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BUSINESS ECOSYSTEMS AND STARTUP DEVELOPMENT

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<p>Abstract</p> <p>This study aims at finding out how ecosystems affect the development of startups. This is a current topic because startups are a prominent phenomenon, the development and growth of which studies have not been able to fully describe or explain so far. Furthermore, it has been noted that more research should be aimed at providing insights and guidelines for startup managers on how to grow their company, especially in the international markets.</p> <p>We are looking at the business ecosystem because it is a good way of describing the complex business environment of the startups today. By looking at the ecosystem that the startup is a part of, we can find out how the characteristics and interactions, as well as other actors and their actions can affect the development of a startup. Therefore, we need close observations on the ecosystem.</p> <p>The study approaches the startup development from a case study point of view and utilizes qualitative interview data as its primary source for analysis. The interviews are recorded and transcribed and the transcription coded. Within case analysis is utilized to get a more comprehensive and reliable understanding of the phenomenon.</p> <p>This study supports the view that ecosystems are important for startups and can offer them opportunities for development. It is noted that startups should take the ecosystem realities into consideration when strategizing and planning the activities and actions of the company. The specific ecosystem structures and ways of interaction and participation are important indicators on how a startup should participate in the ecosystem, what kind of information is available, what areas are to pursue and with what kind of strategies. It is also noted that different ecosystem actors, also other than for-profit businesses, can be important for company development in the ecosystem. All, in all, the study offers support to the notion that business ecosystems are important these days, and that startups can benefit from knowing, participating in, and adjusting to these ecosystems.</p> <p>The results of this study can be used by startup managers to gain insights for planning and strategizing. The results can be used as guidance on what the managers should take into consideration when entering new international markets, but also point out the ways in which the ecosystem can affect the company development. The results can be generalized to some extent, even though this is a case study into a certain ecosystem and a certain startup as a part of that ecosystem.</p>			
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Additional information			

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1 INTRODUCTION

This study explores the development of new startups that are aiming for international growth from an ecosystem point of view. These startups compete in the international markets with other startups and also established companies and are important participants in the economy. Therefore, startups are a phenomenon of today worth studying. It is also important to study startup development to offer support for the growing and internationalizing startups. Startups are unique companies because of their structure, their mindset and their unique capabilities but also because of their initial resource constraints (Muegge 2013). Even though new startups lack resources still a great number of them aim for rapid internationalization (Knight & Cavusgil 2004). Most startups have an international mindset from the start and internationalization is aimed for to achieve greater growth (Sapienza, Autio, George & Zahra 2006). The triggers for rapid internationalization range from organizational capabilities to developments in the global markets and technology (Cavusgil & Knight 2015).

Internationalization requires the startup to develop its capabilities to be able to address the changes in its environment (Sapienza et al. 2006). The development and employment of these company internal capabilities greatly affects company performance in the international markets (Sapienza et al. 2006). While these capabilities are also found in large multinational companies, startups have characteristics that can make these capabilities unique (Knight & Cavusgil 2004) and can therefore be considered as a competitive advantage for startups. For example learning has been identified a key capability that a firm has to develop to succeed in international markets (Buckley & Casson 1998). Small young firms can have “learning advantages of newness”, that are due to the more flexible company structure and enable startups to learn faster than established companies (Autio, Sapienza & Almeida 2000).

However, in addition to company internal factors, attention has been increasingly paid to the company external factors, such as networks and ecosystems, as facilitators of small company growth and internationalization (e.g. Lechner, Dowling & Welpel 2006, Boyer & Blazy 2014, Paradkar, Knight & Hansen 2015, Lin & Lin

2016, Muegge 2013, Rong, Wu, Shi & Guo 2015, Weber & Hine 2015). The capability development is important for company growth and internationalization, but companies also benefit from international networks and business ecosystems through which they can, for example, acquire information and develop knowledge (e.g. Zahra & Nambisan 2011), which allows them to further develop their capabilities (Amit & Schoemaker 1993).

The concept of a business ecosystem has been in active use for a few decades. According to this theoretical viewpoint, the business environment of companies can be seen in analogy to a biological ecosystem where the success of an ecosystem depends on the actions of its participants (Iansiti & Levien 2004). The participants of an ecosystem, rather than focusing solely on individual profits, should focus on increasing the overall health of the entire ecosystem, because the well-being of the ecosystem affects the well-being of its participants (Iansiti & Levien 2004). The ecosystem view has received widespread acceptance (Peltoniemi & Vuori 2004).

Taking ecosystem into consideration in strategizing, in terms of what the ecosystem is like and where the company is placed in that ecosystems as well as how the company can establish and maintain relationships with other ecosystem participants, is deemed important for the development of a company (Zahra & Nambisan 2012). Furthermore, as Muegge (2013) suggests, knowing exactly how the company is connected with other stakeholders in their ecosystem will greatly benefit the manager when strategizing and designing their business model. The importance of relationships and the connected nature of the ecosystem is why the network discussion is also important for this study and is a part of the theoretical background for studying relationships and interactions within the business ecosystem and their effect on startups.

1.1 Research gap

Recently it has been acknowledge that although we now recognize that to a considerable extent new companies today internationalize early in their existence, we are yet to understand fully why some companies internationalize early and some late in their evolution (Cavusgil & Knight 2015), and how new companies can achieve

this rapid internationalization and overcome the need for a lengthy process of gradual learning and relationship building that has previously been identified as an important factor in company internationalization (Mikhailova & Olsen 2016). More specifically, Cavusgil and Knight (2015) propose that research should look at how ecosystems advance the internationalization of small companies that internationalize rapidly after inception. Calls have also been made for researchers to tackle these fields and produce models and approaches that will assist startups in their efforts to internationalize and speed up the process (Bailetti 2012). Especially in the ecosystem approach, most studies thus far have concentrated on the viewpoint of the managers of large companies or the viewpoint of policy making instead of taking the small company or startup point of view (Muegge 2013).

This study aims at finding out how ecosystems affect small company development and at providing further insights into the areas that are yet to be understood, as suggested above. This study will answer the need for more research that can offer advice especially to entrepreneurs and leaders of small, new companies (Muegge 2013). Furthermore, this study will answer the need expressed by Weber and Hine (2015) to study the ecosystem from the point of view of a single technological company as well as not limiting the study to the primary relationships only. As Weber and Hine (2015) note, this approach will also shift the focus towards providing valuable insights for company managers. Furthermore, this study will address the scarcity of studies focusing on other relationships than the ones between technology companies (Weber & Hine 2015) as it includes several stakeholders that are not companies to begin with. In addition, this study will increase our understanding on how internationalizing firms can achieve competitive advantage through ecosystem networks on the international markets, which as Rong et al. (2015) mention, is also a area of where little research has been done.

1.2 Research questions

In light of these gaps in knowledge and research, the purpose of the study is to offer further insights for startup managers and build a more in-depth understanding of how ecosystems can affect the development of a small company. More specifically the aim is to look at a startup development in relations to a particular ecosystem by

considering the ecosystem, its participants and the interactions within that ecosystem. Thus, the research question is defined as: How does business ecosystem affect startup development?

1.3 Research approach and data

In this study we are looking at the hearing aid ecosystem and its effect on the development of a Finnish startup, Qlu. The study is conducted as a case study. The primary data is qualitative and gathered through semi-structured interviews with different ecosystem participants. Altogether six interviews were conducted. The interviews are recorded, transcribed, and coded. Initial categories for the coding were derived from the previous studies and theoretical framework, but categories were added and adjusted during and after coding as suggested by Yin (1989).

1.4 Main findings of the study

The analysis offers support for the notion that for a startup, knowing and engaging in an ecosystem can offer opportunities for development it might not have otherwise (e.g. Muegge 2013). The ecosystem that is studied here has some special characteristic that are important for a startup to recognize and take into consideration as it is planning its actions and strategies. These characteristics include the different levels and geographical dimensions of the ecosystem, which affect the way the company can and needs to participate and communicate, the amount of information that is available, the level of understanding that can be expected, and the level of interest that can be expected as well. These also affect the opportunities that the startup has on certain geographical market areas as well as the potential for relationship building on those areas.

In addition several challenges were identified in the interview data, including the limited information and knowledge within and outside the ecosystem, as well as negative attitudes and challenges that are due to the technology. On the one hand, these challenges affect the development of a startup for example by making it more difficult to find customers or create demand for their product or service. On the other hand, these challenges are also being approached in the ecosystem and the company

can benefit from the work that is being done for example to increase knowledge as well as from their own knowledge-increasing activities. These activities can increase the size of the potential market for the company, create demand and help in the branding and marketing if the startup. In addition, it is acknowledged that not-for-profit actors can also be an important part of a business ecosystem, and working together with them can lead to mutually beneficial outcomes, in term of marketing for example, as well as outcomes that benefit the entire ecosystem.

The insights from this study can be utilized by business leaders as managerial guidance. Looking at the ecosystem from a startup point of view offers valuable information on how the ecosystem can affect small company development to small company leaders and management. The startups need to understand the ecosystems that they are a part of and their position within it (Weber & Hine 2015) these days in the increasingly competitive market where internationalization is often necessary to succeed or even survive. In the globalized world, almost no company can survive on its own, and like in the biological world, actors are always connected to others and their development will affect the other actors, which has an effect on the firm's success (Zahra & Nambisan 2012).

1.5 Structure of the study

This study continues as follows. First, the startup is introduced as a specific business entity that is identified with certain qualities that limit its actions but also enable it to grow beyond what has been traditionally seen possible. Second we consider the environment of an internationalizing company and take a more in-depth look at the theoretical assumptions of networks and ecosystems. Third, the research methods and the data are described. Fourth, the analysis made based on the empirical evidence together with the theoretical framework is presented. Finally, we conclude in Section 6 and acknowledge the limitation of the study as well as point out future directions for research.

2 STARTUP GROWTH AND INTERNATIONALIZATION

Startups offer an interesting area of research, which is often significantly different from a large company context. Even though global startups are noted as being the among the most difficult new ventures to develop, they are also noted to have most sustainable competitive advantages (Oviatt & McDougall 2005) which might partially explain the large number of these companies today. Small companies may face difficulties resulting from their newness and smallness that often indicate constrains in resources (Oviatt & McDougall 2005), but a large number still survive and succeed, becoming recognized companies on a global scale. This is possible partly because small companies also have unique qualities and advantages that enable them to grow and succeed. Thus, these specific conditions and characteristics need to be considered before looking at the outside environment of a small company, because these are also determinants of how and why the companies need connections with other actors outside their company and home country borders.

2.1 The definition of a startup

In this study the term startup is used when referring to the specific companies that are being studied. Important aspects of startups are that they are innovative companies that are usually small and are aiming for rapid growth. Entrepreneurial orientation and international mindset are also connected with startups (e.g. Sapienza et al. 2006, Knight & Cavusgil 2004). The entrepreneurial mindset of startups is echoed in the aim for rapid internationalization from the start to allow for rapid growth of the company (Sapienza et al. 2006). Thus, we define a startup as a small, new company that is aiming for rapid growth and internationalization.

Startups can take different forms and operate on different industries and business areas. Recently a new form of companies, the social enterprise, has been increasing its popularity and because the case company of the current study also can be defined as a social enterprise, the social enterprise discussion is also a relevant part of the study.

2.2 Social startups

Social startups or “hybrid social ventures” are “new organizations that combine business and social missions” (Lee & Jay 2015: 126). According to Lee and Jay (2015), these startups are created to follow the principles of sustainability from the get go, which makes them “a distinct organizational phenomenon” (Wilson & Post 2013). Social companies can be seen as a response to the sustainability needs that have not been fulfilled by other actors in the society (Wilson & Post 2013). These social ventures can take various organizational and legal forms (Spear, Cornforth & Aiken 2009).

As Lee and Jay (2015) argue, social startups have been successful partially because they are able to answer to the growing demands by customers for companies to address the sustainability issues, both socially and environmentally. Social startups can benefit from the increased value creation through common sustainability-oriented goals with its customer (Lee & Jay 2015)

Because social startups are sustainability oriented from inception, they also have an advantage over established companies that have to adjust their strategies to meet the goals of sustainability (Lee and Jay 2015). Successful social startups need similar building blocks as other startups, ranging from resources to capabilities and networks. However, within the social enterprise discussion also legitimacy is noted as an important aspect for company growth (Jenner 2016).

Social startups are competitors to established companies but can also benefit from established companies that are pursuing sustainability through the ecosystem that favors the sustainable orientation (Lee and Jay 2015). In addition, the influence that the social startups have on established companies, forcing them to take sustainability into account, can make the startup’s goals become reality on a larger scale (Lee & Jay 2015).

Lee and Jay (2015) show that established companies have different ways of reacting to the emergence of social startups in their industry. These vary from defensive strategies and monitoring, to co-operation in creating a brand or increasing

sustainable innovation, to acquisition of the social startup depending on the potential value creation for the established companies. They may, for example be able to create value in a customer base that is sustainability oriented or be able to attract employees with such values. In addition, cooperating with social startups can have beneficial network effects within the larger ecosystem.

Social startups are a special form of startups, and while the social agenda is important to them, they are also growth oriented business entities. To grow also social startups reach out for international markets. Startups have certain benefits over established companies, but also need to develop their capabilities to succeed in the international markets.

2.3 The internationalization of startups

It has been noted that internationalization is risky and increases uncertainty and actually decreases the initial chances of company survival because of the resource intensiveness of foreign market entry (Sapienza et al. 2006). Still, a great number of companies internationalize, some, referred to as born-globals, at a very early stage in their existence (Knight & Cavusgil 2004) despite their limited resources. One way of explaining why these global startups, that are noted as being the most difficult to develop, are so common today is that they are also have the most sustainable competitive advantages (Oviatt & McDougall 2005) and internationalization, besides being resource intensive, also enables greater growth for the startups (Sapienza et al. 2006).

2.3.1 The drivers of internationalization

Even small companies that traditionally used to only operate in their home country are now seeking international expansion to grow and compete. Some companies today, known as born-globals, have an international mindset from the start and they internationalize rapidly after birth (Knight & Cavusgil 2004). Even though these companies have limited resources, but also because of that (Knight & Cavusgil 2004), the companies are seeking international expansion and international markets.

The growth-oriented mindset of startups enables them to enter the foreign markets efficiently and effectively (Sapienza et al. 2006).

Due to changes in the global market place and advances in technology (Cavusgil & Knight 2015), the international markets are, on the one hand, today more achievable even for a small company with limited resources than before (Oviatt & McDougall 2005). On the other hand the internationalized markets are also more competitive, which also drives companies to rapid internationalization (Oviatt & McDougall 2005). The emergence of global networks and alliances also promotes internationalization of small companies and startups. (Cavusgil & Knight 2015). In addition to changes and the globalization of the international markets, companies are also aiming for international markets for more traditional reasons, such as limited markets, capital and educated customers in their home country (Pradkar et al. 2015).

2.3.2 Rapid internationalization and the advantages of startups

When a company is internationalizing, the environment in which it operates changes which requires adjusting to that new international setting (Sapienza et al. 2006). The gradual internationalization theory (Johanson & Vahlne 1977) suggest that companies need to incrementally learn about the new market and gain knowledge which then leads to increased involvement in the international markets. This incremental internationalization happens after the company has been operating on and learning from its domestic market (Johanson & Vahlne 1977). This process allows the company to learn first from the domestic and then gradually from one foreign market at a time.

However, as Oviatt and McDougall (2005) note, this gradual theory of internationalization, even though useful and accurate for many companies, does not seem to apply to many international new ventures. In these companies, internationalization takes place rapidly or even at inception (Knight & Cavusgil 2004) and therefore there is no time for gradual learning from domestic and foreign markets. Thus, these companies do not follow the gradual learning and increasing commitment to foreign markets model.

This implies that rapidly internationalizing startups have other ways of overcoming the need to learn and slowly develop knowledge and capabilities that are needed for international expansion and operating in the international market place. The benefits that startups have over established companies are derived from their structure and unique capabilities that they are able to develop because of their structural flexibility as well as from the entrepreneurial mindset and innovativeness of these companies.

Studies have identified several key capabilities that are important for companies that are operating internationally. According to Amit and Schoemaker (1993: 36) capabilities “refer to a firm's capacity to deploy resources, usually in combination, using organizational processes, to effect a desired end. They are information-based, tangible or intangible processes that are firm specific and are developed over time through complex interactions among the firm's resources. (...) Capabilities are based on developing, carrying, and exchanging information through the firm's human capital.” These capabilities include learning (Buckley & Casson 1998), absorptive (Cohen & Levinthal 1990), alliance forming (Paradkar et al. 2015), networking (Zijdemans & Tanev 2014), and innovation (Karen, Hermens, Kai-Ping & Chelliah 2015).

2.3.3 Flexibility, knowledge and learning capability

In terms of acquiring assets and especially knowledge, startups have advantages in comparison to established companies because of their newness (Autio et al. 2000), which usually translates to less structured company culture and infrastructure (Knight & Cavusgil 2004). These give rise to what Autio et al. (2000) identified as the “learning advantages of newness”. The flexibility of startups enables them to more efficiently learn new, required competences, an ability which in established companies is often limited due to the learning impediments they have developed over time (Autio et al. 2010). Adjusting to new ways of doing things and replacing old knowledge with new, learning to unlearn, is often difficult for managers with existing knowledge and experiences in a company (Buckley & Casson 1998). However, new companies are more flexible because they do not suffer the burden of the fixed mindset and company infrastructure (Knight & Cavusgil 2004), which is then realized in more efficient learning within the company (Autio et al. 2000).

Flexibility is especially important in the international markets because of the uncertainty that is related to those markets (Buckley & Casson 1998). The need to cope with uncertainty makes structural adjustments necessary for startups, but also offers opportunities for the company to learn how to grow (Sapienza et al. 2006). One way of reducing uncertainty is through efficient information gathering and processing, which induces more flexibility within the company (Buckley & Casson 1998). One concrete example of increasing flexibility through information gathering and processing, as pointed out by Teece & Leih (2016) is developing real option portfolios.

In addition, as Bruneel, Ylli-Renko and Clarysse (2010) find, young companies, which often lack company level experiential knowledge on internationalization, can compensate by congenital and interorganizational learning. Congenital learning is based on the prior knowledge base that the company members bring to the company whereas interorganizational learning happens through different partners of the company (Bruneel et al. 2010). Thus, while the company is young and does not have a great deal of international experience, the personal experience of company members as well as learning from partners is in an important role in the company and can explain the international success of a young company. As Bruneel et al. (2010) note, as the company gathers more company-level experiential knowledge, the influence of the other two learning methods decreases. Acquiring knowledge allows companies to develop their other capabilities in addition to learning, which are needed for growth in the international markets (Knight & Cavusgil 2004).

2.3.4 Innovation capability

Innovation and internationalization have a positive effect on each other (Zijdemans & Tanev 2014). The innovative culture of a company affects its ability to acquire knowledge and therefore develop other capabilities needed in the international markets (Knight & Cavusgil 2004). Because of their unique innovative and knowledge based capabilities, startups are able to produce quality products, which enhances company performance on the international markets (Knight & Cavusgil 2004). Innovativeness in a company also produces new knowledge and enables the

company to open new markets and adapt their operation and strategies to match those markets (Knight & Cavusgil 2004). Furthermore, as Knight and Cavusgil (2004) note, innovative startups tend to internationalize earlier than non innovative ones.

Other capabilities, especially knowledge acquisition and networking capabilities, are enablers of innovation in companies (Zijdemans & Tanev 2014). The innovation capability of a company is also affected by its absorptive capacity (Cohen & Levinthal 1990). Because absorptive capacity is path dependent, prior knowledge is considered important for the adoption of new information from outside the company (Cohen & Levinthal 1990) and therefore for innovation capability.

While these capabilities are needed in companies established and new, large and small, it has been recognized that startups have unique capabilities that give them advantages over established companies and allow them to internationalize rapidly (Knight & Cavusgil 2004). However, because of the wide range of capabilities required in a global startup, they are also among the most difficult companies to manage (Oviatt & McDougall 2005). Besides these capabilities, entrepreneurial orientation is one of the characteristic of startups that can give them advantages over established companies in the international markets (Knight & Cavusgil 2004).

2.3.5 Entrepreneurial orientation

Entrepreneurial orientation has been positively associated with small company innovation capability (Karen et al. 2015) and small company growth (Zahra & Nambisan 2012). Knight and Cavusgil (2004) further note that combining entrepreneurial orientation and a company's capabilities is what provides startups advantages over local firms in the international markets. According to them, entrepreneurial orientation increases the company focus on producing high quality products, which results in better outcomes in the international market because consumers favor products of higher quality. Therefore the price of these products can be higher, and the company is able to get a higher market share and enjoy from growing sales (Knight & Cavusgil 2004).

All in all, small, new companies that are aiming for rapid growth and internationalization, need to develop capabilities that allow them to cope with the uncertainty of the international business environment, as well as provides advantages over established and local firms. Startups are able to develop these capabilities because of their newness and smallness, but they also need to actively acquire new knowledge that will lead to the development of capabilities. These activities both require and create flexibility within the company. Being flexible is important for a startup also regarding strategy. They need to adjust their strategy to cope with the uncertain international market. Innovation and entrepreneurial orientation are important for startups to accompany the knowledge, capabilities and other characteristics such as flexibility. When all these are combined, the startup should be well equipped for international and even global success even with resource constraints and lack of experience (Knight & Kavusgil 2004).

Companies and other actors today are facing a complex interconnected business environment characterized by uncertainty (Teece & Leih 2016) where relationships and networks are important and can determine a company's success or failure. Engaging in networks will increase the probability of company survival and success by helping it overcome the limitations in its resources and develop its capabilities (Lin & Lin 2016). It is therefore only appropriate to move the viewpoint from the individual company to the environment in which they operate and see how it can affect the company operations. Business ecosystem theory provides a basis for studying how companies can successfully grow and extend their operations. Because the internationalization of small companies often seems to not follow the traditional gradual internationalization models, it is important to look at the phenomenon from a different viewpoint, one that can explain how it is possible for a company to internationalize even without the accumulation of resources and knowledge by themselves.

3 THE COMPLEX NETWORKED BUSINESS ENVIRONMENT

While company specific resources and capabilities can explain a part of a company's success (or failure), networks and ecosystems also play a critical role in small company development (Muegge 2013, Rong et al. 2015, Lin & Lin 2016). Companies today work in complex environments which are characterized by global ecosystems and networks (Zahra & Nambisan 2011), which have an effect on the company strategy. Networks and ecosystems are sources of resources and partners as well as information for the companies (Zahra & Nambisan 2011). Not only can companies find resources through networks but they can find ecosystems which allow for the company to develop and focus on its own core skills and knowledge. These networks and ecosystems include other companies and actors, some more tightly and some more loosely connected. They may be competing companies but also companies that can offer complementary products or services (Muegge 2013) thus allowing for greater value to the end customer. Also, these networks include actors from all over the world and therefore the environments that many companies operate today are global and interconnected (Muegge 2013).

3.1 Networks

The operational environment of companies can be seen as a network of relationships (Johanson & Vahlne 2011) in which companies are constantly in interaction with other actors. Johanson and Vahlne (2011: 486) define business networks as "sets of connected business relationships". Following this definition, the important aspects in business networks are the business relationship, or exchange relationships, between companies, and the relationships themselves that are interconnected with other relationships (Johanson & Vahlne 2011). In this study we are however referring to also other than business relationships between two companies when talking about networks and relationships within them, because for the purposes of this study also other actors than companies are an important part of the discussion.

This interconnectedness results in the interactions and actions of actors having effects on others and their interactions. The dyadic relationship between actors as they are embedded in a larger context can be considered as the basic starting point of

looking at networks (Anderson, Håkanson & Johanson 1994). The interactions of the focal actors affect the dyadic relationship, but importantly this relationship also has effects on other relationships.

Not all the relationships in a network are similar, they vary in significance and purpose which has an effect on the categories of those relationships. If we consider a single purchase, the relationship is not long in nature but its significance can vary, depending on for example the size of the purchase. However, some relationships are more long-lasting and require resources and the creation of trust to be established (Johanson & Vahlne 2011). These networks and the relationships and interactions within them affect almost all companies today, and their importance for startup development is also acknowledged in previous studies.

3.1.1 Networks and small company development

Networks offer several benefits for startups and are identified as one of the drivers of the international growth of startups (Knight & Cavusgil 2004; Boyer & Blazy 2014, Paradkar et al. 2015). Through international networks startups are able to increase the speed of internationalization (Zhou, Wu & Luo 2007). Therefore, networks and network relationships are an important aspect of small company internationalization and startups need to understand the ways in which they can benefit from networks.

Networks can be sources of benefits for companies in several ways. For one, the networks and relationships are also sources of resources (Johanson & Vahlne 2011), which are important for resource poor startups. Relationships with international actors can also enable companies to build stronger ties within the existing market and pursue new customer segments (Knight & Cavusgil 2004), and increase trust and solidarity (Zhou et al. 2007).

In addition, network relationships are also important sources of information, and enable knowledge sharing and creation (e.g. Zhou, Wu & Luo 2007), which is important for small company growth (Löfgren 2014). Information can be gathered for example through distributors (Knight & Cavusgil 2004), or customers and

suppliers (Kamalian, Rashki, Hemmat & Davoud Jolfaie 2015). A startup can gather information on foreign markets (Knight & Cavusgil 2004), and the business opportunities on those markets (Zhou et al. 2007). Information and knowledge gathering also helps the startup in capability development. To be able to form especially international relationships and participate in international networks a startup need to develop its alliance forming capability (Paradkar et al. 2015).

Entering international networks can enhance the speed of innovation (Lin & Lin 2016). Nowadays, some networks are in fact strategically constructed around innovation (Thorgren, Wincent & Örtqvist 2009). The fit between a company's innovation and networking behavior and the networks design determines the success of that network (Lefebvre, Raggi, Viaggi, Sia-Ljungström, Minarelli, Kühne, & Gellynck 2014). In addition, co-innovation may serve as an enabler for a startup to enter wider networks on foreign markets because of its role as a mediator in international network management (Löfgren 2014).

Thus, networks and networking are important for startup internationalization because of the benefits that they can offer for a small company, most importantly resources, information and knowledge. In addition to these benefits, networks can affect the reputation and branding of a company.

3.1.2 Networks and corporate reputation and brand

Even though branding on the business-to-business (B2B) markets has not been as widely studied as it has been on the business to customer markets, studies do show that high brand awareness is related to better company performance also on the B2B market (Homburg, Klarmann & Schmitt 2010). Mäläskä, Saraniemi and Tähtinen (2011) find that in B2B markets, a small firm's brand image is affected by its network relationships (social and business). Helm and Gray (2009) note that company reputation is also co-created by the company and its stakeholders. According to Mäläskä et al. (2011) an individual company cannot choose the stakeholders that affect its brand image (through word of mouth for example) but it can mobilize actors in order to improve the image.

To enhance the success of the company brand, the most important actors and activities in the network related to the branding of the company should be recognized (Juntunen 2012; Mäläskä et al. 2011) in order to take advantage of those relationships for branding purposes. This can create positive word of mouth, which is found as an important for companies in B2B sector, as well as help in finding partners that can add value to the brand, for example opinion leaders in the market. In terms of reputation building, as Helm and Gray (2009: 67) note, stakeholders build company reputation assessments through the interplay of actual experiences and anticipated outcomes, which make it necessary for startup managers to be able to clearly express their vision and mission and tell “positive corporate stories”.

Being part networks enables startups to overcome their resource and information constraints (Johansson & Vahlne 2011, Lin & Lin 2015) and develop company reputation (Helm & Gray 2009) and brand (Mäläskä et al. 2011). Therefore, strategic thinking in a company should also embrace the network view and strategies should be crafted together with other companies instead of doing it in isolation (Johansson & Vahlne 2011). These networks can be also regarded as constructing ecosystems of the business world (Zahra & Nambisan 2012).

3.2 Business ecosystems

While networks are an important part of the environment in which companies navigate, we want to include also actors that are not necessarily a part of the company network into the discussion and change the viewpoint to consider other also other ways of affecting the development of the company. Therefore, we carry on the discussion of how the company environment affects company development by looking at business ecosystems. The business ecosystem view was introduced by Moore (1993), according to whom, rather than looking at the more narrow view of a network in one industry, companies should be seen as a part of a larger business ecosystem crossing various industries and taking into account different stakeholders that may or may not be in direct connection to the focal company. The business ecosystem well describes the complexity of the environment that companies work in today (Peltoniemi & Vuori 2004).

The term ecosystem seems to be widely used in different context ranging from the original term of a biological ecosystem to that of a business ecosystem (see Peltoniemi & Vuori 2004). As noted by Peltoniemi and Vuori (2004), the term ‘business ecosystem’ has been used in numerous studies but the definition and the use of the term seem to still vary from study to study. According to Muegge (2013) “a business ecosystem is an organization of *economic actors*.” However, this definition is a rather narrow one and fails to include other actors that can also be of importance to the overall ecosystem. In this study we will use the definition by Peltoniemi and Vuori (2004: 13) who define a business ecosystem as “a dynamic structure which consists of an interconnected population of organizations. These organizations can be small firms, large corporations, universities, research centers, public sector organizations, and other parties which influence the system.” Further elaboration is taken from Zahra and Nambisan (2012: 220) who refer to a business ecosystem as “a group of companies—and other entities including individuals, too, perhaps—that interacts and shares a set of dependencies as it produces the goods, technologies, and services customers need.”

For example, the health and life sciences ecosystem, as defined by Majava, Leviäkangas, Kinnunen, Kess, and Foit (2016: 27), consists of “all public and private actors that are in the business of contributing to human health.” This includes firms, research centers and universities, intermediaries as well as governmental actors. To take this definition further, also individuals that can be the end-users of the products or services could be included.

Just like having access and belonging to networks can be beneficial to a startup, so can being involved in an ecosystem and operating as a part of one. In accordance to Moore (1993), the main reason for the formation of these kinds of ecosystems is that companies that are involved in ecosystems can achieve something that they would not be able to do alone. Within an ecosystem, it is possible to combine resources and knowhow from different actors, through which the actors and the whole of the ecosystem will coevolve (Moore 1993). Therefore, companies are able to gain competitive advantage through ecosystems (Iansiti & Levien 2004), as well as take advantage of it to grow and also reduce risks (Bailetti 2010).

Companies need to understand their business ecosystem and their place in it to achieve advantages through it (Weber & Hine 2015) or to even survive (Bailetti 2010). This requires both strategic thinking and entrepreneurial insight (Zahra & Nambisan 2012). Companies need to include ecosystem consideration into their strategies (Bailetti 2010) and continuously adjust their strategy to be able to succeed and grow in an existing ecosystem (Ansari, Garud & Kumaraswamy 2016). Furthermore, ecosystems have their unique challenges. As Zahra and Nambisan (2012) note: “survival requires addressing the limitations of that ecosystem, working around its complexity and constraints, and learning how to turn these challenges into focused and purposeful actions that create value.” These ecosystems take different forms which can be categorized in terms of the way they are structured and organized.

3.2.1 Business ecosystem categories

Smith (2013) provides a description of business ecosystem categories, which separates six different categories of business ecosystems: platforms, demand forum, multivalent, supply systems, expanding communities, and communities of destiny (see Table 1). All the other business ecosystem categories are characterized by the presence of a main actor except for the last two that have been identified as communities. This has a key implication for the categorization, because the others are defined through the activities and characteristics of the main actor, whereas in the latter two, the characterization is done through the organizing of different actors around a central resource (expanding communities) or issue (communities of destiny).

Table 1 Categories and characteristics of business ecosystems (adapted from Smith 2013: 29)

Category	Main actor	Characteristics	Activities
Communities of destiny	No	Organizes around a central issue.	Cooperation to achieve resolution to mutual benefit
Expanding communities	No	Organizes around a non-proprietary resource	Software development of central resource
Supply systems	Yes	Central resources from main actor and selected others	Central resource supplying to main actor by others
Multivalent	Yes	Main actor as a supply of certain resources	Information and resources from main actor to others through crowdsourcing
Demand forum	Yes	Main actor uniting buyers and sellers	Aggregation by main actor for increased range and discounted prices
Platforms	Yes	Main actor as platform and key asset provider	The platform or key asset is used by others for product development for mutual benefit

Thus an ecosystem is an always developing and changing structure that consist of different actors. These actors can be companies, but also different kinds of organizations or even individuals. Importantly these actors interact with each other and depend on others, thus sharing a common destiny, which binds them together as a business ecosystem. Therefore, the business ecosystem becomes “a complex adaptive system that is more than the sum of its parts” (Weber & Hine 2015:32). These complex systems have a close resemblance to natural ecosystems, from where the term has been taken to use in the business literature (Moore 1993).

3.2.2 Business ecosystem as an analogy to a biological ecosystem

Viewing the complex, networked environment of companies as analogous to biological ecosystems is where the basic assumptions for the business ecosystem approach are derived from (Moore 1993, Iansiti & Levien 2004). Companies that are

operating in a business ecosystem are connected to other actors by loose networks, in which the future of a company is dependent on the success of other actors and all actors within an ecosystem are affected by the well being of the ecosystem as a whole (Iansiti & Levien 2004). These ecosystems are characterized by co-evolution and simultaneous competition and cooperation of participants (Moore 1993, Peltoniemi & Vuori 2004). According to Iansiti and Levien (2004), it is essential for a business ecosystem that it includes participants that hold the position of the main actor, a keystone, that provides a platform for other ecosystem actors, as well as startups that are innovative and growing. However, Majava et al. (2016) show business ecosystems can also be constructed from the bottom-up, without the involvement of recognizable keystones or lead companies. It is also possible for a startup to develop from being niche participants in an ecosystem to lead players because of their flexibility in terms of business model and organizational structure (Zahra & Nambisan 2012)

Iansiti and Levien (2004) also highlight that when talking about business ecosystems, they wish not to claim that the business ecosystem, in fact is an ecosystem, just that we can learn and understand a great deal about the operating environment of companies today by viewing their environment as an analogy to a biological ecosystem. In this study the ecosystem is seen from a rather large viewpoint, encompassing multiple stakeholders, not only from the business sector, and bound more to the analogous view of the natural ecosystem and the business ecosystems instead of treating the ecosystem for example as a value network or a platform structure.

With several analogies between a business and a biological ecosystem there is also a significant differences. First of all, the social dimension that is present in the business ecosystem differentiates it from the biological ecosystem (Moore 1993). Whereas biological ecosystems are made up of organisms that coevolve, business ecosystems are made up of people, whose decisions are made based on the information that they have available. Thus, available information can change the social system, which does not happen in the biological ecosystem. Furthermore, according to Iansiti and Levien (2004), there are three critical differences between a natural ecosystem and a business ecosystem: innovation, competition for members and intelligent actors.

Weber and Hine (2015) also point out these differences in their study. They suggest the actors in a business ecosystem be referred to as “technospecies” when “referring to an organizational, human construct rather than the biological species describing an extinct or extant biological organism.” (Weber & Hine 2015: 35). They claim that the important difference lies in the use of technology by the actors. In fact, technology is often considered the unifying factor within an ecosystem, around which the ecosystem evolves.

3.2.3 Ecosystem development

The ecosystem approach assumes that a business ecosystem develops through evolutionary stages (Moore 1993, Zahra & Nambisan 2012), much like a natural ecosystem does (see Table 2). This evolutionary process is path dependent and therefore differences at the birth of an ecosystem generate different resulting ecosystems (Peltoniemi & Vuori 2004).

Table 2 Evolutionary stages of an ecosystem (adapted from Moore 1993: 77)

Stage	Activities
1. Birth	Defining and delivering a new value proposition with customers, protect intellectual property, secure cooperation
2. Expansion	Expanding and conquering new markets with partners, aim for market dominance
3. Leadership	Creating a shared and supported vision for the ecosystem, maintaining strong bargaining power
4. Self-renewal or death	Keep innovative and bring new solutions to market, maintain high entry barriers and switching costs

The business ecosystem is a dynamic structure, and as the evolutionary stages model suggests if the ecosystem does not renew itself it is facing death. Therefore, it is important for the actors within that ecosystem to stay innovative and find new ways of serving their customers (Moore 1993). Working together with other ecosystem actors is a key element in a business ecosystem, but the actors are also often competitors in the same markets (Moore 1993). Therefore in each evolutionary stage, while the activities are based on cooperation there are also actions that need to be considered because of the simultaneous competition, for example protecting your intellectual property (Moore 1993).

When entering a foreign market, companies can effectively overcome some of the challenges by finding, developing and integrating stakeholders into their ecosystem (Rong et al. 2015). This process can for example increase the knowledge and awareness of the company and its offering in the international markets, and through that create demand (Rong et al. 2015). Rong et al. (2015) suggest that for ecosystem development in foreign markets, at the birth stage it is important to ensure that the company finances for supporting these activities are organized and strategies have been well drafted as to how to attract partners in the foreign market. Furthermore, it can be expected that the second phase can take a significantly long time, which is why the first phase needs to be carefully executed before the market entry and necessary measures need to be taken to make the environment supportive and to share the company vision to numerous stakeholders in the foreign market.

Entering foreign markets is always risky and similarly building or participating in ecosystems has risks. These are also important aspects to understand when looking at the ecosystem and company development as a part of an ecosystem.

3.2.4 Risk related to business ecosystems

Smith (2013) identifies risks relating to the categories of and participating in business ecosystems (Table 3) and provides recommendations for entrepreneurs based on these ecosystem risks. “Risks associated with each of these categories of business ecosystem vary, but are directly related to control (centralized or decentralized) and interdependence (pooled or reciprocal).” (Smith 2013: 27).

Table 3 Risks associated with participating in business ecosystem (adapted from Smith 2013: 30)

1. General risks

- simultaneous competition and cooperation (cooperation)
- the characteristics of relationships
- alliance forming
- main actor and niche player dynamics
- the effects of changes in core actors’ services or products on niche players
- superstar products
- delays because of ecosystem characteristics and structure

- dominating actors that exploit the ecosystem

2. Main actor risks

- operational position at both ends of supply chain
- new actors in the ecosystem

3. Risks from location in the value chain

- upstream relationships
- downstream relationships

4. Standards risks

- wars
- establishing partnerships with other actors
- rapid change
- confluence within the industry

Smith (2013) makes a metaphorical connection between a business ecosystem environment and the environment in which aviation pilots work. Both environments are dynamic and characterized by constant change, as well as risks, and therefore navigating successfully in those environments requires careful preparation before entering the environment (e.g. planning or training), as well as constant monitoring and adjustment after entering this dynamic environment.

Furthermore, Smith (2013) provides recommendations for entrepreneurs who are aiming to enter a business ecosystem based on the risks that have been identified in business ecosystems. Firstly, careful preparations should be made in the form of identifying the business ecosystem category (because risks are different in different categories) and closely identifying and understanding the risks that are related to that particular category. Secondly, after entering the business ecosystem, the entrepreneur should monitor the ecosystem and how it changes and understand the position of the company within it, as well as adjust the resources accordingly. Also, close attention should be directed at horizontal relationships of the company within the ecosystem, as well as on coalitions, which are both deemed essential for company development in the ecosystem.

All in all, studies have shown that networks and ecosystems are a very important aspect in small company development. They provide opportunities to grow, for example by providing resources and cooperation to the participants. They also posit

some risks to actors, relating to the categories and the participation in business ecosystem. Because of these opportunities and risks as well as the different categories of business ecosystems, it is important for a startup to know its own business ecosystem or the one it is a part of, its place within that ecosystem as well as to be able to recognize the interactions and relationships within it that can be important for the development of the startup. While the ecosystem view point together with the network considerations provide a good view into the complex business environment that also startups are facing today.

This study looks more in-depth into hearing loop ecosystem and how that ecosystem can affect the development of the case company within it. Even though networks and ecosystems have received attention, this relationship has not received a great deal of attention in the studies. To gain insights into the structure of the ecosystem and how actors are operating in it, as well as how the case company related to this, interviews are used as the method for data gathering and suitable methods for handling the data to extract insights for the analysis.

4 RESEARCH APPROACH, METHODS AND DATA

This study is conducted as a case study looking at the hearing loop ecosystem in which the case company Qlu participates. The data for this study is collected through six interviews with different ecosystem participants. Analysis is conducted through within case analysis with an abductive research method.

4.1 Case study approach and abductive research method

Case studies can be used for three types of studies: exploratory, descriptive and explanatory (Yin 1981). This study employs at least the descriptive dimension of case studies, drawing a picture of the hearing loop ecosystem and interactions within it. It also aims to explain how the ecosystem affects startup development. This is a highly context sensitive field of study, looking at a current phenomenon in its actual environment, which also warrants for the case study approach (Yin 1981). The normative aspect that is included in the study also makes the study highly context dependent (Möller 2013).

This study began with a forming of a theoretical framework based on which the basic themes for the interviews could be constructed. However, the theoretical framework is developed as the analysis develops. Therefore, the method of research can be described as abductive, combining both theory and data driven research (Timmermans & Avory 2012).

Within case analysis is used here and, as suggested by Yin (1981). Rather than relying on separate narratives, the data was analyzed by creating topics before the initial analysis and then by constantly revising these topics, creating new ones and combining others to create a basis for analyzing the data based on the relevant topics as identified through theoretical framework and the data. This way the analysis is able to combine aspects from different interviews into a whole that describes the phenomenon more accurately.

4.2 Data collection and coding

The primary data of this study consists of qualitative data that was gathered in six interviews with seven different stakeholders in the hearing aid ecosystem. The secondary data includes articles and Internet sources, such as webpages of the hard of hearing federations. All the interviews were constructed as semi-structured interviews, which allowed for focusing on certain area of data collection but did not limit or predetermine the end results of the interviews. The interviews were 45 minutes to 80 minutes in length (see Figure 1 for more details). In five of the interviews there was only one interviewee, whereas in one there were two interviewees. The interviews were conducted either in English or in Finnish.

The interviews were all recorded and transcribed after which coding was done using Nvivo software. Initial categories for coding were made before the beginning of the coding, based on the research questions and the literature review as well as the observations made during the interviews and transcribing. As suggested by Yin (1981), these topics were modified and categories were added during coding and necessary refinements were made after coding. By this process, it is possible to consider all the aspects relating to the research question and make within case comparisons to increase the reliability of the analysis.

4.3 Description of interviewees

The interviewees come from different countries and have different positions within the hearing aid ecosystem as can be seen in Table 4. The first interviewees are the CEO and business development manager of the case company from Finland. The third interviewee is an architect and is working for the Finnish Federation of Hard of Hearing (FFHOH). The fourth interviewee was a teacher for the deaf, a consultant and a speech therapist as well as a volunteer for the Danish Association for the Hard of Hearing from Denmark and was also a board member in the European Federation of Hard of Hearing (EFHOH). The fifth interviewee was a retired otolaryngologist, audiologist and a professor from Finland. The sixth interviewee was a hearing loop advocate and a retired audiologist and entrepreneur for the US. The seventh interviewee was a business development director for a hearing loop manufacturing and selling company in the UK, as well as the chair of the International Hearing Loop Manufacturers Association.

Table 4 Description of interviewees, and duration and timing of the interviews

Interviewee	Position in ecosystem	Country	Duration of interview	Time of interview
1. Qlu CEO	Company CEO	Finland	01:03:18	24 Apr 2015
2. Qlu Business development manager	Company member	Finland	01:03:18	24 Apr 2015
3. FFHOH expert	Employee of Finnish federation for hard of hearing, architect, hearing aid user	Finland	52:14	16 Nov 2016
4. EFHOH member	Member of EFHOH, member of Danish federation for hard of hearing, teacher of the deaf, consultant, speech therapist, hearing aid user	Denmark	55:34	17 Nov 2016
5. Otolaryngologist	Otolaryngologist, audiologist, professor	Finland		25 Nov 2016
6. Hearing loop advocate	Hearing loop advocate, audiologist, entrepreneur	US	01:18:27	19 Dec 2016
7. Business development director UK	Business development director for an assistive listening manufacturing company, chair of International hearing loop manufacturers' association	UK	45:09	13 Jan 2017

The interview data is a starting point for the analysis. The analysis is based on the iterative handling of the data together with the theoretical background and both were modified as the study progressed. This allowed for a more focused view on the topic and the relevant aspects that rose from the theory, previous studies as well as the data that was gathered for this study.

5 COMPANY DEVELOPMENT IN THE HEARING LOOP ECOSYSTEM

The purpose of this study is to find out how ecosystems affect the development of startups. In this sort of a study, the context is an important factor, which is why we need to first take a look at the case company and its business. Secondly we need to examine the ecosystem that it is a part of, the hearing loop ecosystem, what actors there are within that ecosystem, and how they are interacting and acting. As previous studies have suggested, companies can benefit from participating and building these ecosystems (e.g. Weber & Hine 2015), but participating in ecosystems can also have risks (Smith 2013) and challenges that need to be recognized and acted upon to succeed (Zahra & Nambisan 2012). Therefore, we need to also identify the challenges that are found in the ecosystem based on the data. We will then look at the ecosystem from the startup point of view and how this ecosystem affects the strategy of the case company and its opportunities for development.

5.1 The hearing loop as a technology

The hearing loop is an assistive listening system that transmits sound from a source to the ear of a listener. One of the biggest advantages of these assistive listening systems is that they reduce the background noise level, thus making for example understanding easier for a person with hearing loss. The hearing loop is usually used together with a hearing aid that a person has in their ear, which needs to have a telecoil that has been activated. Therefore, a person who is listening with the help of a hearing loop does not need to have any extra devices besides their own hearing aid to receive sound through the hearing loop. They can also move around the space where the loop is installed. Hearing loops can be installed in larger spaces such as churches or concert halls, but also in a retail store counter or even in a person's home to listen to the television. The case company is an expert on hearing loop technology and has developed a unique measurement system for testing the quality of sound that is transmitted through the hearing loop and producing tangible based on the findings of these tests.

5.2 Overview of the case company Qlu Oy

The case company is a small company from Oulu, Finland. It was founded in 2013 by Mikko Haho (Entrepreneur) and Juha Nikula (Entrepreneur, CEO). Qlu Oy specializes in “visualizing the hearing environment” (Qlu 2017). They have developed a technical solution for measuring and mapping the quality of hearing loops, which has also been patented in 2016. The results of the mappings are made public through a web service. The company also offers expert services related to hearing loops. Their business is dependent on the existing hearing loops and the loops that are being installed and therefore the connection to the ecosystem and the networks and actors within it are highly important for the company, as well as the developments that occur in the ecosystem.

Both Qlu founders have an engineering background and especially Haho has been working with assistive listening systems already before the founding of Qlu. The company can be defined as a social startup, because it is following a mission to improve the equality for people with hearing loss through their services. They are also addressing an issue, the quality of hearing loops, which has not been adequately addressed by other actors in the society, which is often the purpose of social companies (Wilson & Post 2013). We are also identifying the company as a startup because the company is growth oriented, aiming to become the number one expert in assistive listening technologies and service provider for hard of hearing people. Internationalization has been a goal of the company from the start. Thus far, Qlu has been operating in their home market in Finland, but they are actively seeking for international growth and are establishing connections in especially in the UK.

Qlu is a part of the hearing loop ecosystem which has participants ranging from individuals with hard of hearing to companies and worldwide organizations. We need to take a closer look at this ecosystem to understand how it can affect the development of the case company.

5.3 The hearing loop ecosystem

The hearing loop ecosystem has multiple stakeholders ranging from the public sector actors, such as healthcare professionals, to legislative authorities, companies in construction and audio fields, as well as associations, and individuals who are hard of

hearing. It is not within the frame of this research to try to identify all the stakeholders or try to draw a picture of them and their relationships or position in relation to the ecosystem. Rather the purpose is to describe the ecosystem, its participants and their interactions to recognize the challenges and opportunities in the ecosystem and to draw a picture of what implications these have for startup development as part of the ecosystem.

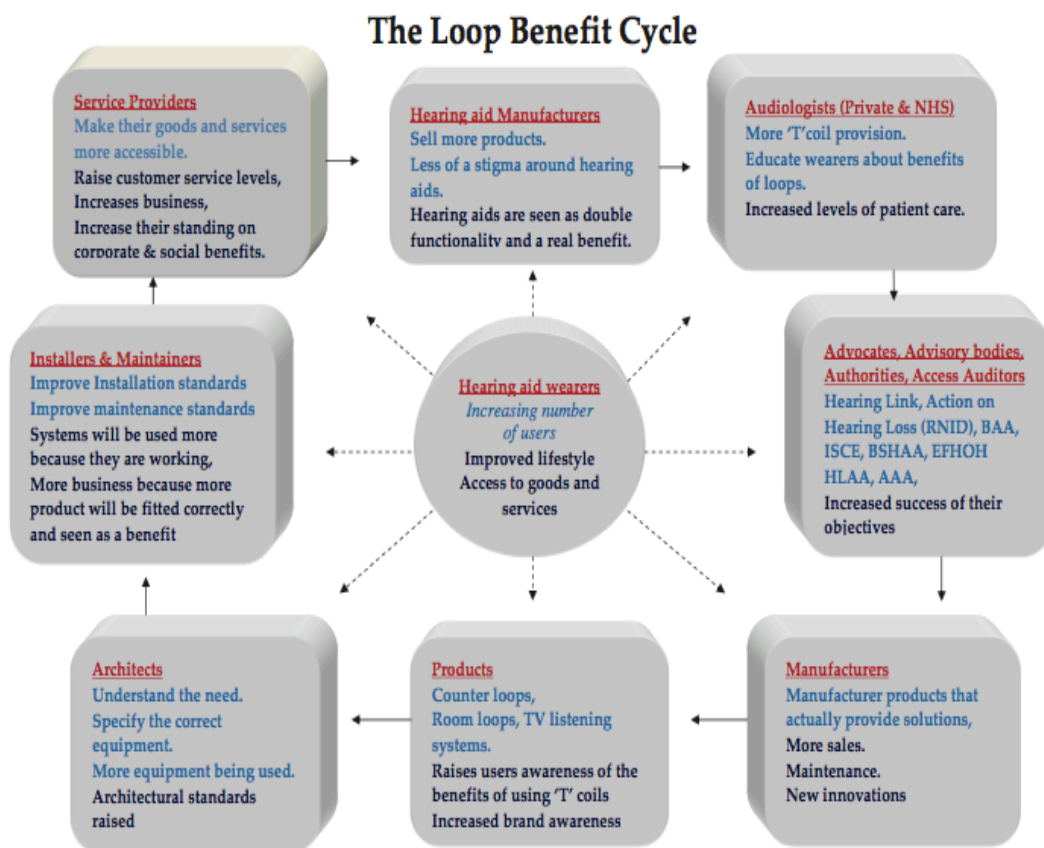


Figure 1 The Loop Benefit Cycle (Andrew Thomas, Contacta)

The Loop Benefit Cycle, which has been developed by Andrew Thomas, from Contacta, a UK based assistive listening device company, shows different stakeholders around hearing loops, how hearing loops affect their business, and how that affects the hearing aid users and vice versa. This figure depicts the interrelatedness of these stakeholders and the potential benefits that the increased use and awareness of a hearing loop can bring to the different stakeholders. It also shows how important it is for a company that is a part of this ecosystem to take it into consideration in planning and executing.

Viewing the ecosystem in light of the categorizations presented by Smith (2013), one could position the hearing loop ecosystem in the category of a community of destiny, in which participants are seen to organize around a central issue, in order to solve it through cooperation for the benefit of all the participants. This category is characterized by having no lead actor and no key assets that the participants all would take benefit from. This structure is somewhat similar to what Majava et al. (2016) reported as the ecosystem structure in their study.

Furthermore, besides being organized around a specific issues, the hearing loop ecosystem is also organized around the use of technology (the hearing loop and the hearing aid), which according to Weber and Hine (2015) is a characteristic that of business ecosystems, separating it from a natural ecosystem. It is also important to notice that the hearing loop ecosystem has important participants that are not-for-profit actors and individuals who however to a large extent share the mission of the companies that are involved in the ecosystem. They are all trying to enhance the quality of hearing for those who have are hard of hearing.

The hearing loop ecosystem can be considered on multiple levels. The ecosystem can be seen as a global system with a multitude of actors from different countries and it can be regarded as a national ecosystem with connections to other national as well as the global ecosystem. Within the larger ecosystem there is also the regional level. All these levels have different participants and different forms of cooperation and operation exist in different levels.

5.3.1 The hearing loop ecosystem on a multinational level.

On a global level, the assistive listening ecosystem mainly operates through associations of companies and people of hard of hearing, as well as professionals. In addition, international politics and international organizations such as the UN and the EU have an affect on the global assistive listening ecosystem.

The international federation of hard of hearing (IFHOH) is the primary “international non-governmental organization of national associations of and for hard of hearing people” (International Disability Alliance). On the international level there are also

the associations of hearing aid manufacturers and hearing loop manufacturers, as well as associations of professionals, such as hearing care professionals. These associations mainly work on their own agenda and cooperate with each other. They have members from different national associations and companies. For instance one of the interviewees is a member of the Danish association of the hard of hearing and through that has also been chosen as a member of the board in the European federation of hard of hearing.

Within the hearing loop industry, the associations of loop manufacturers have only been formed within the past few years and not all the companies belong one. Therefore, these associations have only recently begun to communicate with each other and are trying to develop a shared direction for the ecosystem. Furthermore, various stakeholders in the ecosystem do not have their own associations, and are therefore not included in these discussions for finding a shared vision or working together.

One of the ways in which these multinational stakeholders bring the ecosystem together is through conferences and declarations. The first international conference on the use of induction loops was held in 2009 in Switzerland and was organized by EFHOH. It had representatives from multiple stakeholders within the ecosystem, including hard of hearing organizations, hearing aid providers and industry, induction loop manufacturers, as well as hearing aid users. The participants came from different countries around the world. Most of the participants were reported to support the induction loop technology (Traynor 2011). The second hearing loop conference was held in Washington in 2011. More recently, a hearing loop conference was held, also in Washington, where a declaration, regarding the hearing loops, telecoils, and their use, was signed by several stakeholders:

“I represent EFHOH, but there is also IFHOH. And they, I actually went there and signed it, a declaration which we had in June, the Washington declaration. And that states that we must all have loop and telecoils activated. And then, parallel to that we should have FM or stream - - but this should be working parallel to the loop system.” (EFHOH member)

This declaration can be seen as a sign of finding consensus regarding the benefits and the demand for hearing loops and telecoils in hearing aids that allow hearing aid users to benefit from hearing loops. The next hearing loop conference will be held in October in Berlin. These conferences are venues for companies and other actors in the business ecosystem to interact and share thoughts and ideas about future developments as well as showcase their services, products, skills and knowhow, and create contacts and network. Several recommendations were made in the data for the case company to also partake in the next conference because of these opportunities that it can provide on the multinational level. This is one way that the company can be present and participate in the multinational level even if it does not belong to an association.

As mentioned, the multinational level actors, such as EFHOH have members that come from the national hearing associations. The national level is the next level of the hearing loop ecosystem that is studied more in-depth.

5.3.2 The hearing loop ecosystem on a national level

On a national level, participants range from national federations and associations to companies and political entities. In the UK, for example, there are two large national organizations that advocate for the people of hard of hearing: The Hearing Link and Action on Hearing Loss. These are basically not-for-profit organizations, but they also have business arms that aim at generating revenue for the organization. Thus, these organizations are different from the Finnish Federation for hard of hearing (FFHOH) for example, which is funded mostly by the state and does very little fund raising on its own. In addition, in the UK, there are companies that are influential stakeholders in the assistive listening ecosystem, some of which also operate on the multinational level. These stakeholders also work together to advance the use and quality of hearing loops and telecoils in the hearing aids in the UK.

On a national level, there is also a difference between countries on how frequent hearing loops and what has been the motivation to install them. Whereas in the UK, the loops have been and are in many occasions installed because of the legal requirement (which does not however specify what equipment needs to be installed,

just that the space is made accessible), in the US it seems that the installations are largely driven by the end-user and motivation is more on the moral side than the legal obligation. In the UK, it seems that in several places, as reported by the business development director, loops have been installed only to meet the requirements of the legislation, but they may not be accessible or maintained well:

“In the UK, I think it’s still, I think it will be challenging in the UK. Because people see buying, or putting assistive listening systems in is still, they still view it as something that’s more legislation driven as opposed to making themselves accessible and getting people to come in and use their services. So, by the very nature that it’s legislation driven, people get the cheapest.” (Business development director UK)

A similar situation is also present in Finland. In the US, this is different because most installations are driven by the request of the end-users, and motivations come from the will to do what is right, especially in churches, which have been one of the locations that have most widely adopted hearing loops in the US, as reported by the hearing loop advocate:

“And the nice thing about churches is that they want to do the right thing. So it's been relatively easy once the church understands, church council understands.” (Hearing loop advocate)

Even though the national level actors, such as FFHOH in Finland are leading the work on the national level, a great deal of the work is also done by regional groups and actors, for example by associations and individuals who are advocating for the installations of hearing loops or otherwise sharing knowledge on hearing loss.

5.3.3 The hearing loop ecosystem on a regional level

On a regional level, important actors include companies, local associations or groups, and individuals. There are actors, some of which are more and some less active. For example in the UK, a group in Swindon area is mentioned as being very active:

“And in particular there is one called Hearing Link that has started a campaign up, which is looking at getting local groups to start up a ‘Let’s loop’ -group, where they will go into their local community and test the loops out in shops, banks, churches, convention centers, where ever, which has started to gain

momentum. And I think in last December in 2015. There is a one particular group in Swindon, there's a town called Swindon in Wiltshire, that's the county ... They've been particularly active, and coincidentally, their member of parliament was the disability minister. So he got involved in the campaign. And he ended up writing to a number of high street retailers to say what they were providing wasn't good enough, which has helped to generate more interest." (Business development director UK)

The activities that are conducted on the regional level can help in national level advances as seen in the Swindon example, where the active work done by a local group resulted in advancing the agenda of that group and the assistive listening ecosystem on a national level. Thus, none of these levels of activity is working alone, the actors can act and affect on multiple levels both ways from regional to nation to multinational and the other way around.

Similar patterns of activity from national to regional level can be found also in other countries and regions. For example in Finland, most of the educational work is initiated and carried out by the local hearing associations whereas the national federation supports these activities for example by providing speakers to seminars. Furthermore, in the US a great deal of the work for advocating hearing loops is conducted by individuals in different regions of the country. In Denmark this regional dimension has lead to other regions having numerous induction loops installed whereas elsewhere FM has been used instead.

The complex structures of the actors, their activities and interactions on the multiple levels can be a challenge for both the ecosystem as well as individual actors within it. But because ecosystems have a common direction of development, besides sharing the goals and visions, they also share some challenges that are important to observe when participating in those business ecosystems.

5.4 Challenges in the ecosystem

“So the missing link are audiologists, the missing link are educated consumers, hearing aid users and their family members, who ask for the technology when they experience it. And that brings us to what we have really identified as the biggest issue in all of this: People don't understand hearing loss.” (Hearing loop advocate)

The assistive listening ecosystem seems to have a great deal of rather large challenges, ranging from negative attitudes towards hearing aids and lack of knowledge about them to underdeveloped infrastructure, that have also been noticed in the case company. To be able to grow and succeed, a company needs to be aware of these challenges and try to find ways to overcome them (Zahra and Nambisan 2012). Therefore, we will first take a look at the challenges that were identified in the interview data.

5.4.1 Attitudes

Disabilities and the need to use assistance in daily activities or even admitting to needing assistance can be difficult for people and it seems to be no different among people with hearing loss. Several interviewees reported on the unwillingness of people to wear hearing aids:

”So, and you’re not necessarily going to get them to wear a hearing aid. There’s lots of different reasons why they don’t do it. They don’t realize they’ve got hearing loss. They don’t wanna do it because it makes them feel old. And as a man who’s in his fifties, I’m one of those people that if I had to wear a hearing aid, would that be an admission of me getting old, probably. So I’m resisting doing that.” (Business development director UK)

One of the reasons mentioned in the data was that having to wear a hearing aid has a mental implication of being old. It is true that the majority of people with hearing loss are older people, because hearing, just as eyesight, tends to deteriorate with age. According to NHS, the hearing starts to deteriorate around 40 and at 80 hearing loss is often significant. Therefore, associating hearing aids with old age is likely to exist. This is a challenge for the ecosystem because the negative attitudes towards hearing aids and their use can be seen to affect the number of hearing aid users, one estimate by the Finnish otolaryncologist suggests that overall about 5-6% of people would benefit from wearing a hearing aid, but for example in Finland about 3% have hearing aids and that a maximum of 20% of those do not actively use their hearing aid. In addition to attitudes, not wearing a hearing aid might also be because of other reasons, such as not knowing that it would benefit you or not getting proper guidance on how it works and how to use it. This challenge of lack of information and

knowledge is identified within numerous actors that are important for the development of the ecosystem.

5.4.2 Gaps in information and knowledge

“Of course, there needs to be enough information at every step on the way to make these things work.” (FFHOH Expert)

The case company as well as other interviewees identify lack of information and knowledge on assistive listening systems and hearing loss in general as one of the largest challenges in the ecosystem. What makes the challenge even more complex is that the lack of knowledge that exists with multiple stakeholders.

First of all, most people with hearing loss seem to lack information and understanding on how the assistive listening systems could benefit them in their daily lives. For example, a great number of hearing aid users are most likely not entirely knowledgeable about the possibilities that their hearing aids provide for them both in public and in private locations. They might have never heard of telecoils or know how a hearing loop works with it, nor where they can find a hearing loop.

The lack of knowledge on assistive listening systems within people of hard of hearing can partially be a result of the limited information that has been provided by the professional that has fitted the hearing aids to the user, which was acknowledged in several interviews by audiologist as well as other actors. As the hearing loop advocate from US notes:

“... it's lack of educated audiologists, lack of audiologist who understand that whatever they do with the best of hearing aids in the world they are not gonna make their patients here normal, they never will. But, audiologists make a living selling hearing aids. And so, they have very carefully created or crafted a message to suggest to their patients that when they can't hear, it's because they don't have a good enough hearing aid.” (Hearing loop advocate)

Thus, the healthcare professional or the audiologist might also not have sufficient knowledge or information about hearing aids and the assistive listening systems. It is also claimed by the hearing loop advocate that some professionals are more

interested in the financial aspects than the overall benefit of the hard of hearing people. This implies that if advancements are sought in the ways that these professionals share information and knowledge on assistive listening devices and their benefits, which can be seen as benefitting both the case company and the ecosystem, it might be necessary to try to educate these stakeholders and possibly try to change their point of view. Also they should be able to recognize the benefits that can be created through the joint efforts to, for example promote the hearing loop, as indicated in the loop benefit cycle.

Furthermore, the challenge is highlighted by the lack of professionals that work within construction projects, who know about assistive listening systems. These range from public sector and company employees to decision makers and architects involved in the planning:

“One thing that we have been discussing with the boys, it has to do with exactly this that architects are one group that we should get on board. The education on acoustics for architects is, if not scant then nonexistent.”
(Otolaryngologist)

Because the information and understanding seems to be very limited on this level of the ecosystem, even new construction projects seem to not fully take into account the needs of people with hearing loss. This is not beneficial to either the company or the ecosystem as a whole and is one of the challenges in the ecosystem that requires multiple stakeholders to cooperate to overcome.

The lack of information and understanding is also affecting the sales and quality of assistive listening systems and their installations:

“I would have liked the salesman to go through an education, because sometimes they just come from some other area and they apply for a new job, nothing. But we have heard about wireless, and wireless is the new thing. So it must be wireless and Bluetooth, and we just have so many dropouts and interference from that kind of thing still. So that needs to be developed.”
(EFHOH member)

These challenges can be difficult to overcome as reported by the Finnish otolaryngologist who has been trying to advance the knowledge in hearing loss:

“Because somehow we need to increase the awareness. And I have been trying to talk about this to Kuulolitto (FFHOH). I have tried to talk about this to respected ex-colleagues at hearing centers. Once we got pretty far with the Lions. They are really the only one where the answer was something else that yeah, maybe yeah. But within the Lions, the Northern Finland section was totally ready when the federation then stated that this was not really within their interests.” (Otolaryngologist)

This example demonstrates the difficulty of trying to advance the knowledge on hearing loss and assistive hearing technologies. Even when you do get one or several people convinced and on-board it still may not be enough to guarantee success on a larger scale. Interviewees also mention that spreading knowledge and raising awareness is hard and time-consuming work. Often the people doing this work have other obligations, they may be doing this work voluntarily without pay, or their professional work may include several other obligations that may steer them away from advocating one specific cause.

In the assistive listening ecosystem, the not-for profit hearing organizations are important stakeholders in increasing the awareness on hearing loss and accessibility, but so are individual spokespeople as well as companies. For example in the US, the Hearing loop advocate has had a significant influence on the spread of information on hearing loss and the benefits of the telecoils and hearing loops. In Finland this work has thus far mainly been done through FFHOH and regional hearing associations. Of course important stakeholders in the ecosystem are also the hearing care professional, but it seems that in many locations, the information that is spread through them is very limited in regard to telecoils and hearing loops.

The lack of information and knowledge may have also lead to underdeveloped infrastructure when it comes to assistive listening systems. On a country specific level, there are significant differences on the extent to which hearing loops have been installed, the level of understanding about their benefits and how to use them. For example in the UK, numerous hearing loops have installed in different location around the country. Thus, the hearing loop is not a new or unknown technology there. In the US, in contrast, hearing loops have only been installed during the past decades and are available in some regions but in are missing entirely in others.

It seems that whereas in countries such as Finland and UK, where there are a great number of loops, the challenges come from the lack of understanding on how they work, how they should be installed, which results in hearing loops that do not perform on a very high level if at all (Traynor 2011). In the US, hearing loops are largely not understood and that instruction for how the telecoils work are limited which results in telecoils that have not been activated as well as problems with the use of hearing loops (Traynor 2011). The technology of hearing loops and hearing aids is also causing other challenges for the actors in the hearing loop ecosystem.

5.4.3 Hearing loop technology

Several reasons are holding back the successful spread of the hearing loop as a technology. Even though some actors are devoted to promoting the use and installations of hearing loops, also competing technologies are being used and installed instead of hearing loops. These technological solutions include FM and Bluetooth. As mentioned earlier, there are differences between regions on which technology is preferred, but according to the data, these differences are also present within different actor groups, for example within hearing care professionals, some of which favor support hearing loops and therefore the activation of telecoils in hearing aid, but some that favor other assistive listening systems.

Several reasons were suggested for why some other technology for assistive listening might be preferred over the hearing loop. As reported by the Business development director from the UK:

“I think there is a much younger, much younger people coming into the industry, the hearing aid industry, who believe that telecoil is an older technology and they don't understand necessarily the benefits that the technology can provide. So you tend to get the older people who worked the technology that are singing its praises, the younger people coming in looking at what other technologies are there that can be used and maybe not appreciating the benefit that could be provided by the (telecoil)” (Business development director UK)

Thus, the change in generation is causing a challenge for the hearing loop ecosystem, because the younger generation might be more prone to look for new technology and dismiss the use of telecoils and hearing loops as they do so. This challenge also has a connection to the lack of knowledge and understanding which can lead to preference for other more recent technologies because of their newness and not necessarily because they would have benefits over the older technology, such as the telecoils and hearing loops. The issue of the telecoil being an older technology was also pointed out by another interviewee, which also reveals one of the key challenges to overcome in the ecosystem – how to make the participants see the benefits in increasing the number of hearing loops and related technologies.

“And the hearing aid industry, the hearing aid companies, make more money selling Bluetooth, sexy solutions for hearing on your iPhone rather than talk about telecoils. Telecoils, that is old technology, you know.” (Hearing loop advocate)

Technological development is affecting the success of telecoils and hearing loops also because of the attitudes that people have towards the use of hearing aids as discussed previously. Because the use of hearing aids is still not accepted, the hearing aid manufacturers have a need to make the hearing aids smaller, as invisible as possible, which may encourage them to not include a telecoil in the hearing aid, which would make the aid bigger:

”When you look at the hearing aid industry, it’s an industry that is continually trying to make hearing aids smaller because of the issues around people not admitting that they are, admit to wearing a hearing aid. Many manufacturers in their effort to make the hearing aid smaller, forego the use of the telecoil, make the aid as small as possible.” (Business development director UK)

There are regional differences on how telecoils and hearing loops are regarded. This can be seen in some areas with people who have had the telecoils in their hearing aids activated as well as numerous hearing loops installed in spaces within that area and some areas where the telecoils are not activated nor are there hearing loops available or operational. This difference was reported in the UK as well as in Denmark. In the US active actors have promoted the hearing loop and therefore in their respective areas the hearing loops have gained more popularity and have

become more common. However, the hearing loop advocate notes on another issue relating to why the hearing loop may not always be the preferred technology:

“Installing hearing loops well, is what Americans say, not for the faint of heart. You know you gotta be a pretty motivated person to do that. And some audio guys would just rather sell better speakers, hanging on the ceiling or put in a new audio system.” (Hearing loop advocate)

Because of its technical requirements, the installation of a hearing loop is not as straight forward as that of a regular speaker. Without an understanding of the benefits it can offer to a person with hearing loss, it can be understandable that a person doing the installation would prefer something less demanding, or the customer something less expensive. The technology also limits the way the hearing loop can be installed in spaces that have already been built:

“And especially when we think about these loops, well these have certain restrictions, so you, they cannot be installed on top or right next to each other or in whatever way because there can be what is called crosstalk and this can be eliminated by certain technology. But the thing is these installments need to be done in the early stages when starting construction. So for that reason, it would be good to have the information from the beginning.” (FFHOH expert)

Thus, number of challenges can be related to the attitudes and knowledge of people and to the position and requirements of the technology of hearing loops and also hearing aids. However, the data also showed that the ecosystem itself was not necessarily operating together as well as it could have.

5.4.4 Fragmentation of stakeholders

One challenge in the assistive listening ecosystem that emerged from the interview and has also been acknowledged elsewhere (e.g. Traynor 2011) is the scarce communication and cooperation between different stakeholders. This has been noticed also in the case company:

“I was also a little bit surprised by the fact that [FFHOH] are good at lobbying through these international federations, but then cooperation in which there is a campaign in one country that works well that it would be taken to other countries. So they just do it by themselves, there was not a sense like elsewhere that if someone comes up with something good, they don't compete with each

other, and it's shared with others and they can develop it and utilize that idea. This did not seem to happen at all, which was kind of peculiar." (Qlu business development manager)

As mentioned by the company representatives, the information sharing, regarding for example a successful campaign in one country, is very limited if even existent. Thus there is a need for more information sharing and recommendation creation on a global scale within the ecosystem, as also pointed out in an international hearing loop conference in 2009 (Traynor 2011). As mentioned earlier, the different stakeholders on the hearing ecosystem have only recently begun to form associations through which they can communicate and cooperate.

Even within one organization, there are people, or different parts of the organization, that have their own specializations and interests, and the communication may not be very efficient. This causes challenges in spreading information as well as convincing those organizations, because while one member may support your ideas and understand them, another may not. This can happen in public organizations as well as in different not-for-profit organization. Furthermore, this is can also be one of the reasons for why doing business can take a long time, because it slows down the process.

5.4.5 Slow decision making process

Especially in the public sector the decision making process can be slow due to the multiple stakeholders and levels involved in the process or even the suggested unwillingness to bring the process forward:

“In the public sector one big challenge is that doing something can always be lost somewhere in the organization and in the end no one knows where it is going. Unless someone get very excited about it.” (Otolaryngologist)

For example in a construction project, as the data suggests, the challenges arise from several points in the process. For one, the accessibility matters need to be considered already at the very beginning of the project, at the planning state, so that the needed finance is allocated for the accessibility related construction planning and execution. This in turn requires the people who are involved in the planning, including the

architects and the decision makers, to understand hearing loops and understand the needs of hard of hearing people. Even if the company would get their service into the plans for construction, it has to be made sure that it persists even as the plans proceed and become a reality. However, even if the company is able to affect the decision making in the first place, it might take a long time before the company is able to benefit from it financially.

In the not-for-profit organizations the decision making may be slowed down by the lack of information sharing between different parts of the organization. If you are in contact with one part of the organization this does not automatically guarantee that other parts of the organization would hear, understand or welcome your ideas. For a startup this can be a difficult arena to work in because they are often struggling for finance and cannot wait for the decision for years.

All in all, several challenges can be found in the hearing loop ecosystem, which affect the participants in different ways. For people with hearing loss, these challenges can show in limited accessibility at public venues or limited understanding on how to cope with hearing loss altogether. For a startup, these challenges can create business risks but more than that the realities of the ecosystem need to be taken into account in the strategy making of the startup. Thus, besides acknowledging the challenges that are present in the ecosystem, it is important for a startup to find ways to turn these challenges into actions that can create value (Zahra & Nambisan 2012). After looking at the ecosystem, how it is constructed and what challenges it has, we can turn to look at how these affect the development of a startup, and how it can benefit from participating in an ecosystem.

5.5 Startup development in the hearing loop ecosystem

The specific context of the hearing loop ecosystem affects the startup development as a part of that ecosystem. Previous studies have noted that it is important for a startup to see where it is positioned in the ecosystem as well as how the ecosystem is evolving to overcome the challenges but also to take advantage of the opportunities (Zahra & Nambisan 2012). After drawing a picture of the ecosystem and the

interactions within it as well as identifying some of the challenges of the ecosystem we can turn to look at what kind of implication these have for startups.

The business ecosystem can provide opportunities for a company that it would not have if it were operating alone (Moore 1993). In a business ecosystem, working together with other participants is crucial for the development of the company as well as for the well-being of the ecosystem. Previously opportunities such as working entrepreneurially (Bailetti 2012) and finding partners, resources as well as information (Zahra & Nambisan 2012) have been identified in business ecosystems. Furthermore, networks have been found to increase company survival and success (Lin & Lin 2016) and they affect company reputation building (Helm & Gray 2009) and brand (Mäläskä et al. 2011).

When we look at the hearing loop ecosystem from a startup point of view, several aspects can be seen to affect the development of the startup in the ecosystem. For one, the way the ecosystem is constructed and held together affects the way a company can and should interact and act as a part of it. Secondly, we see that one of the specific characteristics of this ecosystem is the involvement and importance of multiple not-for-profit actors, which bring their own special character to the ecosystems. Thirdly, the challenges that are present in the ecosystem will have to be taken into account and suitable ways for approaching those challenges need to be developed in cooperation with other ecosystem actors. It needs to be noted that a startup alone cannot tackle these challenges but can be a part in helping the ecosystem to overcome them as well as benefit from the activities that are conducted by other ecosystem actors. Finally, we can recognize the possibilities for business development as a business ecosystem participant through building the company reputation and brand, and creating demand in cooperation with and through the actions of other ecosystem actors.

5.5.1 Ecosystem structure and startup development

The data revealed that the hearing aid ecosystem has different levels and geographical dimensions, which make participating in it more complex. These dimensions have an effect on how a startup can and should participate in the

ecosystem, how much information is available and also on the opportunities for interorganizational learning that is important for a startup (Bruneel et al 2010).

For a small company the different levels within the ecosystem can indicate the need to consider the means of participations on different levels of the ecosystem. When looking at the case company, we can identify it as being part of the national ecosystem in Finland, but also working together with both national and regional stakeholders within the country borders. However, as the company expands to other countries, it will need to consider the specific circumstances of the ecosystem on different levels in those countries and different regions that it is operating in. Furthermore, the activities on the international or global level should also be taken into account to benefit from the advances and to be involved as an active participant to affect the direction of the entire ecosystem.

While startups more easily can have an effect on a regional and national level, if they aim to become a global player, they need to be able to be a participant or be present also on the multinational level of the ecosystem. Because the hearing aid ecosystem on that level largely operates through associations and larger political actors, it can be considered important for the startup to either become a member of, or at least establish close relationships with the stakeholders in relevant associations. This allows them to participate in and influence the larger scale ecosystem development, as well as gives them a presence on the global marketplace. In addition, by building relationships with actors on the multinational level, the company can gain important information (Wu & Luo 2007). In light of the case company, it should be noted that there may not be an association in existence that would best serve their needs. Therefore, the need to establish one with other companies on the field could be considered.

The differences that were recognized on the activity of actors as well as the overall attitudes, knowledge and understanding on hearing loops and telecoils on national and regional level also have a significance for the development of the startup. It can be expected that on the areas where there is more activity around hearing loops and more active people or groups, the company may benefit in several ways. For one, there will be more potential customers who are more aware of the benefits of the

technology. Secondly, more potential partners are likely to be found on the areas where the activity is higher. Also, actors on those areas are expected to share the mission of the case company, which can help in establishing relationships.

Thirdly, more information on the market and potential customers is available on regions where the actors are more active and have been engaging in interactions with the end-users and other ecosystem participants. Therefore, interorganizational learning about the markets is likely to be more efficient and more beneficial for the case company. Interorganizational learning is especially important for startups because they may not have a great deal of organization level experiential knowledge (Bruneel et al. 2010). Zhou et al. (2007) also note that different actors are important sources of information on market opportunities for companies. Efficient information gathering can also help the startup reduce uncertainty that is related to international markets (Buckley & Casson 1998). Therefore, targeting the regions where the attitudes are more positive and awareness as well as activity are higher, and increasing the support for the company and their services there, as suggested by might be a better option for a startup than entering a market with less active actors. This is important to create a favorable environment for what the company is offering before the market entry (Rong et al. 2015). This can be seen to be especially true with a service like the case company's, which is tied to another technology product without which there is no market for the case company's service.

The differences in the initial motivations for loop installations have also implications for company development in different areas. The markets are different in different countries, and therefore the approaches to those markets may need to be different as well. Whereas in the UK, the installations have mostly been made because of the legal requirements, the potential customers in the UK are also expected to a large extent to be very price sensitive.

In the US, hearing loops have been installed especially in churches. This is on the one hand because church is a very important venue for most Americans and one place where it really makes a difference if you can or cannot hear well. On the other hand churches can be persuaded by the members of their congregation based on their will to do good. Also, individuals will donate money to churches to support for

example the installation of a hearing loop. However, the installing hearing loops in churches can have effects on a larger scale as the hearing aid users experience the benefits of the loop:

“So if we foster loops in churches, then people go: Hey why don't we have a hearing loop at the senior center? Why don't we have a hearing loop at the retirement center? Why don't we have... So you can't just focus on one thing.”
(Hearing loop advocate)

Thus, as suggested by the Hearing loop advocate, churches are a good starting point in the US, but one needs to include other venues as well. However, in each market it can be seen as beneficial for the company development to try to identify the venues where most people will benefit from the hearing loop. Also, the differences in motivation need to be taken into consideration, when selling and marketing one's product or service in those areas.

All in all, the different levels of activity, different participants and differences in attitudes and knowledge as well as motivations on national and regional levels require the startup to adjust its actions and ways of interaction as well as affect its opportunities to gather information and find partners and enter networks which are important for its development (Knight & Cavusgil 2004). However, in the hearing loop ecosystem, there are also other characteristics that influence the development of a startup. The large number of not-for-profit actors is an important factor that has to be taken into account and has its own affect on the startup development.

5.5.2 Working together with not-for-profit actors

When working together with not-for-profit actors, there are some differences in comparison to working with other companies. The data revealed that while the not-for-profit organizations are willing to work together with companies, there are liabilities such as the rightfulness of activities that need to be paid specific attention to. In addition, the not-for-profits also have differences between them and their resources, which affects for example the extent to which they can be active in promoting the hearing loops, and therefore opening the market for the case company.

In Finland, Qlu has been cooperating with FFHOH from the start. While the cooperation between not-for-profit organizations and companies that are for-profit actors can sometimes cause speculations about the fairness and rightfulness of the activities, the FFHOH expert notes that this has not been an issue when working together with Qlu:

“And then, for example, while we’ve been working together with Qlu, well, we don’t have any financial ties between us. Like Qlu does not pay us any kind of sponsoring money to then advertise them, and we don’t pay them any kind of grant money or similar. And therefore, in this situation this kind of cooperation is totally, one could say, clean.” (FFHOH expert)

The FFHOH expert notes that the fact that no financial exchanges are made is one of the factors that make the cooperation between these two actors transparent and acceptable. In addition, he notes that the FFHOH needs to be fair towards all interested parties, they cannot choose to work with only one company. As mentioned by the Qlu CEO it is also very important to keep the activities “clean” to keep the company reputation in line with the social mission of the company, which has also been acknowledged as important for social startups by Jenner (2016). This way one can ensure the building of a sustainable business, based on solid and unified foundation. This is also important for company reputation (Helm & Gray 2009).

While in Finland the FFHOH seems to be limited by its resources, and therefore the cooperation and the ways it can help for example in raising awareness on hearing loss is limited, in the UK, where the Hearing loss organization are operating differently, these organizations may have more resources that can be used for awareness raising and creation activities. However, the larger the organization, the more work may need to be done to persuade them to cooperate with the company. Also, these organizations have their own agendas and distribution of resources, which have been decided earlier and therefore making changes may not be fast:

“So, you may show it to some part of that organization, who go, it’s great. But whether or not that fits in with what the plans are for the product sales, might be different.” (Business development director UK)

All in all, working together with not-for-profit organizations is an important way of developing the kind of social business as Qlu is. While in some ways the ways these associations and other organizations differ from companies, in this ecosystem they are all still to an extent working towards the same goals, and the benefits from cooperation are not only mutual but ecosystem wide. Therefore this kind of cooperation should be sought for from both sides. Together with these actors, the startup can also approach the other ecosystem challenges that were identified, such as overcoming the gaps in understanding what hearing loss is and how assistive listening technologies can benefit people with hearing loss.

5.5.3 Increasing information and knowledge

One of the most compelling challenges in the entire ecosystem is the low level of awareness on assistive listening systems and hearing loss. It is important for participants in the ecosystem to increase the awareness to create demand and improve the business opportunities of the ecosystem. In addition it is important from the social aspect that most stakeholders in this ecosystem share. Increasing the awareness on hearing loss, affects the companies because the more people know about it, the easier it is to make them see the value of the products and services but also the more the users will demand those products and services. If a person does not understand hearing loss or assistive listening systems or see their benefits, the company has to work a great deal harder to sell their product or service to that customer, as also pointed out by the company business development manager:

“As service sales it is not very much different. But in Finland the situation is in my opinion unique because you have to be the missionary here and tell people that this is important to start with and that you have to do this. So the affection has to go very deep to make people even see that this kind of business exists and that these kinds of things should be done.” (Qlu Business development manager)”

In addition, increasing awareness benefits all the stakeholders in the ecosystem, improving the health of the ecosystem.

A startup can also take part in this educational work, either by building its own awareness raising means or by recruiting others to do this work with them, giving

them the tools to do it. Though this kind of educative work can be time consuming and it does not necessarily show significant financial returns immediately, participating can still be seen as beneficial for the startup because of the larger scale effects of increasing the knowledge and familiarity with the issues and also the company and its services as well as identifying the company as an expert on the field.

It should also be noted that because of the similar goals of the ecosystem participants, it can be expected that partners for cooperation on these projects can be found, as long as their resources permit. Cooperation in these activities will also offer the case company the opportunity to learn from others and exchange knowledge, which is important for startup development (Bruneel et al. 2010). However, as this is a long-term activity, the company may have to look for other strategic actions in order to secure also being able to stay operational in the short term. Thus, educative work needs to be done and if a company wants to develop its position on the market it needs to do its part on educating to create demand and to increase the market size.

There are different ways through which the awareness raising can be done and different stakeholders have different ways of affecting it. Within data, several ways were identified for increasing awareness within, and even beyond, the ecosystem. These include participating and presenting in conferences, initiating and participating in research projects, writing and publishing articles, communicating through the Internet and especially social media, creating teaching materials and tutorials, providing training, and doing one to one work with people, educating them.

On a field such as this, with important stakeholders having hearing loss, visual messages are important. Therefore social media and the Internet as well as can be an important way of communicating ones message. The potential audience that can be reached via these channels is, for example in Finland, in theory almost the whole population. The EFHOH member specifically suggests that more work should be carried out through social media:

“Facebook is a gift for people with hearing loss, because certainly we.. that would be another thing for you also, to use Facebook with Finnish association

on Facebook and things like that.. So, advertise and inform that you are there, and the need of quality, and the state of quality. And I also see hearing aid companies, they put in adverts on Facebook. So that way around you could make information about what do you need to ask when you have a hearing aid...” (EFHOH member)

Using the Internet and social media are furthermore rather inexpensive means of spreading information, even though active presence in social media does require some resources from the company. A company can also use these channels to share their corporate stories which is important for branding purposes (Helm & Gray 2009)

Another way that other ecosystem actors have been able to demonstrate the benefits of hearing loops and to showcase how they work is by setting up spaces where people can experience what the loop is like:

“But that would also be an idea in Finland to have something set up or just to make seminars, for both the professionals and the users and show them, this is what happens and this is what happens to the sound if you set it up like this and this is another set up and then this happens, so that you learn this. I know that they have done this in Sweden for the hearing engineers. They did a seminar and set up different systems and so while they were listening to a speaker they were listening to a system for many many hours a day. And then they realized drop outs and things like that in different systems.” (EFHOH member)

These have been found to be good tools for making people understand how the loop works when it is installed properly and to increase the knowledge and understanding on them as also noted by Woodgate (2016). Similarly the case company could set up this kind of environment or initiate for the setting up one or several. This would then allow the company to also showcase their services simultaneously as the people would get more familiar with hearing loop.

One company can be active in all of these areas, but this requires time and resources. Working together with other ecosystem stakeholders is an important way off sharing the workload and improving the results of these activities. The activities around increasing knowledge and information can also have a positive effect on the marketing of a startup.

5.5.4 Marketing and creating demand

Working together with other ecosystem participants can help a company in its marketing efforts in terms of branding (Mäläskä et al. 2011) and reputation (Helm & Gray 2009) and be a means of creating demand (Rong et al. 2015). Qlu has successfully marketed its service with the help of FFHOH and the local groups in Finland. These active groups have created an information source for the company on where to aim their marketing efforts by reporting on how loops are working in different locations:

“We have been contacting ourselves, but now during the last six months we have got some good leads from the local organizations of Kuuloliitto (FFHOH). In other words, the apostle work that we have been doing has started to bear fruit pretty nicely in that from certain active hearing association areas we have gotten many (leads) that have lead all the way to sales.” (CEO Qlu Oy)

Because those branches are active in the local areas, they are able to inform the Qlu about local business opportunities and give first hand information on the conditions of the potential customers. The individual members of these branches are also often the end-users of the service and thus, Qlu is able to create demand on the end-user side as well.

Also, FFHOH is creating demand for Qlu’s services through referrals when they get inquiries about accessibility in hearing environments. The FFHOH employee actually points out that the Qlu is an answer to a need of FFHOH to perform quality checks on hearing loops:

“One example is this that when these loops are installed it has long been in the construction instructions that Kuuloliitto (FHOHH) will then perform this kind of an inspection on whether it is ok. And really, we do not have resources for this that we would go and check out loops here and ther. So I have been very grateful that there is a company like this now that does these and I can direct there for inquiries about this service.” (FFHOH expert)

In addition to referrals for customers, the FFHOH expert mentions that he also recommends Qlu for their expertise, for example when asked about who should participate in drafting the construction instructions on hearing loops in Finland. This

is a valuable way for a startup to build their reputation and brand as well as to create some word-of-mouth marketing. The FFHOH expert as well as other recognized actors in the ecosystem can help in the building of the brand image for the company, and the company should try to mobilize these actors as suggested by Mäläskä et al. (2011).

The data also relates demand with acceptance of hearing aids and their use. If hearing aids are more accepted and the stigma that has been and to some extent still is associated with the use of hearing aids can be decreased it is assumed that the use of hearing aids will increase which will result in more demand for better quality and increased number of hearing loops. Overcoming negative attitudes towards hearing aids is another challenge that the case company can take part in tackling, but also benefit from. Thus, again there is a double-sided effect on the company development. For one the negative attitudes can slow down and limit the market for the company but the work that is being done to improve this can also benefit the company. In addition, the company can participate in the work, which can also affect its brand and reputation.

Working together with other ecosystem actors in creating information and knowledge can also be seen as a way of creating demand and also create a brand for the company as an expert on hearing loops and accessibility regarding hearing loss. The construction instruction drafting that Qlu is taking part in can be seen as an example of this. In addition, the planned cooperation in research as reported by the EFHOH member with universities in Scandinavia are ways of showing the expertise of the company and grow the company reputation and brand. This can also create demand because it is expected to increase the knowledge and understanding about the issues related to hearing loss:

“And it’s really this kind of an entity, all the apostle work, and work with Kuuloliitto and social media, that we must create noise so that these matters will become publicly acknowledged and then these things will start to untangle. And I hope that this will show in more and more contacts coming our way and not the other way around.” (Qlu development manager)

As one of the interviewees mentions, doing this work of raising awareness and educating people and other actors about hearing loss and hearing loops is expected to make it easier to further the cause in the future:

“But so what we are doing, is in effect making hearing loss an issue of concern, you know. My church knows they have to have something for people who are hard of hearing. And right now hearing loops are it. And they spent 40 000 dollars doing it. This is not cheap. And if ten years from now something new comes out, my church will jump right on it. Because they know how important it is. I've shown them how important it is, I don't have to convince them again.” (Hearing loop advocate)

This can make business easier also for Qlu, because it is assumed that the work that is being done now will make it easier to convince those that adopt hearing loops as a good solution now about further developments in the coming years. However, Qlu might be able to benefit from the positive atmosphere that has been created already and combine this in their marketing efforts.

All in all, we can see that the ecosystem can influence startup development in various ways. The hearing aid ecosystem involves actors from individuals and not-for-profit organizations to companies and political influencers. All participants are more or less aiming for a united goal, which was shown in a concrete form by the Washington declaration. They are also working together for example through worldwide conferences and multinational associations. However, tighter cooperation would also be needed within the ecosystem and its participants. In this study we consider the ecosystem on different levels, which highlights the different participants in each level (or region) and the differences that are present in these levels, which can be seen to affect startups and how they can and should interact and participate on those different levels of the ecosystem.

One characteristic of the hearing loop ecosystem is the involvement of multiple not-for-profit actors. Even though challenges, which a company needs to consider, in working with these actors can be identified, these actors are also identified as doing a lot of work for advancing the hearing loss related awareness and sharing information. In some countries and in some areas these actors are more active than others. For the case company this can have an affect on which markets to pursue (at first). It can be

expected that on areas where more active actors can be found, cooperation may be more fruitful as well as customer may be ready for their service. Working together with organizations such as the different associations for hard of hearing agrees with the social motivations of the case company, and can have a positive effect for the company brand and reputation. Looking at this from another perspective, working together with a social startup would seem natural to associations that are share the same goals.

Most challenges that were identified in the ecosystem can be connected to the lack of information, knowledge and understanding on hearing loss, hearing aids, and hearing loops. While some participants acknowledge the benefits that hearing loops can have for all the ecosystem participants, from better accessibility to more business, a great deal of work still needs to be done by actors to convince others about these benefits. It can also be noticed that the level of knowledge and also level of support varies from one country to another as well as from region to region within those countries. Also the technology of hearing loops, mainly because of its identification as “old” and the complexity related to its installation in comparison to some other assistive listening technologies is a challenge for the actors in the ecosystem. These challenges relate to the low number of loops as well as the recognized low quality of loops or their installations.

When these challenges are studied from the case company point of view, a company whose main service is dependent on hearing loops, it can be seen that these challenges affect the company development in several ways. Even though, as pointed out by the interviewees, the service that the company is providing is something that is seen as useful and welcome and even expected, selling the service is not very easy. Because of the lack of understanding and knowledge, the company has to do a lot of convincing and educating of potential customers before the customers can see the value of their service. However, the company can also benefit from the educative and information spreading work that is being done in different areas by other ecosystem actors, as well as find partners for cooperation in for example marketing their service.

Thus, a startup should indeed take into account its ecosystem and its position within it because of the affect that it can have for the development of the company. These considerations can offer the company insights on which market areas to pursue and what kind of connections interactions and ways of persuasion might be most important efficient on different areas of the ecosystem. Furthermore, working together with other ecosystem participants can be an important way for a startup to develop the company business, in terms of marketing and creating company brand, as well as creating demand for their service.

6 CONCLUSIONS

The purpose of this study was to find out how business ecosystems affect startup development. This is a current topic because startups have become more numerous and their effect on the economy these days is great. It is important to focus on these small companies and their development to offer not only theoretical insight on how these companies develop but also to insights based on reality that are useful for the managers and management teams of these companies when they are drafting strategies and planning and operating within the complex international environment of today.

The ecosystem viewpoint has become popular in the recent years since its introduction in the business research in the 1990s. The concept of a business ecosystem is a useful way of looking at the complex environment that companies are operating in today (Peltoniemi & Vuori 2004). In this study we use the definition by Peltoniemi and Vuori (2004: 13) which regards the business ecosystem as “a dynamic structure which consists of an interconnected population of organizations”. We also include individuals in to the concept of ecosystem as suggested by Zahra and Nambisan (2012). Because of the interconnectedness of the actors in an ecosystem also the network discussion is considered relevant for this study, because it shows how actors are connected to other in networks of relationships in which the action and interactions affect the actors as well as the their action and interactions (Johanson & Vahlne 2011). In ecosystems however, all the actors are not necessarily a part of the same network but are connected by for example technology (Weber & Hine 2015) or a central issue or cause (Smith 2013), which is also true for the hearing loop ecosystem that is studied here.

Business ecosystems have received attention in the recent years, but mostly from other than the small company point of view (Muegge 2013). Therefore, there is a need to study the ecosystem from a startup point of view and to provide insights for startup management that are trying to grow their business and internationalize (Bailetti 2012). This study answers these needs by incorporating the small company view into the study of the ecosystem that the company is a part of. One important aspect that also is discussed in this study is the ecosystem participants that are not

technology companies (Weber & Hine 2015).

This study also increases understanding on how startups are able to grow and internationalize by looking at this from the ecosystem point of view as suggested by Cavusgil and Knight (2015). In addition, interactions between not-for-profits and for-profits have not received much attention in studies, despite the fact that this study shows them to be one of the most important actors affecting startup development in this ecosystem. Furthermore, the different levels of ecosystems and how they affect startup development have not been discussed elsewhere.

6.1 Findings of the study

The data shows that the hearing loop ecosystem is different on different levels of the ecosystem, not only because of the different participants, but also because of the different ways in which they interact and connect, how well hearing loops have been included in the infrastructure, how participants view hearing loops and their benefits and how much they know about them, as well as what drives the increase in the (quality) of the hearing loops.

These ecosystem characteristics and differences have several implications for a startup that is a part of the ecosystem. First of all, the startup need to take into consideration the different ways that are needed for interaction on the different levels as well as the different motivations that the actors may have when establishing connections and promoting their business. Also, the startup needs to consider their need to be present on these different levels and identify networks that are needed to operate on the different levels.

Secondly, a startup should take the differences in attitudes and levels of knowledge into consideration when planning a new market entry. It can be expected that on areas where the knowledge is on a higher level and attitudes are generally more positive towards the specific technology, it will be easier or in the least less resource consuming to conduct business. Furthermore, these differences are present on the national as well as on the more narrow regional level. Information about these differences can be gathered through other actors in the network of the company as

well as through other ecosystem actors. Thus, this supports the view of ecosystems and networks as sources of important information for companies (Moore 1993, Wu & Luo 2007, Lin & Lin 2016), but also adds another dimension that is the regional differences that can be found in the availability of information.

This study also suggests that the activities and actions of other ecosystem actors can also indirectly affect the business opportunities and development of a startup. When different actors engage in the awareness creation and knowledge spreading activities in their own regions and countries, this is also creating the market and creating the customer base as well as the demand from the end customer side for the case company. Thus, the findings by Rong et al. (2013) about the possibilities for creating demand through business ecosystems are also supported. However, we find that the possibilities are created also without the direct involvement of the company and that the case company would be well advised to follow closely how the information and knowledge is spreading when planning its own actions and activities. This study also shows that through participation in the efforts to increase information and knowledge a startup can also enhance its position as an expert within the ecosystem and also outside of it and therefore enhance its brand and reputation. We also recognize that the ecosystem and the actors within it can have an effect on which medium it the most suitable channel for spreading information or marketing. Therefore, the business ecosystem characteristics also affect the communications of the company.

In addition, this study offers support to the findings of Majava et al. (2016) whose study showed that business ecosystems are sometimes constructed from different actors, none of which is however a clear lead actor within the ecosystem. The ecosystem in this study also resembles what Smith (2013) described as a community of destiny, also characterized by the lack of a lead actor and instead organized around a key issue, which in this case would be the need to offer solutions for accessibility for people with hearing loss.

All in all, the results of this also support to the previously recognized benefits that companies can get by taking part in ecosystems (e.g. Moore 1993, Iansiti & Levien 2004, Rong et al. 2015, Weber & Hine 2015), and the views that companies need to know their ecosystem in order to benefit from it (Smith 2013, Weber & Hine 2015)

and match the actions and strategy of the company to the realities of the ecosystem (Zahra & Nambisan 2012).

6.2 Limitations of the study

This is a study on a particular startup in a certain ecosystem, which has its special characteristics. Because of the context dependency these results can be seen as describing well this specific ecosystem and its participants, but more studies would need to be conducted to see if similar challenges are present in other ecosystems and to relate them to the development of startups in those ecosystems. However, on a general level, one can generalize the results, even though the actors that are involved may be different from ecosystem to another.

The data for this case study includes interviews from several stakeholders in the hearing loop ecosystem. The fact that the interviewees present different actors within the ecosystem and also have different nationalities increases the generalizability of the results of this study. We are also able to compare the narratives of the interviewees with each other and look for discrepancies, to increase the reliability of the results. Also, secondary data in the form of articles and webpages is used to support the analysis and make the observations more reliable. However, because all the interviewees were a part of the same ecosystem and had similar interests, they may represent a slight bias in the data. It would be interesting to include other actors from outside the ecosystem and study if their views differ from those that are presented in this study.

6.3 Value of the findings and suggestions for further studies

The findings and suggestions of this study can be utilized by startup managers when they are planning the development of their companies. This study will help startup managers to identify the important aspects of their ecosystem and to take them into consideration. It also offers concrete examples of how to develop a company as a part of an ecosystem. Also, future studies on business ecosystems and startups can use these results as a starting point when looking at the phenomena that are related to startup development in business ecosystems.

In the future, more studies could be conducted on the interplay between ecosystems and startups. One interesting topic that was touched upon here was the relationship between companies and not-for-profit actors, which could be expanded further. Models could also be developed on what concrete actions startups should engage in in order to benefit from business ecosystems. In addition, it would be interesting to look at the different levels of ecosystems and how startups are able to navigate through those.

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