is higher. This relates to their access to resources and also that knowledge and other resources are better available. Recently in Söderqvist & Chetty's (2013) study the strong relationship ties were found to be important for young INVs as they can be seen as brokers for new networks. Their research also presents that there is a third relationship strength level that they refer to as an "equally strong as weak" tie. These relationships have benefits and hold potential that may encourage INVs to develop them more strongly. On the other hand, they also include elements from weak relationship ties, such as uncertainty, passiveness and a risk of being easily replaced.

Following Jack's (2005; 2010) suggestions this study will focus on functions and benefits of the three tie strength levels. We will study the tie strengths in detail to better understand how these different ties are selected and developed, and how entrepreneurial decision-making logic influences these relationships. Strong, equally strong as weak, and weak ties are recognized in this study and are all investigated in the different growth phases of a number of high technology INVs. We will adopt Gabrielsson & Gabrielsson's (2013) model of INV growth phases (1. INV creation; 2.

Commercialization and foreign entries; 3; Rapid growth and foreign expansions; and 4: Rationalization and foreign maturity). Additionally, we are interested in the time before the venture was established and therefore the pre-start phase will be included in our framework (See fig. 1).

----------*Figure 1. Theoretical framework here*----------

METHODOLOGY AND STUDY CONTEXT

In this study, earlier research into international new ventures (INVs) is extended by explaining how an effectual approach influences network building and growth phases in young and inexperienced entrepreneurial firms. This study is specifically interested in how and why high-technology case firms from a small and open economy can survive and grow rapidly. A multiple case study method was therefore selected for this study because it is suitable for examining the relationship between theoretical constructs and a complex, empirical phenomenon (Eisenhardt & Graebner, 2007). The method particularly underlines the explanatory nature of the study (Yin, 2009, 9). The case study research can explain the sense-making steps, interactions of actors, different decision making processes, and effects of complicated real-life situations (Woodside & Baxter, 2013).

Richness of information is essential in deciding how many cases are needed (Perry, 1998; Guenzi & Storbacka, 2015). Four cases were selected for this study. In the selection of the case companies, the chief executive officers of each firm were contacted. The case companies were selected to meet the following explicit sampling frame based on the theoretical sampling logic described by Miles & Huberman, (1994) and Yin (2009). For this purpose the firms selected needed to 1) be entrepreneurial firms with an international vision since inception (Oviatt & McDougall 1994), 2) originate in Finland, and 3) be high-tech companies (more than 5 % of company turnover should be invested in research and development). The cases were selected using these requirements and in-depth interviews were conducted with the founding CEOs and/or CMOs of the firms to study the firms' business development phases, their decision making logic (effectual approach), and bilateral relationships with different network partners. The interviews started with background questions, and then further information was asked for, following open-ended chronology of the development of firms' internationalization and network partnerships. Questions such as the following provided an in-depth and holistic understanding (Graebner, 2007; Lipton, 1977; Miller et al., 1997) of the phenomena: *How would you describe the main events in the firm's internationalization? How would you describe*

the founders' decision making process? How would you describe relationship building in your company? Would you describe your main partners?

The reliability of the study was secured by careful data collection and formation of the case database. Detailed data was also collected focusing on the case firms' founders and the companies in general, such as the founding dates, number of employees, number of MNC and SME partners and other case specific aspects. Possible subject bias was eliminated by using multiple data sources (Jick, 1979) for comparing the interview data, not only with each other, but also with objective data (e.g. firm websites, business publications and annual reports etc.) when appropriate. Related to the history of the case firms, numerous links to the objective data were found. 9 face to face interviews, 1 phone interview, 15 emails and a large number of reports (annual reports, press, releases, and webpages) were included to form an adequate data basis for the analysis.

Interviewees reviewed the transcribed data, and the coded data was cross-checked (Yin, 2009). Three researchers analysed the data. A chain of evidence was built and explanation building logic was followed in multiple case analyses (Yin, 2009). Abductive logic and qualitative content analysis was applied (Miles & Huberman, 1994) to investigate the depth of meanings of INVs' real events. Information that the entrepreneurs found difficult to articulate was clarified with data triangulation technique. (Guenzi & Storbacka, 2015). The case-study method allows a triangulation of methods, using several sources of data such as interviews and document analysis (Pettigrew 1973; 1975; Miles & Huberman, 1994). Triangulation expands the analytic understanding and constructs validity (Healey & Perry, 2000) for the findings of the study.

The first analytical step was to understand and organize key events in the case firms' history. Therefore detailed descriptions of the case firms (Eisenhardt, 1989) were written by two researchers independently. Moreover other detailed data (incl. a large number of links to firms' websites, business publications and annual reports etc.) was then analysed. The analysis of the study focused on "going back and forth between framework, data sources, and analysis" (Dubois & Gadde, 2002; 555). The main goal of the abductive analysis was to combine the most current theoretical background and a reality of the INVs' business life in a path-dependent process that expands the discussion in the research into effectuation.

----------*Table 1. Background of the interviews and the other sources of information here*---------

The firm *Rocsole* develops and markets high-technology sensors that provide high-end solutions to the challenges of processing industry (e.g. food, chemical, oil, and paper industry). The core business is based on mathematical modelling. This enables 3D-tomographic imaging that can be utilized in optimizing customers' processes. Instead of selling measurement products the core business model is based on providing measurement system solutions for customers.

The second case firm *Delfin Technologies* develops and manufactures high technology products for skin measurement and operates in a highly specialized business environment. The production and shipment volumes are specialized and relatively small (approximately 20 products per series). In the production chain, mechanical product components come mainly from Finland and the electronic components are purchased from the global component market. The final assembly and testing of the measurement equipment is executed at the head office.

Our third case firm, *Myontec*, develops products for global markets and at the moment they provide muscle measurement technology for the needs of the B2B sector. The current technology is still relatively complex and expensive for the mass production and therefore the business customers are mainly local and global research centres, universities and professional sports clubs. However the case firm is developing its technology to better serve the needs of regular consumers in the future.

The fourth case firm, *Rovio,* develops mobile games and during the past five years the firm has expanded rapidly into other areas of the entertainment business as well as into dairy products and the toy business. During this time their brand has become globally well-known and this has provided new opportunities mainly through licensing.

----------*Table 2. Background of the case firms here*----------

PRELIMINARY FINDINGS AND DISCUSSION

Inter-organizational relationships and effectuation process in different growth phases

In this study we firstly asked *how INVs create inter-organizational relationships of different tie-strengths by utilising an effectuation process*. Our findings show that during the pre-start phase, strong relationship ties became extremely important. Strong partnerships were based on inter-personal relationships inherited from entrepreneurs' previous work, study and social life. These initial partners from national networks shared a substance knowledge related to the case firms' technology. Founding members of Delfin Technologies, Myontec and Rocsole all had backgrounds in applied physics. Respectively the founding members of Rovio were three students from the Helsinki University of Technology. Moreover all the cases had shared dreams of achieving global business success. All of the case examples except Rovio had a strong relationship tie with one governmental investor. Acquired resources provided an opportunity to build several new relationships that were often found through existing, fundamental networks.

During the pre-start phase all the cases except Delfin Technologies had either a strong or equally strong as weak relationship tie with a multinational enterprise through the fundamental relationships of the founding team. The entrepreneurs of Delfin Technologies had both substance and business knowledge in the core team as well as accepted patents in global markets. Later when establishing the firm, all the INVs had either a partnership with a multinational firm or with a national SME. Due to being focussed on global niche products the founding teams of each firm adopted a global mind-set even before the firms were established.

Since the creation of all the case INVs, the entrepreneurs proactively built relationships with several MNEs who had a leadership position in various industries. First, weak relationships ties were built at trade-fairs, conferences, industry meetings and through internet-based channels such as LinkedIn. Weak ties were built for prospecting and recruiting purposes and to identify the first pilot-customers. The cases found these pilot customers extremely important for building credibility and viability and hence in tackling the liabilities of the firms' newness and foreignness. Three of the founding teams had significant scientific networks from the academic world which worked as platform for new network development and supported research and development processes. During this growth phase these equally strong as weak relationship ties with universities, international research centres,

hospitals and national SMEs provided small revenues, but also through testing and research the partners offered valuable academic references for the products of the companies.

During the commercialization and foreign entry phase, all of the case firms had at least one new MNE relationships and their aim was to strengthen these particular relationships as much as possible. Previous MNE relationships were vital for all the case firms and moreover both Delfin Technologies and Myontec were highly dependent on governmental investors. The firms that had challenges with funding also suffered from balance problems between supply and demand. Rocsole strengthened their business knowledge with a board realignment and focused on both existing relationships and new network relationships.

All of the cases underlined the role of entrepreneurs in both relationship building and in relationship development. Therefore it required active face-to-face meeting with network partners to maintain and strengthen these existing relationships. Some of the weak relationship ties were maintained as they were seen as being a stock of resources that could be exploited and strengthened if needed in the future. Through these relationships new partners were also found and hence they acted as bridges to new networks.

The rapid growth and foreign expansion phase required the ability to collaborate with several MNEs simultaneously. The case firms were open to building MNE relationships that may even cause challenges with power sharing in the future. Rocsole identified 10 MNE potential partnerships from prioritized oil industry. Also Delfin Technologies started to differentiate their business more towards the medical technology industry. Among the case firms, new relationships were built from fundamental networks of entrepreneurs. Furthermore, all of the entrepreneurs actively sought secondary partnerships outside their networks.

During this growth phase the entrepreneurial decision-making logic of the case firms started to turn strongly towards a more strategic approach (causation). This was reflected, for example, in how the firms evaluated the potential and benefits of each relationship. A resource pool that was built through an effectual approach was now transformed into a more strategic, goal-oriented perspective.

Even though Rovio had already created a global business, they showed dedication and a clear capability to network with distinguished individuals from several industries during the phases of rapid growth and foreign expansion. Due to their success in global business they had the ability to reach

and convince the best industry actors. Their net sales increased rapidly and they were able to expand into new business areas and reached a phase of rationalization and foreign maturity. In this phase, their decision-making logic started to shift towards strategically oriented causation, and they carefully analysed profitable partnerships for expansions into new industries.

From the pre-start phase up to the rapid growth and foreign expansion phase, all the case firms showed broad-minded attitudes towards network building with local, national and global partners. Therefore the case firms adopted an affordable loss principle in their business practice and established several weak relationship ties with companies of different sizes, as well as with individual actors.

- ***Proposition 1.*** *The lower the usage of effectuation logic the higher the tie strengths and the lower the range of these relationships.*

<u>The change of network structure and growth phase development</u>

Secondly we asked *how changes in network structure enable business development into new growth phases.* Our analysis reveals that the role of governmental investors is vital right from the pre-start phase. It is typical that several rounds of funding are required from these investors to be able to focus on research and development as well as network building. It became important to find new sources of funding in order to commercialize the business idea and to enter foreign markets. During this phase business experience was emphasized and in the case of Rocsole, for example, a board realignment was executed where their focus was on new members with professional business knowledge. With all the case firms the understanding and usage of new sales channels became important to reach global customers. These channels were mainly provided by the MNE partners. Success in networking lead to the firms' rapid growth and foreign expansion.

Over time the network structure of each case firm became more focused on certain large partnerships that offered new resources and opportunities for global growth. To gain access to these resources these dyadic relationship ties had to be strong. During this phase the dependency of these MNE relationships was high and to avoid becoming over-dependent the case firms wanted to develop and maintain several strong MNE relationships. In this way they could balance power sharing and divide the risks. In the case of Rovio, the firm developed several network relationships with new MNE industry partners. This happened mainly through licensing and therefore the firm was able to maintain their autonomy, expand their business, rationalize their operations and achieve maturity.

- ***Proposition 2.*** *The higher the level of tie strength and concentration of network relationships the higher probability that the INV develops into a new growth phase.*

CONCLUSION

The novelty of this research comes from studying effectuation logic (Sarasvathy 2001; 2008) together with the networking of INVs (Oviatt & McDougall 2005; Coviello 2006). Earlier literature on network structure and centrality has mainly focused on strong and weak ties, where one group of scholars has indicated that weak relationship ties are more beneficial for international new ventures (see e.g. Sharma & Blomstermo 2003; Oviatt & McDougall 2005; Han 2006). In parallel, another group of scholars have suggested that strong relationship ties can be more fruitful (Aldrich & Zimmer 1986; Söderqvist & Chetty, 2013). This study contributes to the earlier research stream by adopting a third strength level of relationship ties (equally strong as weak ties; Söderqvist & Chetty, 2013) and shows how high technology INVs use effectuation to create and utilize different strengths of relationship ties in various growth phases for the firm's survival and rapid international growth. Equally strong as weak ties have characteristics from both weak and strong ties because they include both uncertainty and potential (Söderqvist & Chetty, 2013).

The study contributes to earlier research (Gabrielsson & Gabrielsson, 2013) by providing a linkage between decision-making logic, network approach and eventual transformation into a new growth phase. Our study results indicate that effectuation was adopted since the inception of the firms in the study and it required active networking and interaction (Saravathy 2001; Sarasvathy et al. 2013). Active networking provides new and sometimes unexpected opportunities for close co-operation. Constant interaction with a large partner strengthens bilateral relationships and eventually can lead to strong relationship ties where intimacy, trust and commitment are high on both sides (Granovetter 1973, Uzzi 1997; Jack 2005). The movement from effectuation towards causation, based on relationship building and strengthening of MNE relationships, enabled the examined INVs to develop into more advanced growth phases.

The study findings also have managerial implications. Entrepreneurs of INVs should identify the most important partnerships in their industry and focus on developing strong bilateral relationship ties with these partners. This requires hard work from the management team and constant assurances from the INV. Strong relationship ties to large firms provide resources such as knowledge, marketing and delivery channels and new partnerships that are necessary in the early phases of venture creation.

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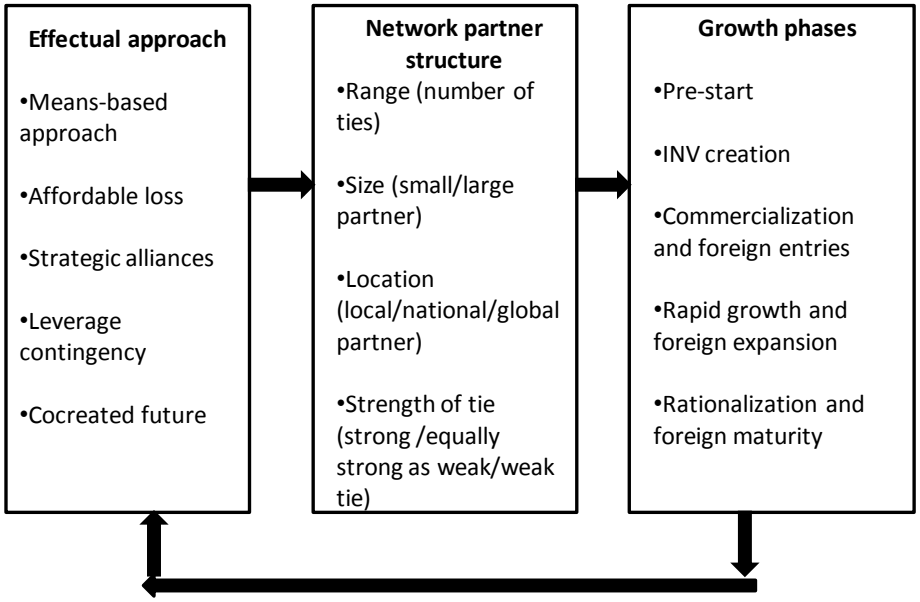

Figure 1. Theoretical framework

Case Firm	Number of interviews	Interviewed persons	Time period covered in interviews	Other sources of information
Rocsole	2	Founding CEO	2012-2015	Annual reports, press, releases, webpages
Delfin Technologies	2	Founding CEO, Sales Manager	1998-2015	Annual reports, press, releases, webpages
Myontec	2	Founding CEO	2007-2015	Annual reports, press, releases, webpages
Rovio	3 (excluding one phone call?)	Two founders (incl. COO, CEO)	2003-2014	Annual reports, press, releases, webpages, a conference speech

Table 1. Background of the interviews and the other sources of information

	Rocsole	Delfin Technologies	Myontec	Rovio
Field of business and vision	Monitoring solutions for processing industry based on tomographic process imaging and optics.	Scientifically validated skin and edema measurement instruments for highly specialized business environment.	Muscle measurement technology for B2B market.	Mobile games, brand and franchising development for several industries.
Foundation	2012	1998	2008 (Myontec was established)	2005 (Rovio was established)
Current size	SME	Micro/ SME	Micro/ SME	Large
Net Sales (€)	0.758 M€ (2013)	0.276 M€ (2013)	0.059 M€ (2013)	153.516 M€ (2013)
Employees	10+	6	3 (?)	547
Growth phase development	1-4	1-4	1-3	1-5

Table 2. Background of the case firms

			Advancement along growth phases			
EFFECTUAL APPROACH incl. means-based approach, affordable loss, strategic alliances, leverage contingency, co-created future		Pre-start	INV creation	Commercialization and foreign entries	Rapid growth and foreign expansion	Rationalization and foreign maturity
Network partner structure incl. Range (number of ties) Size (small/ large partners Location (local/ national /global partner) Strength of tie (strong/ equally strong as weak/ weak tie)	**Rocsole**	Global mind-set in international expansion. The antecedent firm created a basis for the INV's **strong ties**. The financial support from 6 local and 1 national investors offered the opportunities for the INV's establishment. **The main tie** was the collaboration with 1 MNE partner (as a customer and reference). **The weak ties** in prospecting and partnerships were built in trade fairs and different events of the industry. The founders were open to collaboration with several SME partners in the areas of technology, sales and investment. The ownership of the firm could be shared with appropriate partners.	INV founded (2012) by 2 members. **Strong ties** made with 2 national investors and 1 MNE partner. 1 joint venture was established for sales. **Equally strong as weak ties** were established with one MNE and also these ties were used for revenue generation. The founders offered consulting to the national and global SME partners. To get familiarity in the industry, **weak ties** were built in trade fairs and at different events. Collaboration with national and global SMEs in the areas of technology, sales and investment. The main aim was to get success in recruiting and prospecting. LinkedIn was used as a channel to meet appropriate partners and to create awareness about the INV's business.	Board realignment in 2014. **Strong ties** were then built between the board members (4 professional board members from the national SMEs) and 1joint venture (SME), as well as one existing relationship with an MNE. The JV organized global sales through many channels. The business model was built on 4 subcontracting relationships with national SMEs (minimizing fixed costs). INV actors negotiated **equally strong as weak ties** with 2 MNEs and global and national SMEs in the areas of technology, sales and investment. The main aim was to find the best employees and customerships. Due to their well-known position in the global niche market area, the founders and their employees had many opportunities for creating **weak ties** during trade fairs and industry events. Focus on the oil industry.	Two investment rounds materialized with 2 national investors **(strong ties)**. **Strong ties** with 3 MNE customers. Problems in power sharing may still end the collaboration with one MNE. Focus mainly on the oil industry. Equally strong **as weak ties** are built in the collaboration with global and national SMEs and 1 MNE. Cold calling is used to create **weak ties**. 2-3 new investors and 10 potential MNE partnerships are to be identified and qualified for the next phase. The INV managers therefore focus on individual negotiations with appropriate MNEs. New sales channels and success in recruiting are needed. The ability to select the best partnerships is underlined.	

	Summary	**Strong ties:** 6 local investors, 1national investor, 1MNE partner. **Weak ties:** several SME partners	**Strong ties:** 2 national investors, 1 MNE, 1joint venture (SME). **Equally strong as weak ties:** Global and national SMEs, 1 MNE **Weak ties:** Industry members, different SMEs.	**Strong ties:** 4 professional board members from national SMEs, 1 MNE, 1 joint venture (SME). 4 national SMEs for subcontracting **Equally strong as weak ties:** Global and national SMEs (customers). 2 MNEs **Weak ties:** Industry members, different SMEs.	**Strong ties:** 2 national investors, 4 national subcontracting SMEs, 3 MNE customers **Equally strong as weak ties:** Global SMEs, 1 MNE. **Weak ties:** Industry members, SMEs.	
	Delfin Technologies	Global mind-set in international expansion. Patents in USA and Europe. Planning of the financial basis for the business was started 1998. **Strong ties** with 2 national investors. High tech substance and business knowledge among the national core team. **Equally strong and as weak and weak ties** with other national and global professionals in the substance area.	INV started their business in 2000 with 5 national founders. **Strong ties** with 3 national investors and 1 MNE. MNE contacted INV. 3 National and 1 global research centre. **Equally strong as weak ties** with global and national SMEs and 1 national hospital as references. Several **weak ties** from the national university background and trade fairs of the industry. For prospecting and recruiting, information sharing of the firm's webpage as well as in meetings during trade fairs were used to build **weak ties**. Differentiation in two main industries (Cosmetics & Medical)	**Strong ties** with 2 MNEs. Affiliated company was established for sales organizing in USA (2006) with the help of national investor. 3 National and 1 global research centre. **The strong tie** with this investor shifted towards being a **weak tie** related to the worldwide recession and lack of common understanding in the business. Many **Equally strong as weak and weak ties** with global SMEs (distribution channels). **Weak ties** are built by information sharing in the firm's webpage, during trade fairs and using general direct marketing. Differentiation in two main industries (Cosmetics & Medical)	Rapid growth and foreign expansion of the INV can be observed in the beginning. The **strong ties** are often further developed on the basis of **equally strong as weak and weak ties** during individual meetings. 1 **equally strong as weak tie** with a foreign investor in France. **Weak ties** with global and national customers among SMEs and a few MNEs. Developing some **weak ties** through common production and licensing are highly expected. Prioritization in the medical business.	

	Summary	**Strong ties:** 2 national investor **Equally strong as weak and weak ties:** Many national and global professionals with substance knowledge.	**Strong ties:** 3 national investors, 1 MNE, 3 national and 1 global research centre **Equally strong as weak ties:** Global and national SMEs and 1 national hospital **Weak ties:** National universities, global and national SMEs.	**Strong ties:** 1 National investor 2 MNEs, 1 Affiliated company (SME). 3 National research centres 1 Global research centre **Equally strong as weak ties:** Several global and few national SMEs **Weak ties:** Industry members, different SMEs.	**Strong ties:** 3 MNE customers. **Equally strong as weak ties:** 1 foreign investors, global and few national SMEs **Weak ties:** Global and national SMEs and few MNEs.	
	Myontec	Strong academic background. The first patent application was sent by the main actors in 2000. The process building and the process management took many years in collaboration with 1 SME. The antecedent firm focused on **equally strong as weak ties** with 2 MNEs developed in the collaboration of the research program.	Global mind-set from inception. The INV started their business in 2007 with 3 national founders. The new venture was established on the basis of the collaboration with 2 MNEs developed in the previous phase (**2 strong ties**). 1 national investor supported the INV (**strong tie**). Academic research provided evidence for the business, **3 Equally strong as weak ties** among the 3 national universities as pilot customers. **The weak ties** were built in trade fairs and different industry events. Many **weak ties** are considered for developing different sales channels (e.g. SoMe, agents). Some individual **weak ties** are available for consulting. Focus on individual relationship building. Actual needs in funding. Founders	Micro sized INV. The support of 2 national investors and relationship with other minor investors are needed to maintain (**2 + strong ties**). Agreements with 3 MNEs **(3 strong ties**). The INV is highly dependent on the network above. S**trong ties** with 2 national investors. International manufacturing (**1 equally strong as weak tie**). Some individual **weak ties** for consulting have developed towards being **equally strong as weak ties** as well as global/national micro SMEs in product development. Problems in maintaining many partnerships at the same time. The balance between supply and demand is sometimes missed. Focus on individual relationship building in the global market. Founders are even now focusing on product development. Actual needs in funding. Sales channels established (web-channel).		

			highly focused on product development.			
	Summary	**Strong ties:** 1 national SME **Equally strong as weak ties:** 2 MNEs	**Strong ties:** 2 MNEs 1 national investor **Equally strong as weak ties:** 3 national universities **Weak ties:** Global and national SMEs (from consulting as well), Global and national industry members	**Strong ties:** 2 National investor 3 MNEs, 1 Affiliated company (SME). **Equally strong as weak ties:** 1 international partner in manufacturing A few global and national SMEs. National universities. Lots of individual contacts **Weak ties:** Industry members, SMEs in global and national market.		
	Rovio	Games development as a common dream in the core team. Global mind-set in the international expansion. The antecedent firm (Relude) created a basis for the INV's first **strong ties**. Well-known position in the industry was built at different trade fairs and industry events. Lots of **Equally strong as weak and weak ties** in the industry.	Founded (2005) by 3 members. Own distribution was critical to the founders. **Equally strong as weak and weak ties** were built with several global SMEs and industry members. Weak individual contacts in meetings with head-hunters and other contacts with industry members in trade fairs were used in developing **equally strong as weak ties**. Relationships and free channels such as LinkedIn were used in recruiting and prospecting.	To secure cash flow, the INV needed to build subcontracting relationships with 6 MNEs. These ties can be labelled **strong ties**. The first very successful game AngryBirds released and collaboration with two MNEs began with the head-hunter's help. The relationships with these 2 MNEs quickly developed from a weak level to an **equally strong as weak** level. Many **equally strong as weak ties** with global actors all around the world. The core teams were open to capturing **weak ties** with different individual contacts and at meetings with other industry members in trade fairs and events. The role of LinkedIn became more important than ever in recruiting and prospecting.	Profitable business phase begins in the collaboration with 2 MNEs (**strong ties**). Participation in different sales channels and lots of **equally strong as weak and weak ties** with different global SMEs and MNEs in several industries next to the collaboration with own industry members. The business runs very well. The INV has possibility (position) to select the best partnerships and develop them**.**	Expansion into new industries: Collaboration with many industries and **strong and equally strong as weak ties** with several MNEs. Ability to select the best partnerships for their new businesses. Ability to participate in the appropriate sales channels all over the world.

	Summary	**Strong ties:** 1 MNE **Equally strong as weak and weak ties:** Industry members, Several global and some national SMEs.	**Equally strong as weak and weak ties:** Several global SMEs. Industry members	**Strong ties:** 6 MNEs in subcontracting. **Equally strong as weak:** 2 MNEs **Weak ties:** Several global SMEs Industry members.	**Strong ties:** 2 MNEs **Equally strong as weak and weak ties:** Several global SMEs and MNEs Industry members	**Strong ties:** **S**everal MNEs and mainly global SMEs **Equally strong as weak and weak ties:** Global SMEs, industry members