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Tiina Tuominen

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Tiina Tuominen

STAKEHOLDERS' VALUE EXPECTATIONS ON DIGITAL OPEN INNOVATION PLATFORM

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Supervisor / Examiner: Professor Kirsimarja Blomqvist
Examiner: Post Doctoral Researcher Laura Olkkonen

ABSTRACT

Author:	Tiina Tuominen
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As a matchmaking tool digital open innovation platform creates new potential for companies to enhance open innovation. It allows to research value creation in different phases of collaboration. In computer-mediated environment the role of trust has at least three different dimensions: trust between persons and between organizations, and trust to the system. The main objective of this qualitative research is to create a holistic view of value expectations of the stakeholders on a digital open innovation platform. The second objective is to study how and why different stakeholder value expectations differ from each other. The third objective is to research how a matchmaking platform provider can create value for diverse stakeholders. The fourth objective is to study, how a matchmaking platform provider can build trust among its stakeholders.

Findings indicate that value creation is a dynamic process and varies in time. Value creation is challenging. Stakeholders' value expectations depend on both their business maturity and goals. Expectations can vary in each three phases of the collaboration: in the beginning, during and after the collaboration. A platform provider can create value for diverse stakeholders by knowing their needs. In a short-term, value expectations rely on the personal relationships, practicalities of a platform as a tool, new network opportunities, cross-industry connections, learning aspect and active communications. Firms are interested in counterparties with a good reputation and successful open calls which provide good results and references. In a longer-term, firms are seeking a global reach, wider networks and business opportunities. Platform as a strategic partner means availability of expert and support services for its stakeholders. Trust is a critical factor in each phase of collaboration, and interpersonal, interorganizational and impersonal levels. By offering right competences, wider global network, additional support services and a reliable workable system a matchmaking platform provider can build trust between the stakeholder groups in the platform.

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Digitaalinen avoimen innovoinnin alusta on kiinnostava työkalu, joka luo yrityksille uusia mahdollisuuksia edistää avointa innovointia. Se antaa mahdollisuuden tutkia arvonluontia yhteistyön eri vaiheissa. Tietokoneavusteisessa toimintaympäristössä luottamuksen roolilla on vähintään kolme erilaista ulottuvuutta: luottamus ihmisten ja organisaatioiden välillä sekä luottamus järjestelmään. Tämän kvalitatiivisen tutkimuksen päätavoitteena on luoda kokonaisvaltainen näkemys sidosryhmien arvo-odotuksista digitaalisella avoimen innovoinnin alustalla. Toinen tavoite on tutkia, miten ja miksi erilaisten sidosryhmien arvo-odotukset eroavat toisistaan. Kolmas tavoite on tutkia miten välittäjän roolissa toimiva taho voi luoda arvoa erilaisille sidosryhmille digitaalisella alustalla. Neljäs tavoite on tutkia, miten välittäjän roolissa toimiva taho voi rakentaa luottamusta sidosryhmien keskuudessa.

Havainnot osoittavat, että arvon luominen on dynaaminen prosessi ja vaihtelee ajassa. Arvon luominen on haastavaa. Sidosryhmien arvo-odotukset riippuvat sekä yrityksen kehitysvaiheesta että tavoitteista. Odotukset voivat vaihdella yhteistyön kolmessa eri vaiheessa: yhteistyön alussa, sen aikana ja sen jälkeen. Välittäjän roolissa toimiva taho voi luoda arvoa eri sidosryhmille tuntemalla heidän tarpeensa. Lyhyellä aikavälillä arvohyödyt nojautuvat alustan tarjoamiin henkilökohtaisiin suhteisiin, digitaaliseen alustaan käytännöllisenä työkaluna, uusiin verkostoitumismahdollisuuksiin, toimialojen välisiin yhteyksiin, oppimisprosessiin ja aktiiviseen viestintään. Yritykset ovat kiinnostuneita kumppaneista, joilla on hyvä maine, ja onnistuneista yrityshaasteista, jotka tuottavat hyviä tuloksia ja referenssejä. Pidemmällä aikavälillä yritykset etsivät alustan kautta maailmanlaajuista ulottuvuutta, laajempia verkostoja ja liiketoimintamahdollisuuksia. Alusta strategisena kumppanina tarkoittaa asiantuntija- ja tukipalvelujen kehittämistä. Luottamus on kriittinen tekijä jokaisessa yhteistyövaiheessa ja kaikilla tasoilla: ihmisten välillä, organisaatio- ja järjestelmätasoilla. Tarjoamalla oikeanlaista osaamista, laajempaa globaalia verkostoa ja muita tukipalveluja sekä luotettavan toimivan järjestelmän välittäjän roolissa toimiva taho voi rakentaa luottamusta alustalla toimivien sidosryhmien välillä.

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1 INTRODUCTION

Digital platforms are a relatively novel phenomenon impacting many industries, products and services. In addition, the introduction of digitalized products and services, digital platforms and new business ecosystems are fast restructuring the traditional forms of doing business. The platform is a concept that is radically and widely changing businesses and effecting to the economy and society (Choudary, Van Alstyne, & Parker 2016, 3). At the same time firms are seeking new business opportunities and growth and investing in new ways of doing business. Therefore, digital platforms are opening new potential for companies and other stakeholders of various industries, who are searching for new contacts and broader collaboration possibilities and willing to enhance innovations together with capable partners and other stakeholders.

Business ecosystems

Growth-oriented firms are networking, scanning potential business partners and business ideas constantly rather than operating in an isolation. As an active member of the industry, these firms can be part of business ecosystems. At the heart of focused business ecosystems industry platforms, which are consisting of firms and their partners, relates to managing innovations and to dealing with technological and market disruptions. The term business ecosystem, first suggested by Moore (1993, 73) specifies that “a company can be viewed not as a member of a single industry but as a part of business ecosystem that crosses a variety of industries”. A heathy business ecosystem, as Iansiti & Levien (2004, 3-5) define, can be measured with three critical factors, namely productivity, robustness and niche creation.

Innovation ecosystems

Except the digital platforms acting as a place for finding interesting business partners they can provide a template to explore novel business ideas and innovations. In other words, digital platform can be a place for new experimental value creation. Apart from being part of a business ecosystem, firms can be part of focused innovation ecosystems as well. Adner (2006, 2) describes innovation ecosystem as “the collaborative arrangement through which the firms combine their individual offerings into a coherent, customer-facing solutions”. The interesting diversification of focused stakeholders of the platform can be a fuel for the novel ideas and even further for new business models. An operative innovation ecosystem can connect various institutions, entrepreneurs, venture capitalists and other participants to execute even the national objectives (Wessner 2007). According to Gawer & Cusumano

(2014, 428) industry platforms can facilitate the generation a potentially very large number of innovations and boosting of innovation capabilities by providing technological foundation and access to external actors. The perfect matches between firms can lead for example to collaboration in some new combinations of various stakeholders such as corporations, start-up firms and investors.

For the development and management of the exploration of novel ways and the collective value creation the concept of industry platforms is a useful foundation and an enabler of a dynamic development process (Gawer & Cusumano 2014, 428-429). On the computer-mediated platform the meaning of time, place and even geography is diminished as well. In case where several linked networked actors are involved multi-sided platforms are built on interactions and interdependence between multiple sites and versatile stakeholders (Boudreau & Hagiu 2008, 163-164). Companies and other stakeholders who understand the long-linked process and value of the multi-sided platforms will have an advantage compared to the competitors (Miles, Snow, & Miles 2000, 300).

Value creation

The expectation regarding the value creation can vary in stakeholder groups. Also, on the digital platform the value creation can happen in different phases in time. The process can have a starting point, the actual collaboration phase and the end-point. In the beginning, when joining the digital open innovation platform, the firms are showing for example an interest of expanding the collaboration dimension to a new level due to a strategic change (e.g. Kunisch, Bartuek, Mueler, & Huy 2017), exploring ways to external knowledge (e.g. Pittaway, Robertson, Munir, Denyer, & Neely 2004, 145) and seeking collaboration (von Krogh & von Hippel 2006). However, many multisided platforms face so called “chicken and egg” situation, where joining of the side depends on others existence on the platform or willingness to join it (Hagiu 2014, 72). On the other hand, during the collaboration phase all stakeholders learn more and achieve added-value, for example reduction in search or transaction costs (or both) (e.g. Anderson 1995, 348; Hagiu 2014, 71-72), new combinations of information, products and services, innovative integrations of resources, and relationships among business experts (e.g. D’Andrea, Ferri, Grifoni, & Guzzo 2013, 43). When the collaboration phase is over, the stakeholders evaluate the actual performance and reflect the outcomes of the collaboration to the expectations and achieved results by considering carefully the usefulness, added value of the digital platform and readiness for future commitment accordingly.

Digital platforms and stakeholders

Participants of the digital platforms are increasingly diverse and having diverging starting points and maturity for collaboration. In other words, their interests, needs and expectations are distinct and therefore increases the complexity in collaboration. In practice, the ecosystems involve and consist of multiple different stakeholders (El Sawy, Malhotra, Park, & Pavlou 2010). In the core of the digital platforms are its owner and firms, which are operating throughout the platform. Both the platform owner and connected firms can increase the value of innovations by forming innovation ecosystems. In the perspective of specific technological systems innovation ecosystem is defined as a building block, in which the firms can develop products, technologies or services (Gawer & Cusumano 2014, 417; Gawer & Cusumano 2008, 28), where the platform owner is in a critical role being even depend on innovations and investments from other firms. Moreover, platform owner can establish necessary and beneficial business relationships between participants of the ecosystem and enhance mutually defined business models. (Gawer & Cusumano 2014, 423) Also, platform owner can be a central player in an ecosystem management and important accelerator and match-maker between firms and organizations, without participating in practical innovation process, which happens between firms. According to Pauwels, Clarysse, Wright, & Van Hove (2016) the ecosystem builder is an accelerator that develops an ecosystem of customers and other stakeholders and actively involves stakeholders in the accelerator's operations and activities.

Barret, Oborn, & Orlikowski (2016, 704) claims that increased value creation in online communities requires encompassing more complex and multi-dimensional relationships involving a wider ecosystem of stakeholders rather than just dyadic relationships between the community and the firm. The key actor of the platform faces various barriers in each phase of the collaboration, and at the same time can enhance the enablers of the collaboration to build on for the future cooperation. Therefore, the existence of trust, namely the key factor in collaboration and value creation, and trust building are necessary in each step of the collaboration (e.g. Blomqvist & Levy 2006).

Stakeholders' trust

In stakeholders' and organizations' relationships trust is a crucial element and key factor in value creation. Managing stakeholder trust is an essential task for platforms yet difficult, because there are many different stakeholder groups, each with its own needs, expectations and perspectives. Most organizations understand the need to manage stakeholders trust, but they do not really understand how to manage it effectively. One of

the reasons for the difficulty of managing of stakeholders' trust is that trust is multi-dimensional, and it is unclear which dimension is needed to focus on when dealing with any particular stakeholder group (Pirson & Malhotra 2008, 43) There is not much in the literature that systematically describes the level of a firm's relationship with a stakeholder, and how a particular type of stakeholder treatment leads to a competitive advantage. Trust clarifies why particular type of stakeholder management may lead to competitive advantage. (Harrison, Bosse, & Phillips 2010, 150-151)

Therefore, the trust as a key factor in collaboration and in value creation particularly on the digital open innovation platform is important yet limited researched topic.

1.1 Research problem, statement of purpose and research design

Due to the novelty of the digital platforms, there are several interesting aspects to be researched. First, the digital innovation platforms are providing a new place for collaboration and value creation of businesses (e.g. von Krogh & von Hippel 2006; Gawer & Cusumano 2014; Gawer & Cusumano 2008). Therefore, the approach of understanding and examining of the value creation in the platform collaboration is interesting. It requires further understanding by considering the temporality (e.g. Barrett, Oborn, & Orlikowski 2016). To start with the status of stakeholders' expectations, it is important to define their needs and targets in the beginning of the collaboration (e.g. Pirson & Malhotra 2008). Next, while stakeholders have connected to new partners and possible started a project, they start to evaluate the possible benefits (e.g. Anderson & Narus 1998), results of the collaboration (e.g. D'Andrea et al. 2013; Pittaway et al. 2004; Miles, Snow & Miles 2000), potential challenges (e.g. De Oliveira & Cortimiglia 2017) and estimate the created value (e.g. Bharadwaj, El Sawy, Pavlou, & Venkatraman 2013; Faraj, Lakani, Monteiro, & von Krogh 2016). Lastly, it is essential to understand that how the stakeholders see the potential of the finding new partners and collaboration throughout the digital platform in the future.

Secondly, in many cases the platforms are disrupting the existing organizational models by creating new collaboration forms. The digital platform is in a salient role in innovative ecosystem (e.g. Gawer & Cusumano 2014; Gawer & Cusumano 2008). It is an extension to the face-to-face interactions and dyadic relationships, where the relations are created in a computer-mediated system. At the same time, it facilitates the effective interaction apart from time and place (e.g. Boudreau & Hagiu 2008). On the other hand, depending of the

selection of the potential members of the platform or the existence of attractive open challenges, it might create burden between stakeholders. They have different maturity levels, various needs, and expectations concerning the value creation for their businesses (e.g. Barret, Oborn, & Orlikowski 2016). Therefore, the platform owner has to decide how to consider, meet and maintain stakeholders' expectation levels, while concurrently creating and developing reliable processes.

Thirdly, there are uncertainties like how the digital platforms are shaping the collaboration forms of businesses (e.g. Bruce, Leverick, Littler, & Wilson 1995; Hagiu 2014). Yet, it is not fully understood, that how the platforms really emerge, and what are the critical assets. Also, there is no experience, that how they impact to the ability to create and maintain long-term partnerships (e.g. Pera, Occhiocupo & Clarke 2016). As there are no existing models available yet, it is essential first and foremost to understand the expectation of all stakeholders operating on the digital platforms. To the platform owner it is useful to determine whether and how it can successfully become a trustworthy platform owner and a long-term partner, and how to build an underlying infrastructure and applicable community management system (e.g. Moore 1998; Moore 1993). To the participants of the platform it is valuable to know the platform owner and other stakeholders, and can they trust them (e.g. Pirson & Malhotra 2008). Further, before full commitment it is essential that stakeholders understand what the platform can offer to them and understand the business and operational model of platform (e.g. Gawer & Cusumano 2008). At least these are the key factors the stakeholders are interested before considering the continuation of the collaboration together over the long term.

In this master thesis the research goal is to understand stakeholders' expectations on digital open innovation platform. In addition, the intention is to examine how trust is built between a digital platform owner and its stakeholders. Also, the target is to research how a platform owner can facilitate trust building between various stakeholders, and what are the factors affecting to the trusting relationships.

The main research question of this study is: *How can a matchmaking platform provider meet its stakeholders' expectations for value creation?*
To answer this the following sub-questions are posed:

1) *How and why do different stakeholder value expectations differ from each other?, and*
2) *How can a matchmaking platform provider create value for diverse stakeholders?, and*
3) *How can a matchmaking platform provider build trust among its diverse stakeholders?*

To answer these questions nested case study was carried out. The research was limited to a one existing digital open innovation platform. The case company, named as “Beta”, was acting as an owner, an accelerator and a matchmaker of the digital open innovation platform. It was cooperating with various stakeholders in the limited and focused industry network. Therefore, this research focused on the three key stakeholder groups on the platform, namely large firms, small and start-up firms and investors. In terms of value creation, the aim was to gather data from these stakeholder groups and understand their perception of the collaboration on the digital platform and with the platform owner. In this research the target was to examine the dynamic value creation process in temporal aspect in three phases: before the collaboration, during the collaboration and after the collaboration with a matchmaking platform provider and other firms.

Data collection of this research focused on both the platform owner “Beta” and the three key stakeholder groups on the platform. Data was collected in total 22 semi-structured thematic interviews as follows: a) four representatives of the case company were interviewed in five different sessions, and b) from three different stakeholder groups totally 17 persons were interviewed. For the analysis of the interview and to bring qualitative rigor to the inductive research, the Gioia methodology was conducted to get a systematic holistic approach to a new concept development (Gioia, Corley, & Hamilton 2013).

1.2 Key definitions

Multi-stakeholder business ecosystem – The term business ecosystem characterizes “business ecosystems as loosely interconnected participants who depend on each other for their mutual effectiveness and survival” (Iansiti & Levien 2004).

Platform – The term platform characterizes “products, services, firms or institutions that mediate transactions between two or more groups of agents” (Rochet & Tirole 2003).

Online community (OC) – The term online communities are defined “as a collective spaces of knowledge flows characterized by a continuous morphing and mutually constituted by digital technologies and participants” (Faraj et al. 2016, 669). Solution providers do not interact as a community, but they disclose their ideas and innovations directly with the intermediary or the firm in one-to-one interaction, but not with the other members of the platform (Frey, Lüthje, & Haag 2011, 400).

Value creation – The conceptual framework of value creation incorporations and adapts value orchestrating in business and industrial markets from Lindgreen, Hingley, Grant, & Morgan (2012) which consist of three phases: 1) building phase of value creation, 2) analysing of value and potential challenges related to it, and 3) defining the future value creation potential.

Stakeholders' trust – "Trust entails positive expectations regarding another party's behaviour and intentions, and that these expectations are based on the attributions the trustor makes regarding the trustworthiness of the other party" (e.g. Pirson & Malhotra 2011; Rousseau, Sitkin, Burt, & Camerer 1998; Mayer, Davis, & Schoorman 1995).

1.3 Structure of the thesis

The structure of the thesis is as follows: first, I introduce the digital innovation platform as a value creating collaboration model by introducing both diverse definitions around the topic, and concept of value creation on a digital platform. Secondly, I conceptualize stakeholders' trust on a digital open innovation platform. In third chapter I explain the methodology of this research following the fourth chapter, which consists the analysis of the data. The findings of the data are explained in the chapter five. Lastly in chapter six, I summarize the theoretical implications, evaluate this study and propose some managerial suggestions including some proposals for further research.

2 DIGITAL OPEN INNOVATION PLATFORM AS A VALUE CREATING BUSINESS MODEL

This chapter presents the context of the study, which is the expectations of the value creation on the digital open innovation platform. In this research the focus is on a digital open innovation platform which creates business ecosystem as well as multi-stakeholder ecosystem around it. *Innovation platforms* differ from traditional platform-business since they are closely oriented to innovations. Moreover, *digital open innovation platforms* can connect information technology, customers, solution providers and experts and tasks in a virtual and cost-effective environment detached of time and place. For the various agents attached to the digital platform it opens broader markets, networks and possibility to link other stakeholders. Innovations are not limited solely to producers, but increasingly the users and other stakeholders are able and willing to engage and participate in collaborative innovations (Baldwin & von Hippel 2011), which is the case especially on technology-oriented platforms.

In next chapters I start by introducing the concept of a digital open innovation platform its general, yet diverse forms related to this context. Secondly, the definitions for digital business ecosystem, innovation ecosystem, cluster and online community are clarified. Thirdly, I present the stakeholder focus including the different actors and their roles in this context. Then, I outline the platform leadership. And lastly, I explain the value creation approach on the digital innovation platform.

2.1 Concept of a digital open innovation platform

The recent development of the information technology has increased the ability to cooperate, collaborate and innovate between and across organizational boundaries by using platforms as a site for leveraging innovations. The definition of *platform* has become nearly ubiquitous and varies depending of the context. Choudary et al. (2016, 5) claim that the platform provides an open, participative infrastructure for interactions between participants and sets governance conditions for them. Due to a novelty of platforms, relevant concepts and practices the definitions are versatile and diverse, see Table 1.

Table 1. Some key concepts of digital open innovation platform.

Concept	Definition	Author
Platform	"refers to a design, a concept, an idea; (something serving as) a pattern or model"	The Oxford English Dictionary
	"characterize products, services, firms or institutions that mediate transactions between two or more group of agents"	Rochet & Tirole (2003)
	"as a collection of assets (components, processes, knowledge and people) that are shared by a set of products"	Robertson & Ulrich (1998)
	"as a bundle of standard components around which buyers and sellers coordinate effort"	Bresnahan & Greenstein (1999)
	"extensible codebase of a software-based system that provides core functionality shared by modules that interoperate with it and the interfaces through which they operate"	Baldwin & Woodard (2009); Eisenmann, Parker, & Van Alstyne (2006)
Internal company specific industry platform	"as a set of assets organized in a common structure from which a company can efficiently develop and produce a stream of derivative products"	Meyer & Lehnerd (1997)
External industry-wide platform	"product, services, or technologies, that are similar in some ways to the former but provide the foundation of upon which outside firms (organized as a "business ecosystem") can develop their own complementary products, technologies, or services"	Gawer (2009); Cusumano & Gawer (2002); Gawer & Cusumano (2014)
Innovation industry platform	"as a building block, providing an essential function to a technological system, which acts as a foundation upon which other firms, loosely	Gawer (2009)

	organized in an innovation ecosystem, can develop complementary products, technologies or services"	
Multi-sided platform	"characterized by interactions and interdependence between multiple sites, and which enable interactions between multiple groups of surrounding consumers and complementors"	Boudreau & Hagiu (2008)

The concept of platform refers to distinct aspects depending on the perspective. Platforms can create new forms of competition and collaborative innovation across firms (Gawer 2011, 3). In engineering design Baldwin & Woodard (2009, 20-21) introduce platform structures which have common base in three main waves: 1) in product development the term platform to describe a next generation of family of products for a particular firm, where platform thinking (Sawhney 1998) can be mentioned as an example; 2) according to technology strategists the platforms are valuable points of control, where a platform leadership framework (Cusumano & Gawer 2002) is an example, and 3) according to industrial economist the platform is to characterize products, services, firms or institutions that mediate transactions between two or more groups (Rochet & Tirole 2003). The latter definition is applicable to this study, where the aim is to understand the value creation of stakeholders in the digital open innovation platform. When compared to the traditional vertical model, where supplier of a solution is in direct transaction to the buyer of the solution, the platform model describes the network of actors and their possibility for multiple transactions between more than one stakeholder groups, see Figure 1.

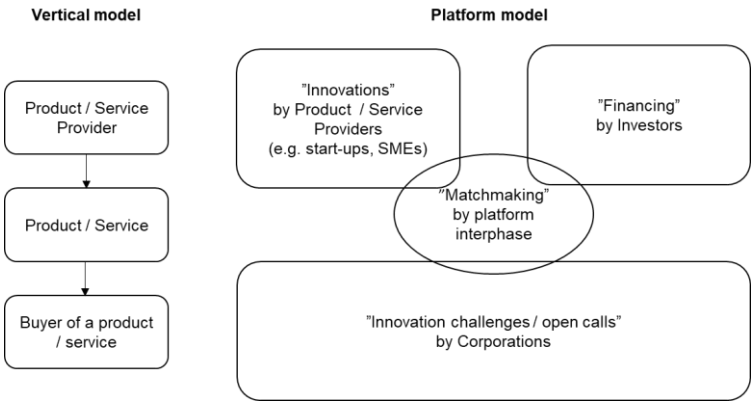

Figure 1. Comparison of a vertical model and platform model.

As this thesis focuses more on industry platform it is presented next in more detailed. Platforms can be connected to the firm's internal and external collaboration. Gawer & Cusumano (2014, 418) introduce two dominant forms of platforms: internal or company-specific platforms, and external or industry-wide platforms. *Industry platforms* exist in a variety of industries, especially in high-tech, information technology driven business (Gawer & Cusumano 2014, 417). Industry platform offers technology or service which is a foundation for broader, interdependent ecosystem of business (Gawer & Cusumano 2008, 28). *External industry platform* is defined "as products, services, or technologies that serve as foundations on which other firms can build for example complementary products, services, or technologies" (Gawer & Henderson 2007, 1; Gawer & Cusumano 2014, 418). The concept of industry platforms provides a place for a dynamic process and a useful template for the exploration of possible new directions and potential value creation. Moreover, platform can link various actors. *Multi-sided platforms* coordinate the demand of distinct but interrelated groups of stakeholders and can create value by facilitating and coordinating interactions between the different or multiple groups of actors. (Evans 2003, 191)

Innovations are a fundamental basis for the firms and organizations who are aiming to continuous success, ensure the competitive advantage and keep the market position also in the future. For example, Moore (1998, 167) defines *innovation* broadly so that "it meets or creates new customer needs and does so by bringing together previously unmatched or less-well-integrated resources". A design rule for an effective industry platform is that the interfaces around the platform is *open*, which enables participants such as firms to connect, innovate, earn income and create value (Gawer 2014, 1244; Gawer & Cusumano 2014, 421). According to Chesbrough (2003) "an organization develops an open innovation strategy when it is willing to interact with stakeholders outside the closed boundaries of the organization, to use resources such as methods, ideas, knowledge, and technologies, and exploit internal and external paths to market them".

2.1.1 Digital business ecosystem, innovation ecosystem and stakeholder ecosystem

Most recently technological platforms have been found to operate within larger networks of firms also known as *platform ecosystems* (Cusumano & Gawer 2002). Some key definitions of the area of innovation and digital business ecosystems are collected in Table 2. In the field of business research, the term ecosystem is relatively new concept as well.

Ecosystems promote innovation performance and effecting on novel business processes linked to digital business ecosystems. Nachira, Dini, & Nicolai (2007, 7) argue that *ecosystems* "initiative aims at helping local economic actors become active players in globalization, 'valorising' their local culture and vocations and enabling them to interact and create value networks at the global level".

Table 2. Some key definition of innovation and digital business ecosystems.

Concept	Definition	Author
Platform's ecosystem	"the collection of the platform and the modules specific to it"	Cusumano & Gawer (2002)
Digital business ecosystem	"a decentralized environment where enterprises interact and establish collaborations with each other"	Isherwood & Coetzee (2011)
Innovation ecosystem	"the inter-organizational, political, economic, environmental, and technological systems through which a milieu conducive to business growth is catalysed, sustained, and supported"	Stanford University's Innovation Ecosystem Network
Stakeholder ecosystem	"in which value is co-created by the complex interaction of a network of stakeholders each holding specific and individual identities"	Gyrd-Jones & Kornum (2013)

Firms can be part of a business ecosystem. The ecosystem community includes customers, suppliers, lead producers, competitors and other stakeholders interacting with one another to produce products and services of value to customers. They co-evolve their capabilities around a new innovation". Moore (1993, 76; 1998, 168-169) defines *business ecosystem* as "an economic community supported by a foundation of interacting organizations and individuals of the business world. Iansiti & Levien (2004, 8-9) characterize "business ecosystems as loosely interconnected participants who depend on each other for their mutual effectiveness and survival".

In addition to the traditional business interactions, the digitalization allows firms to interact in a new way. As an analogy to the ecological ecosystem Chang, West, & Hadzic (2006, 6) proposes so that the *digital ecosystem* is defined "as an open, loosely coupled, domain clustered, demand-driven, self-organising agents' environment, where each specie is

proactive and responsive for its own benefit or profit". A computer-mediated platform enables a cost-effective networking and communications.

Research in economics, business, technology and others explain *innovation ecosystem* by providing many theories and frameworks. For example, Pilinkienė & Mačiulis (2014, 365; 369) have compared different ecosystem concepts, such as innovation and digital business ecosystems. Valkokari (2015, 21) have summarized the difference between ecosystems, for example business ecosystems and innovation ecosystems (see Table 3). Wessner (2007, 5) defines that "an innovation ecosystem captures the complex synergies among a variety of collective efforts involved in bringing innovation to market". The firms, for example financing institutions and technology providers, can be organized as a business ecosystem, and can participate in platform-based ecosystem innovation. (Iansiti & Levien 2004, 2; 10) Innovation ecosystem enables a greater value-creation compared to a possibility of an isolated firm (Durst & Poutanen 2013) and enhances competitiveness (Wessner 2007). However, Durst & Poutanen (2013) remind that the successful implementation of the ecosystems depends on synergy of factors, for example governance, strategy and leadership, organizational culture, resources, human resources management, people, partners, technology and clustering.

Table 3. Comparison of characteristics of business ecosystem and innovation ecosystem. (Valkokari 2015, 21)

Ecosystem	Business ecosystem	Innovation ecosystem
Baseline of Ecosystem	Resource exploitation for customer value	Co-creation of innovation
Relationships and Connectivity	Global business relationships both competitive and co-operative	Geographically clustered actors, different levels of collaboration and openness
Actors and Roles	Suppliers, customers, and focal companies as a core, other actors more loosely involved	Innovation policymakers, local intermediators, innovation brokers, and funding organizations
Logic of Action	A main actor that operates as a platform sharing resources, assets, and benefits or	Geographically proximate actors interacting around hubs

	aggregates other actors together in the networked business operations	facilitated by intermediating actors

While the role of all stakeholders and the growing importance of their integration more in practices has been debated by academics Gyrd-Jones & Kornum (2013, 1484) have proposed a broader perspective of *stakeholder ecosystem* (either virtual or non-virtual) "encapsulating both the network nature of these relationships and the complex set of subcultures that make up this ecosystem. Ecosystem is normally used to refer to the systemic interactions within biological environments consisting of both physical and biological components. When applied in the organizational context it refers to the system of interactions between the socio-cultural elements among a given set of stakeholders". This broader definition allows to review the context from the perspective of many stakeholders rather than focusing in solely on dyadic interactions between two stakeholders.

2.1.2 Online community

Recently the information technology and digitalization have enabled the formation of new organizational structures. For example, online communities (OCs) are novel forms of participating various organizations and firms, reorganizing innovation and collaboration between them, and therefore creating economic and relational value for its participants. Due to this novelty the definition of *online communities* is incoherent. For example, Kraut & Resnick (2012, 1) define OC as "a virtual place where people come together with others to converse, exchange information or other resources, learn, play, or just be with each other". Further, Sproull & Arriaga (2007) emphasize the creation of a common interest in the collective welfare within shared experience, conditions, goal and conviction. On the other hand, Faraj et al. (2016, 669) define "OCs as a collective spaces of knowledge flows characterized by a continuous morphing and mutually constituted by digital technologies and participants". The latter definition instead of solely focusing on information sharing, social interactions or monetary value, is more widely introducing OCs as a digital space where participants are having a focus on sustaining knowledge flows and having a choice of engaging in the other online activities.

To shed light to the type of platform in this research it is perhaps relevant to have a closer look to innovation communities and innovation platforms. Firms, which are interested in widening their knowledge base and accessing external resources, may have at least two

ways how to proceed: they can interact directly with innovation communities or set and open an innovation challenge on innovation platform. Communities consist voluntary institutions who are sharing the same interest, for example the development and adoption of innovations of a product or service (West & Lakhani 2008). Ebner, Leimeister, & Krcmar (2009) reminds that internet-based innovation platform and community-based innovation are not synonymous. Thus, many platforms are managed by firms themselves or run by intermediaries, e.g. knowledge brokers (e.g. Verona, Prandelli, & Sawhney 2006). In this case solution providers do not interact as a community, but they disclose their ideas and innovations directly with the intermediary or the firm in one-to-one interaction, but not with the other members of the platform (Frey et al. 2011, 400).

2.2 Stakeholders on the platform

In this chapter I introduce the stakeholders, i.e. actual actors, who are operating on the platform. In this context platform is a place where different users and groups are connected and interacting with each other. Different stakeholders and actors can collaborate and cooperate within the platforms and business ecosystems. The central actor of the platform (i.e. owner of the platform) is connected to various stakeholders, and similarly they are linked to the digital platform operated by the central actor. Therefore, stakeholder theory and particularly stakeholder management in multi-stakeholder network is an interesting approach.

Perhaps the most cited *definition of stakeholder* is by Freeman (1984, 25), where stakeholder is any group or individual who can affect or is affected by the achievement of the firm's objectives. In turn as an alternative definition to Freeman's Roloff (2008, 238) proposes "any in turn group or individual who can affect or is affected by the approach to issue addressed by the network". Clarkson (1995) suggests that stakeholder has some form of capital, either financial or human, at risk, and therefore, has something to lose or gain depending on an organization's behaviour.

Roloff (2008, 236) summarizes that *stakeholder management* is defined by the focal organization, which determines who is a stakeholder and evaluates their characteristics, and accordingly, the managers of the focal organization decide on an interaction strategy for each stakeholder. The stakeholder perspective envisions a firm being at the centre of a network of stakeholders (Rowley 1997) acting as a complex system for exchanging goods,

services, information, technology, talent, influence, money and other resources (Freeman 1984).

Brenner & Cochran (1991, 452) argue that a *stakeholder theory of the firm* should describe and predict how organizations will operate under various conditions. According to Rowley (1997, 890) a stakeholder theory of the firms requires both understanding of the types of stakeholder influences, and how firms respond to those influences. Furthermore Rowley (1997, 906-907) claims that to build a stakeholder theory of the firm, researchers must analyse beyond the dyadic relationships, and that firms must answer the simultaneous demands of multiple stakeholders instead of treating them individually. However, multi-sided platform forms a complex and shifting ecosystems involving multiple stakeholders, of which expectations vary and change over time.

In this study the key stakeholders are firms that are interested in collaboration on the platform, or via the platform, which is managed by the platform owner.

2.2.1 Platform owner as leader and accelerator

The fully operational platform is led by a central actor who is the leader of the platform. In the industry platforms there are constitutive agents involved such as platform owner or leader, and participative actors (Gawer 2014, 1244). *Platform owner* is “a firm that for example owns a core element of the technological system” (Gawer & Henderson 2007, 4); holds core services, for example, identity management, workflow management, communications, and social network, and specific supporting services (Spagnoletti, Resca, & Lee 2015, 369); and protects information security (Baskerville, Spagnoletti, & Kim 2014). Moreover, *platform leaders* are “organizations that successfully establish their product, service, or technology as an industry platform and rise to a position where they can influence the overall technological and business system of which the platform is a central element” (Gawer & Cusumano 2014, 423).

The central actor and the owner of the open digital platform can also be called as an innovation accelerator. For example, Cohen & Hochberg (2014) defines *accelerators* as “organizations that aim to accelerate successful venture creation by providing specific incubation services, focused education and mentoring, during an intensive program of limited durations”. To promotion of ecosystems Sivonen, Borella, Thomas & Sharapov

(2016) proposes that ecosystem accelerator can be used to attract new participants to the ecosystem. Accelerators can enhance an access of participants and resources by creating and providing supportive mechanisms (Isabelle 2013, 16).

2.2.2 Other stakeholders

In this thesis “Beta” is related to a specific focused network of industry. Each stakeholders group or community has a relationship with the platform owner or the central organization (Iansiti & Levien 2004). The platform owners when playing a role as innovation accelerator are in a key position in engaging and involving the partners and commercial actors to the platform. In this chapter I introduce the different stakeholder groups and actors potentially involved within the case digital innovation platform.

Large firms

In the key role are large firms that are seeking new partners and innovative solution to their challenges on the platform. In the ecosystems *large players* such as corporations may have a significant role and that is the case with platform owners toward the group of other stakeholders as well (Gawer & Henderson 2007, 1). Information technology has changed the innovation processes to a more disperse in terms of geography (e.g. Dhanaraj & Parkhe 2006). Corporations are seeking creativity and innovations outside their own organizations by looking for new sources of innovations beyond their organizational boundaries, forming new type of organisations and novel ways of organizing, for example open innovation (Boudreau 2010; Chesbrough, Vanhaverbeke, & West 2014), innovation challenges (Boudreau 2010), and online communities (Faraj, Jarvenpaa, & Majchrzak 2011).

Start-up firms and SMEs

The digital platforms can also open interesting opportunities to growth-seeking small firms. Along with large firm *start-ups and small and medium-sized enterprises (SMEs)* can have a key role in emergency of future sustainable business and innovations. For example, as described by the EU (2012): “… SME’s and specially start-ups can be the potential incubators for eco-innovations, and can bring to the market new, less environmentally damaging products, services and processes”. Technology-oriented entrepreneurs and ventures success in connected networks of partners and other organizations, but they can have a lack of resources or the challenges of commercialization of their ideas. Therefore,

business acceleration can be a solution and a supportive mechanism enhancing their economic development.

Investors

Close to especially start-up and small firms are investors. *Investors* are involved by having an important supportive role, particularly because of the risky and long-term relationship between venture capital and entrepreneurs. In their role investors select entrepreneurs' venture ideas (Marcus, Malen, & Ellis 2013) by scouting, identifying and selecting the future potential and coaching entrepreneurs to realize potential (Baum & Silverman 2004). Above all, investors are interested in ventures that fit their investment portfolio (Kaplan & Strömberg 2001) targeting a profitable deal. Therefore, in the emergence of businesses venture capitalists' role is to make start-up firms grow faster, create more value and generate more employment and innovation (Keuschnigg 2004; Bocken, Rana, & Short 2015).

The investment decisions are based on investment criteria. In the literature review Sudek (2007, 91) lists the following investment criteria and factors that attract the investors most: quality and understanding the entrepreneur itself and the management team, entrepreneurs' honesty, commitment, expertise, trustworthiness and track record. As Zacharakis & Meyer (2000, 342) observe, that "in reality, venture capitals would (1) have access to a multitude of possible information cues and (2) use interactive due diligence and other methods to clarify and assess reliability of chosen cues. A common theme in the follow up interviews is that venture capitals prefer to reserve final judgment until they have a chance to meet with the lead entrepreneur".

2.3 Expectations of value creation in digital innovation platform in time

In previous chapters I explain the context of the thesis, digital open innovation platform and stakeholders involved within the platform and their roles. Next, I present the conceptual frame of value creation within the platform. Multisided platforms are novel forms of organizing knowledge creation and innovations. When considering the role and the purpose of the digital open innovation platforms for its stakeholders they are based on achieved benefits, created opportunities and added value. In this context the focus is limited on value creation rather than value capture, which is also quite often introduce alongside the value creation. In this chapter, first I define value and value creation including temporality in multi-

stakeholder ecosystem. Secondly, I introduce the value creation process in which I review the antecedents and consequences, barriers and enablers of value creation. Lastly, I introduce the conceptual framework of value creation on the digital innovation platform in relation to time.

2.3.1 Definition of value creation in multi-stakeholder ecosystem in time

In business relationships parties are seeking value for their input and efforts to achieve a successful performance and continuation of the business. In marketing studies *value* is considered as a main concept and basis for all marketing activities (e.g. Anderson 1995). Value can be linked to goods and service by providing financial value when the customer benefits can be for example technical, economic, service or social (e.g. Anderson & Narus 1998). Moreover, value can be incorporated into relationships between business partners (e.g. Lindgreen et al. 2012, 208). For example, Barrett et al. (2016, 704) have studied and identified “value” (e.g. financial, epistemic, ethical, service, reputational), and platform, as well as broader understanding of the stakeholders. As a digital open innovation platform is a relatively novel phenomenon, I reflect the conditions of the online communities (OCs), which represent the digital platform well, as described in chapter 2.1.2.

Value creation is a fundamental concept between organizations, groups or individuals. Value creation is considered for example as a main goal of a business relationship, e.g. between supplier and customer (e.g. Anderson 1995), including economic value of goods and services (e.g. Lindgreen et al. 2012, 208) and use value (e.g. Lepak, Smith, & Taylor 2007). Further, the focus of value creation has recently broadened from collaborative partnerships to wider complex networks related to strategic nets of different actors (e.g. Corsaro, Ramos, Henneberg, & Naudé 2012; Gulati, Norhia, & Zaheer 2000). As very little is understood about the value creation concerning open innovation and online communities Faraj et al. (2016, 669) defines OCs as a form of networks differ from traditional hierarchies in creating value for the participants and is found in the sociality of OCs (e.g. building social ties). Lepak et al. (2007, 182) proposes that new level of value creation is depended on subjective evaluation of the target-user regarding the product or service under consideration. Barrett et al. (2016) add that value creation in OCs requires management complex relationships in a wider stakeholder ecosystem rather than handling solely the dyadic relationships with firms.

Temporal aspect is involved when considering value creation as a core of firm, among the targets and part of the performance. Successful management of strategic and organizational changes requires managing of the different phases and stakeholders over time. Organizations, particularly concerning strategic change (e.g. Kunisch, et al. 2017), an organizational transformation (e.g. Orlikowski 1996), or even an operational level, for example in the context of understanding of projects (e.g. Maaninen-Olsson, & Müeller 2009), are affected by time and a perspective of change. Temporal perspective can be exploited in understanding of the processual dynamics of change in related to temporality. Barrett et al. (2016, 706) have observed in their research, that there has been very little research on how value is generated for different stakeholders within OCs over time. Therefore, in this thesis and context the value creation on digital open innovation platform over time – in the beginning of the collaboration, during the collaboration and in the future – is useful for studying in the perspective of processual dynamics. Furthermore, the aim is to understand the potential implications to the focal firm, i.e. owner of the platform, and how it can promote the value creation in the future.

2.3.2 Value creation process

Digital open innovation platform enables new ways of organizing and integrating resources to create value to the participative stakeholders. Web-based connection and online interaction allows to set value creation models that benefits two or more stakeholder groups at the same time. De Oliveira & Cortimiglia (2017) provide an understanding of the value co-creation in web-based multisided platforms. As the process describes the comprehensive and systematic way of value creation, namely the antecedents (input) and consequences (output) of the value creation process including the enablers and barriers of the process, I apply the framework for describing the value creation throughout the collaboration within the digital open innovation platform, see Figure 2.

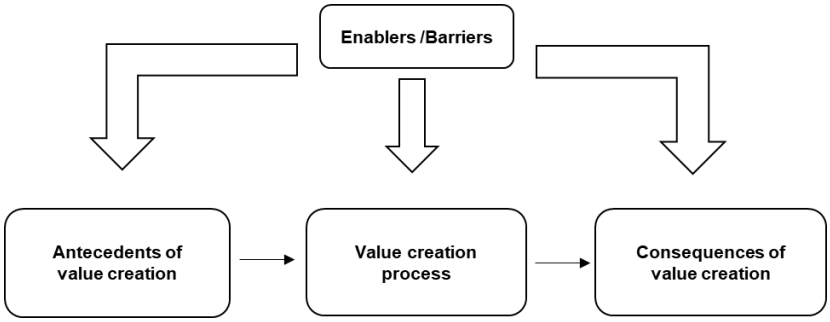

Figure 2. Antecedents, consequences, enablers and barriers in the value creation process of multisided platform (adapted from de Oliveira & Cortimiglia 2017).

Antecedents

To start with the antecedents, which are the elements of the inputs and beneficial conditions to value creation, they are necessary to move forward to the value creation process and build a relationship in the first place. Before the actual collaboration phase the stakeholders are willing to seek new ways of creating business opportunities. Therefore, they are motivated in many ways, and motivation can vary on a group level and even by a personal level within the groups (Isckia & Lescop 2015, 100). In terms of the role of motivation and knowledge Frey et al. (2011, 397) have studied the actors' performance and intrapersonal factors such as positively affecting extrinsic desire for monetary rewards, and intrinsic enjoyment, which increases the overall activity and participation; and knowledge diversity, which facilitates all types of contributions to open innovation projects. In addition, antecedents of participation in multi-stakeholder ecosystem for a value co-creation are for example reputation enhancement, experimentation, and relationship building (Pera et al. 2016), and mobilizations of resources and new competences (de Oliveira & Cortimiglia 2017, 3).

Lepak et al. (2007, 182) suggest that new value creation depends on the target company and the results of evaluation based on the novelty and feasibility of new service or product. Further, as different actors can have various interpretations of the value creation and ultimate value in the value chain, Lepak et al. (2007, 183) suggest that understanding of the context of the evaluation and the users' approach is essential. West & Lakhani (2008, 227) notices that in intra-community actions both direct interactions between members, as well as collective creation of a shared information can act both an antecedent or primary outcome of successful community.

As a fundamental element in relationships trust has been frequently discussed as a critical for network performance (e.g. Uzzi, 1997) and aspect to relationship that reflects the positive expectations (McEvily, Perrone, & Zaheer 2003, 92). Provan & Kenis (2008, 237) claims that almost exclusively the focus has been in dyadic relationships and on general reputational effects between specific network members. The reputation of the focal firm, and trust towards to the focal company are critical elements. For example, the core element on the digital platform, and service by the focal company, is the protection of the information security (Baskerville et al. 2014). Consequently, trust as a concept is examined more detailed in chapter 3 that introduces the conceptualizing of stakeholders' trust in this context.

Value creation process

The value creation process consists of elements, which can explain the value creation and the link between stakeholders. The key challenge for research of digitally enabled organizations and ecosystems is to understand the sources and enablers of the value creation. Due to a multi-faceted nature of value creation in management and organizational research the value can differ based on whether it is created on individual, organizational or societal levels (Lepak et al. 2007). In this context the individual and organizational levels are in the main focus, rather than society level.

In the central role of managing the value creation process is the platform owner or leader. To becoming a platform leader requires a strong and attractive vision and a business model that persuades and works both for the platform users and potential partners (Gawer & Cusumano 2008, 35), and responsibility for the strategy (Gawer & Cusumano 2014, 423). Moore (1998, 179; 1993) claims that the ecosystem leaders earn the appreciation by the community if the shared vision, actions, roles and overall approach creates support to the community members own business plans. Thus, both the strategic choices and their implementation on the platform and the operational aspects, such as engaging the other actors, leading and operating the platform, play a central role in the value creation.

Business interactions are often based on individual relationships, and therefore require a relationship building and management. The value of a relationship consists of features like reputation, location, innovativeness of partners (e.g. Lindgreen et al. 2012, 208), and is meaningful to the stakeholders who are seeking business opportunities with selected partners. The relationships are typically established by interpersonal interactions. This is not necessarily an example and structure of an online community, because the exchanges

of ideas and innovations usually take place in one-to-one-interactions. In this case the innovation concepts are disclosed either to the virtual knowledge brokers or the participating firms, but not to other registered members. (Frey et al. 2011, 400) The digital business ecosystems brings together actor who are interested in the business potential in the business area and enables the interaction. Also, the digital business ecosystem consists of processes which aims to enable unobstructed interaction, build trust and commence the business between partners. (D'Andrea et al. 2013, 43)

The role of users' engagement and collaboration are important to sustain value creation over time. Digital innovation platform allows to research the collaboration in a different environment compared to traditional interactions. The importance of platform of digital capabilities has raised due to the recent penetration of pervasive digital technology (Yoo, Boland, Lyytinen, & Majchrzak 2012, 1398). According to Isckia & Lescop (2015, 101) platforms are as a scene for inter-organizational collaboration and cooperation to innovate and create a competitive advantage, which can provide useful information about utilisation of external resources and availability of potential partners, and where platform owners develop renewal processes.

Value is created within business interactions, networks and relationships. The stakeholders of the platform are seeking and appreciating the availability of trustful partners. However, aligned interests and expectations can be unclear. Thus, the different stakeholders on the platform and their competing interests make the value creation complex. For example, investors might prefer value-creating activities that lead to short-term profits, whereas corporations build on investments on a longer term. Lepak et al. (2007, 185) emphasize the importance of the recognition of different stakeholders and their differences in expectations and perspectives that organisations must translate and reconciliate them to create value.

The value creation process is typically based on functionalities, practicalities and supportive mechanisms, which are maintained and developed by the focal firm. Once the digital innovation platform is created it needs to provide value in long-term as well. Isckia & Lescop (2015, 102-105) introduces three core stages how platform owners can sustain the continuous innovation and develop a platform strategy accordingly: ignition stage (including community building and establishment of pricing structure), development stage (including interaction stimulation and focus on profitability), and renewal stage (including competing with another platform-based ecosystem and experimenting and evolving). In the context of non-equity alliances Toon, Robson, & Morgan (2012) mention that two value-creations

interactions are asset-specific investments and exchange of technical information. In the field of dynamic capability literature on how organizations can create new value and advantage, the importance of target groups and users, their perceptions and desires, and alternatives are highlighted (Lepak et al. 2007, 184). Further, Ring & Van de Ven (1994, 97) considers development of cooperative relationship and evolution, as "consisting of a repetitive sequence of negotiations, commitment, and execution stages, each of which is assessed in the terms of efficiency and equity".

Consequences of the value creation process

Digital ecosystems can provide substantial benefits to the business strategies. The added value and business potential are mainly resulting from new combinations of information, renewal or creation of products and services, or innovative integrations of resources, roles and relationships between business partners (D'Andrea et al. 2013, 43).

In the fast-changing business environment innovation ecosystems and digital platforms can be used as source of value, such as continuous innovations. Firms can leverage the shared knowledge and to influence design of the services or products (e.g. O'Mahony & Ferraro 2007); receive benefits from access to new networks and external resources with new knowledge, risk sharing, access to new markets and technologies, commercialization speed and protection of property rights (Pittaway et al. 2004, 145). On the other hand, the disadvantage of collaboration with partners for innovations is a risk of strategic information leakage (Bruce et al. 1995).

Digital multisided platforms can create a place for competitive advantage (Miles et al. 2000, 300) and open many entrepreneurial opportunities (Kenney & Zysman 2016, 68). Multisided platforms create value by enabling interactions between two or more participant groups by reducing search or transaction costs (or both) for its members (e.g. Anderson 1995, 348; Hagiu 2014, 71-72), and governance benefits (Hagiu 2014, 77). In turn, Isckia & Lescop (2015, 94) claims that pricing policy is irrelevant in innovation platforms since the focus is on interaction, collaboration and innovation rather than transactions and exchange, and where commercial agreements between partners are for defining the pricing and monetary value.

On the digital innovation platforms, the owner as a host of the site is willing to increase the attractiveness and generated the value to the members, whereas the participants and members are seeking several new opportunities and benefits for their businesses.

According to El Sawy et al. (2010) multiple different enterprises are involved and linked to complex ecosystems. Therefore, communities can emphasize aspect like collaboration between firms as a source of innovation (von Krogh & von Hippel 2006). Moreover, Sproull & Arriaga (2007) impress users' engagement, collective welfare and social bonding within the community.

In the context of OCs, the value is based on a collective flow of knowledge (Faraj et al. 2016). On an individual level, OC collaboration can be considered as offering of own knowledge and contributing to others (Faraj, Jarvenpaa, & Majchrzak 2011, 1224) and building of collaborative behaviour and attitude (Pera et al. 2016, 4039). Researchers find also that goodwill trust is stronger in the asset specific investment interactions than in low operational compatibility partnerships (Toon et al. 2012). In addition, for example Fontenot & Wilson (1997) have identified ten important dimensions for relationships, namely collaboration, interdependence, commitment, trust, opportunistic behaviour, communications, conflict, power, shared values, and relationship outcome.

Barriers and enablers

Platform-based ecosystems rely on value-creation approach. The successful platform owners in platform-based ecosystems should have an ability to dynamically orchestrate the three central processes of coordination, platform governance and renewal to support the open innovation strategies and continuous innovation (Isckia & Lescop 2015, 91).

The value creation process can be constrained by several barriers. Unlike the benefits and new opportunities for the value creation, the collaboration between actors and companies can be challenging. The means of value creation may vary in the firms and across various digital platforms (Bharadwaj et al. 2013), and broader multi-stakeholder ecosystems (Lusch & Nambisan 2015; Barrett et al 2015). In many multisided platforms the most challenging problems is so called "chicken and egg" situation, where joining of the side depends on other or others existence on the platform, or willingness to join it (Hagiu 2014, 72). Further, in the context of innovation ecosystems the legitimacy, resourcing and growth of the new initiatives can be inhibited by institutional and system-level barriers such as regulative, normative and cognitive barriers (Ritala, Almpanopoulou, & Blomqvist 2017). Particularly challenging to the platform owner is to navigate through the complex strategic landscape of different actors within the platform (Gawer & Cusumano 2014, 421).

On the other hand, the value creation can be supported by ensuring the existence of selection of enablers. Success factors of innovation ecosystems can be such as talent, density of researchers, entrepreneurs and entrepreneurial culture, facilitating institutions and access to capital (Oh, Phillips, Park, & Lee 2016, 3). Concerning technological infrastructure for example Frey et al. (2011, 415) propose that platforms software should provide structure and interaction tools to facilitate tasks in collaborative problem solving. The following four fundamental strategic decisions a multisided platform entrepreneur and investors should consider 1) the number of sides to bring on board (attraction of more or a fewer sides), 2) design (functionalities and features), 3) pricing structure, 4) governance rules (Hagiu 2014, 72), and concurrently with effective management of IPR (Isckia & Lescop 2015, 101). Spagnoletti et al. (2015) proposes for online communities the digital platform should support in information sharing, collaboration and collective actions.

Stakeholders' trust is a pivotal element of a competitive advantage and collaboration, and an enabler of value creation. In the context of value co-creation in multi-stakeholder ecosystem Pera et al. (2016) defines three fundamental enablers: trust, inclusiveness, and openness. Gillespie et al. (2016, 243) has identified areas of recommendations and strategies how to enhance trust by highlighting four priority areas as follows: building trust, increasing transparency, improving effectiveness and addressing concerns. Stakeholders trust is dynamic, i.e. it can increase and decrease over time (Gillespie et al. 2016, 242-243). In the context of network Provan & Kenis (2008, 238) claim that "trust ties must be dense, so that perceptions of trust are shared among and between network members". Because of the multisided role of trust in value creation between the various actors in the digital platform the concept of trust is studied separately in section three.

2.3.3 Conceptual framework of value creation on digital innovation platform

Participants of the digital platforms are increasingly diverse and having diverging starting points, maturity for collaboration, interests and needs. The ecosystems involve and consist of multiple different stakeholders and companies (El Sawy et al. 2010). Barret et al. (2016, 704) claims that increased value creation in online communities requires encompassing more complex relationships involving a wider ecosystem of stakeholders rather than just dyadic relationships between the community and the firm. The key actor of the platform faces various barriers in each phase of the collaboration, and at the same time can enhance

the enablers of the collaboration in order to build on for the future collaboration. The existence of trust and trust building is necessary in each step.

As a result, value is seldom created in isolation but more often within the network of firms which collaborate and innovate together (e.g. Dhanaraj, & Parkhe 2006, 659-669). Barrett et al. (2016, 706) has shown that multi-stakeholder OCs may generate different kind of value for the stakeholders. Ring & Van den Ven (1994) emphasize that in the central of cooperative interorganizational relationship there are the cyclical developmental processes of which explain how interorganizational relationships emerge, evolve, and dissolve over time.

The stakeholders can estimate the successes and challenges of the collaboration, and potentially consider the future continuation of the collaboration. In this thesis the proposal of the conceptual framework incorporations and adapts value orchestrating in business and industrial markets from Lindgreen et al. (2012) which consist of three phases (see Figure 3): 1) building phase of value creation, 2) analysing of value and potential challenges related to it, and 3) defining the future value creation potential. Further, the concept takes into a count time element, and is strongly linked to trust factor. Therefore, in the next chapter I introduce the trust as a concept and as well an antecedent and an enabler of the value creation on digital open innovation platform.

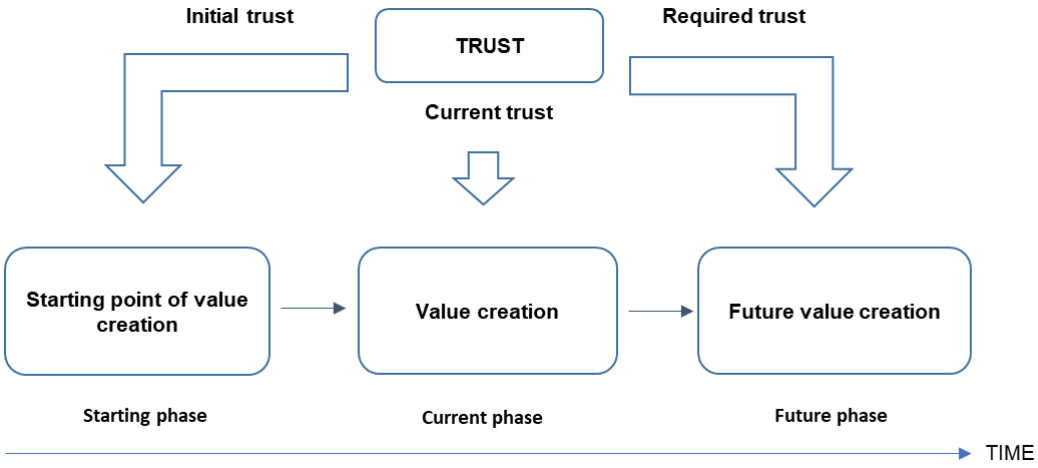

Figure 3. Conceptual framework of value creation and trust on digital open innovation platform in time (adapted from Lindgreen et al. 2012).

3 CONCEPTUALIZING STAKEHOLDERS' TRUST ON A DIGITAL OPEN INNOVATION PLATFORM

Following the introduction of the context, a digital open innovation platform, and the value created for the relevant stakeholders involved within the platform, I present next the role of trust in this context. Trust is both antecedent and consequence of value creation, as introduced in previous chapter. Therefore, in this chapter the intention is to provide a closer view to the concept of trust between the actors of the digital innovation platform. It refers both to the interpersonal and interorganisational forms of trust. In addition, due to a nature of a digital open innovation platform as a form of an online computer-mediated transaction service, it is relevant to conceptualize trust reflecting to the digital platform as an institutional phenomenon, namely system trust (i.e. impersonal trust).

In business relations, trust is seen a critical resource in and between organisations and stakeholders. Trust is a core element in professional relationships (Lewicki & Bunker 1996). Trust facilitates efficiency in business transactions (e.g. Williamson 1993) and promotes cooperative behaviour between organizational stakeholder groups (e.g. Uzzi 1997), commitment (Ganesan & Hess 1997), motivation (Dirks 1999), creativity, innovation, and knowledge transfer (Kogut & Zander 1992). It is argued, that trust reduces complexity (e.g. Luhmann 1979; Lewis & Weigert 1985, 968-969), transaction costs (e.g. Das & Teng 1998; Dyer & Chu 2002), and increases transaction benefits (e.g. Blomqvist, Kyläheiko, & Virolainen 2002). Moreover, as a critical antecedent trust enables efficient and effective communication, collaboration and knowledge creation (e.g. Camarinha-Matos, Afsarmanesh, & Ortiz 2005, 47).

On a personal level, trust can arise following two preconditions, namely the existence of dependence (Rousseau, Sitkin, Burt, & Camerer 1998) between trustee and trustor, and a need for trust in case of risk (Luhmann 1988). The latter includes both uncertainty (e.g. Gambetta 1988) of the outcomes, and vulnerability (e.g. Blomqvist 1997; Rousseau et al. 1998) in case of losses. On an interpersonal level risk can be considered either as an antecedent to trust or outcome of trust. However, risk is not a prerequisite to a cooperative behaviour, because cooperation does not necessarily put a party at risk. (Mayer et al. 1995, 711) Fulmer & Gelfand (2012, 1172-1173) also argue, that the number of definitions refer to vulnerability as "risk," "uncertainty," and "opportunities."

On an organizational level, trust has been widely recognized as a key enabler of competitive advantage and success of the organization (Davis, Schoorman, Mayer, & Tan 2000; Barney & Hansen 1994); and a fundamental coordination mechanism for knowledge-based economy (Adler 2001). Trust explains cooperation (Gambetta 1998, 225), and the cooperation without trust is limited (Gambetta 1998). Therefore, some degree of trust is needed for collaboration to evolve (Miles et al. 2000). According to Miles & Snow (1992) trust enhances new organizational forms such as networks. However, Pirson & Malhotra (2011) claim that there has been a lack of research on trust and its dimension between different stakeholders and how they base their trust in organisational forms. Zaheer, McEvily, & Perrone (1998) address economic exchange is based on both interpersonal and interorganizational trust.

On a system level, business-to-business and business exchange relationships have partly or fully transferred to the internet. It brings along a next level of analysis, namely system trust, where objects of trust are diverse: the persons in charge of the system, including their organisation; information system and technology; and information in the system (e.g. Harrison, & McKnight 2001). This indicates that trust is located in different levels and different levels of trust are nested (Shapiro 1987).

In all, the role of trust in economic exchange has been challenging in conceptualising as the phenomena exits in several analytical levels, such as from individual to organizational levels. In addition, due to computer-aided transactions and novel technological possibilities between firms the object of trust can be a system. The focus in this thesis is with trust and levels within the persons, i.e. interpersonal trust between firm representatives and platform representatives, with different organizations collaborating on the platform, i.e. interorganizational trust, and actors trusting a digital open innovation platform an operational system, i.e. impersonal trust.

In this chapter I explain briefly the conceptualizing of trust. Then I discuss three levels of analysis, namely interpersonal, interorganizational and system trust so that I define each concept, their referents (object), antecedents (input), and consequences (output) of trust on each level. Thirdly, I review trust as a process. At the end of the chapter I summarize the concepts and factors concerning this case.

3.1 Conceptualizing of trust

To starting with the basis of trust the concept of trust has many definitions, depending on the context and discipline. Some examples of the main concepts have been reviewed and listed in Table 4. The list indicates that the term of trust is used in variety of district ways, and defined differently in various disciplines, for example economists view trust as calculative (Williamson 1993); psychologists as personal attribute (Rotter 1967), and sociologists as socially embedded properties of relationships among people (Granovetter 1985).

Table 4. Examples of definitions of trust (applied Rousseau et al. 1990; Lane & Bachmann 1998; Blomqvist 1997).

Author	Definition of trust
Luhmann (1979)	"being in vulnerable position relative to another"
Rotter (1967)	"an expectancy held by an individual or a group that the word, promise, verbal or written statement of another individual or group can be relied upon"
Barney & Hansen (1994)	"mutual confidence that no party to an exchange will exploit another's vulnerabilities"
Lewicki, McAllister & Bies (1998)	"confident, positive expectation"
Rousseau et al. (1998)	"the willingness to accept vulnerability based upon positive expectations of the intentions or behaviour of another within a particular context, i.e. in interdependent and risky situations"
Lewis & Weigert, (1985)	"the perceptions held by one party about another party's abilities, expertise, knowledge, motives, or intentions"
Blomqvist (1997)	"as an actor's expectation of other the party's competence and goodwill"
Kogut & Zander (1992)	"trust is seen as a higher-order organizing principle enhancing knowledge sharing and transfer"
Mayer et al. (1995)	"as a belief"
Gabbay & Leenders (2003)	"as a set of beliefs about the other party (trustee), which lead one (trustor) to assume that the trustee's actions will have positive consequences for the trustor's self"

Trust has been often connected to positive expectations. Zaheer et al. (1998, 143) defines trust as the expectation. Similarly, Robinson (1996, 576) defined trust "as a person's expectations, assumptions, or beliefs about the likelihood that another's future actions will be beneficial, favourable, or at least not detrimental to one's interests". Trust can be considered as an attitude or expectancy about other people and the social systems (e.g. Luhmann 1988). Perhaps the most cited definition is by Mayer et al. (1995) who define trust "as willingness to be vulnerable". Trust is defined as a factor of develop and maintain relationships between parties (Zaltman & Moorman 1988). Pirson & Malhotra (2011) define trust "as the psychological willingness of a party to be vulnerable to the actions of another party (individual or organization) based on positive expectations regarding the other party's motivation and/or behaviour".

In sum, by integrating several proposed definitions (e.g. Pirson & Malhotra 2011; Rousseau et al. 1998; Mayer et al. 1995) the following definition is broad enough but aggregated the definition of trust appropriate for this context: "Trust entails positive expectations regarding another party's behaviour and intentions, and that these expectations are based on the attributions the trustor makes regarding the trustworthiness of the other party."

Yet, there is disagreement about how trust should be conceptualized (Jong, Kroon & Schilke 2015, 9). Trust as a concept is addressed by many disciplines such as psychology, sociology, economics, and organizational theory. As a result of various researches, it has been widely acknowledged that trust is complex and multidimensional (e.g. Blomqvist 1997).

Trust is a psychological and social phenomenon. The psychological research aims to understand the complex intrapersonal conditions of trust, including expectations, intentions, affect and dispositions (e.g. Mayer et al., 1995; Rousseau et al. 1998). As a psychological state, for example Lewis & Weigert (1985, 971) characterized trust as "the undertaking of a risky course of action on the confident expectation that all persons involved in the action will act competently and dutifully". Researchers have argued that trust needs to be conceptualized as a more complex, multidimensional psychological state including affective and motivational components (e.g. Kramer, Brewer, & Hanna 1996; Lewis & Weigert 1985). Lewis & Weigert (1995, 975) introduce two conceptualizations of trust: trust as a psychological construct or trait that reflects for example to personal experiences; and trust as operationalized choice of a behaviour. From a sociological perspective trust must be formed collectively in dyads or group, not isolated individuals. Although trust is critical factor

in social relationships, it involves elements of risk and doubt. (Lewis & Weigert 1985, 968-969) In addition, Zaheer, McEvily & Perrone (1998) argue that the conceptualization trust as a behavioural expectation reflects the uncertainty of person's future behaviour, possibility of betrayal, and an inherent dynamic trust (Zaheer et al. 1998).

Analytical dimensions

Another agreement is pending regarding analytical dimensions. On the interpersonal level trust can be cognitive-based (or fragile-based), affected based (or resilient trust) and calculus-based. Dimensions of trust is defined such as cognitive vs. affective, competence vs. goodwill, or institutional vs. process-based (Jong et al. 2015, 9); calculus-based vs. knowledge-based vs. identification-based (Lewicki & Bunker 1995); and contractual vs. competence vs. goodwill (Sako 1992). Further, Zaheer et al. (1998, 143) recognize relational trust (as an individual trait), and dispositional trust (to the counterparty in dyadic relationships).

In the context of interorganizational relationships Connelly, Crook, Combs, Ketchen, & Aguinis (2015) research competence- and integrity-based trust, whereas in the context of business relationships cognition-based trust (e.g. Zucker 1986) and affected-based trust (Lewis & Weigert 1985) are studied. Shapiro, Sheppard, & Cheraskin (1992, 366) suggest deterrence-based, knowledge-based and identification-based trust.

Individuals act within and through systems. Concerning the trust in technology for example McKnight, Carter, Thatcher, & Clay (2011) investigate initial, calculus- and knowledge-based trust. Thus, the analytical levels are diverse and multi-dimensional.

Micro and macro levels

Furthermore, trust has many levels. Trust is a multidimensional social reality by linking micro and macro levels (Lewis & Weigert 1985). Dyer & Chu (2002) claim, that trust is a micro-level phenomenon based on individuals, because conceptually organizations cannot trust each other. Korsgaard, Brower, & Lester (2015) provides a view of dyadic-level extensions of trust, distinguishing between mutual, reciprocal, and asymmetric level. On the other hand, macro level studies focus exclusively on the trust experienced by only one of the parties in the relationship and to implicitly assume that trust is mutual and symmetric (Jong et al. 2015, 16). Despite the many evidences that trust is important in organizations, the focus of the research has been mainly on individual level (e.g. Lewicki, Tomlinson, & Gillespie, 2006; Kramer, 1999; Mayer et al. 1995; Rousseau et al. 1998). According to Rousseau et al.

(1998) trust originates within the individual. Zaheer et al. (1998) suggest that trust should be examined both on micro end macro levels.

Trust factors in business relationships

Trust in relationships consists of some key factors. A model of trust by Mayer et al. (1995, 715) suggests that organizational trust is determined by three major factors, namely characteristics of the trustor, characteristics of the trustee, and the perceived risk (see Figure 4). The propensity of the trustor and the elements of trustworthiness that the trustee possesses influence the current level of trust. Mayer et al. (1995, 717-720) identifies attributions and three primary dimensions along which the trustworthiness of the target may be evaluated (see Figure 4): *ability* is that the group of skills, competencies, and characteristics that enable a party to have influence within some specific domain; *benevolence* is the extent to which a trustee is believed to want to do good to the trustor, and that the trustee has some specific relationship to the trustor; and the relationship between *integrity* and trust involves the trustor's perception that the trustee adheres to a set of principles that the trustor finds acceptable. (Ibid) Other attributes have been included such as "identification" (Sitkin & Roth 1993; Lewicki & Bunker 1996); and "identity" (Blomqvist 1997).

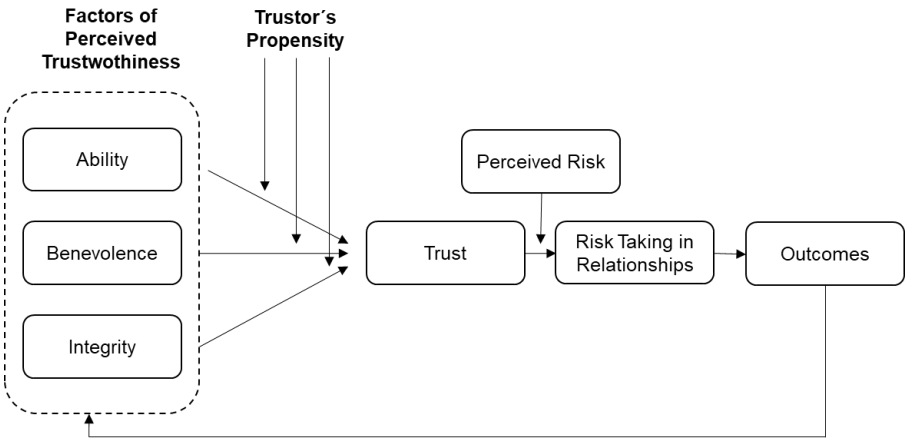

Figure 4. Proposed model of trust. (Mayer et al. 1995)

Trust is as an attribute of the relationship between parties, and trustworthiness is as an attribute of individual exchange partner (Barney & Hansen 1994; Blomqvist 2002). Trustworthiness can be evaluated by using indicators, which are linked to the component creating trust as described in Figure 5 (Blomqvist 2002).

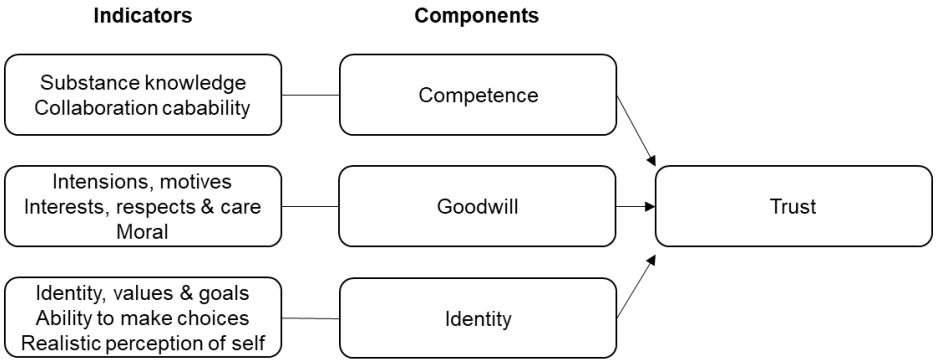

Figure 5. Evaluation of trustworthiness. (Blomqvist, 2002)

Online and offline trust

Online and offline trust are intertwined as multichannel organization may have both online and offline presence in their business ecosystem. Trust is an important factor in online transactions (e.g. Harrison, & McKnight 2001). In the context of e-commerce, Grabner-Kräuter & Kaluscha (2003) introduce trust constructs that reflects both system trust and personal and interpersonal trust (i.e. disposition trust, trusting intentions and trusting behaviours).

In a virtual computer-mediated environment the uncertainty of economic transaction is increasing compared to the traditional settings, where the trust-based relationships are not only created between persons and organizations, but also between persons and computing systems and technology. There has been a rapid increase in various online tools such as digital innovation platforms, which aim to linking counterparties in a new way and conducting online transactions. Trust plays a central role in this kind of structure as well. To outline the model of trust in this context the simplified and integrated framework is described in Figure 6.

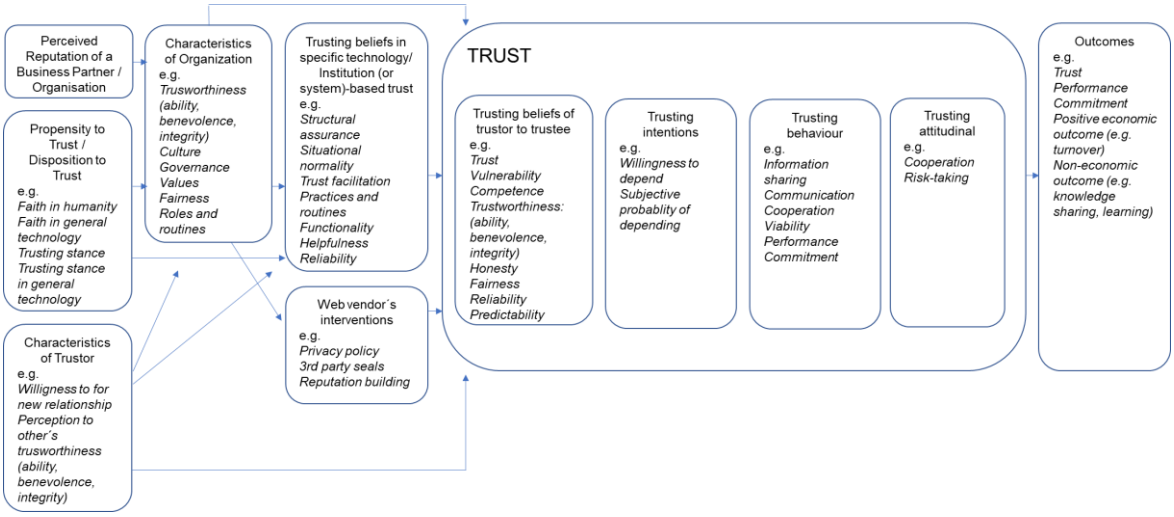

Figure 6. Integrated multi-level framework for understanding trust on digital innovation platform. (integrated and adopted for example from McKnight & Chervany 2002; Burke, Sims, Lazzara, & Salas 2007; Mesquita 2007; McKnight et al 2011; Schoorman, Mayer, & Davis 2007; Schilke & Cook 2013; Barney & Hansen 1994; Kroeger 2012)

3.2. Levels of trust

In this context it is relevant to research the role of trust not only on a personal and organizational levels but on system level as well, because in a computer-mediated environment personal trust alone is a limited mechanism to reduce uncertainly in the business relations. These three levels are introduced next.

3.2.1 Interpersonal trust

Trust is essential part of interactions between individuals. As a psychological attribute trust originates between individuals (Rousseau et al 1998, 395), and trust is as an expectation to other (e.g. Rotter 1967), confidence (e.g. Blomqvist 1997; Ring, & Van de Ven 1992; Luhmann 1979), belief (e.g. Blomqvist 1997; Giddens 1990) and faith (e.g. Giddens 1990; Zaheer et al. 1998). In common, interpersonal trust is considered as a social tie between a specific trustor and trustee (e.g. Mayer et al. 1995), for example organization when an external observer places its trust in an organization as the trusted object (Kroeger 2012). In a relational approach, individual trust is an emergent property of relationship rather than solely an attitude or behaviour between persons (e.g. Zaheer et al. 1998). Interpersonal

trust is considered an individual's willingness to be vulnerable to another party based on a positive expectation of the actions of the other party (e.g., Mayer et al. 1995; Rousseau et al. 1998). Moreover, interpersonal trust is differentiated from the disposition of generalized trust or trust propensity (e.g. Mayer et al. 1995).

Referents

The referent of trust, i.e. target and object of trust, varies depending of the context. In behavioural tradition trust is considered as a rational expectation, where the referent of trust to events produced by *person(s)* or by *impersonal agents* (Lewicki et al. 2006, 993). Trust can be targeted towards different objects such as another person or *group of persons*, for example individuals and members of an organization, or *organizations*, and a specific other or others such as *a leader* or *a negotiation partner.* (Fulmer & Gelfand 2012, 1170) Zaheer et al. (1998, 143) argue that origin of trust is always grounded in an individual perspective, even if the individual is part of a certain group (stakeholder group) and share a similar orientation.

Mayer et al. (1995) defines two basic referents of trust: individual's *competence* and *goodwill* towards their own organization. However, Fulmer & Gelfand (2012, 1172) argues, that there is a lack of theoretical justification and mutual agreement in the literature on relevancy of dimensions and variation of expectations of different trustees at different levels. For example, respect to positive expectations, some definitions for the interpersonal referent focus on *benevolence*, and to a lesser extent on *integrity* and some extent on *ability* (Fulmer & Gelfand 2012, 1170). Further, Zaheer et al. (1998, 143) propose that interorganizational trust is based on three components: *reliability*, *predictability*, and *fairness*, with individual as both the referent and objective of trust.

Antecedents and consequences

As for the antecedents (i.e. input of trust) of interpersonal trust the factors are diverse depending of the point of view. According to Mayer et al. (1995) some people have a *propensity to trust* (i.e. a personality trait) which can lead to generalized expectations (Rotter 1967). The preconditions of trust are for example *dependence* (e.g. Rousseau et al. 1998) and *reliance* (e.g. Blomqvist 1997; Giddens 1990; Zaheer et al 1998) between trustor and trustee. The element of risk in relationships creates need for either *reducing trust* (e.g. Giddens 1990) or *increases risk taking* (e.g. Mayer et al. 1995).

Trustworthiness is a perceived likelihood between trustor and trustee. The key factors of trustworthiness are *ability, benevolence, and integrity* (Mayer et al. 1995; Pirson, & Malhotra 2011). In the behavioural approach level of trust increases as a result of the other's choice to reciprocate *cooperation* (e.g. Axelrod 1984). In their literature review Fulmer & Gelfand (2012) emphasise individual-level characteristics of trustor and trustee, such as *attitudes*, *behaviours, emotions* and *predispositions*. Moreover, Ashnai, Henneberg, Naudé, & Francescucci (2016, 130) claims that the main source of interpersonal trust is *emotions*. Schoorman et al. (2007, 351) propose that culture affects to trust through the propensity variable, and the antecedents of variables are for example *personality, experiences* and *culture.*

In the psychological approach for example Ferrin (2003) describe more than 50 determinants of the level of trust in relationships or covariant with the level of trust, such as *characteristics of trustee* (e.g. disposition of trust); *characteristics of trustor* (e.g. general trustworthiness, ability, benevolence, integrity, reputation); *characteristics of past relationship between the parties* (e.g. successful cooperation); *characteristics of communications process* (e.g. openness in communications); and *structural parameters*, which affect to the relationship government (e.g. availability of third parties; availability of communication mechanisms).

In the context of virtual communities Ridings, Gefe, & Arinze (2002) define perceived *responsiveness*, *confiding personal information* and *disposition to trust* as the antecedents of trust. In the psychological approach, the antecedent of trust is *frequency, duration* and *diversity of experience*. In the psychological and transformational approach, trust is developed for example in *intensive, repeated and varied interaction* when parties learn to know each other. (Lewicki et al 2006) In the context of e-commerce, seller assumes for example that internet service provider is *trustworthy*, i.e. honest in transactions and capable to deliver as promised (trusting beliefs); is to be depended on the seller, willingness to use the service and perceived usefulness of the Web-site (trusting intentions); assumes perceived risk (trusting behaviours) (e.g. Grabner-Kräuter & Kaluscha 2003). Dispositional trust is stable and increases the likelihood that a person trusts another individual (Mayer et al. 1995).

As for the consequences interpersonal trust is expected to influence partner's *commitment* positively. Trust is a key factor for commitment (e.g. Morgan & Hunt, 1994) and developer of confidence in the *long-term benefits* of the relationship between business partners (e.g.

Anderson & Weitz 1989). In the relational norms perspective, *information sharing* is a result of expectation and reliance (Heide & John, 1992).

3.2.2 Interorganizational trust

Research have highlighted the central role of trust in organizations even for decades. Due to its essence for economic exchange the research has contributed to a better understanding of trust in interorganizational relationships in dyadic and network relationships such as strategic alliances, partnerships, R&D consortia and various forms of networks (e.g. Ring & Van de Ven 1994, 90; Child & Faulkner 1998; Miles & Snow 1986). However, Jong et al. (2015, 9) notes that scholars' debate about whether organizations are entities, that are capable of experiencing trust psychologically or whether they only choose to trust in a behavioural sense. Interorganizational trust is described as trust belief held by one firm in another firm (Krishnan, Martin, & Noorderhaven (2006); and as a collective trust of organizational members towards a partner firm (Zaheer et al. 1998, 142). Interestingly, interpersonal and interorganizational trust are similar as in both a trustor makes decisions based on "good reasons", taking risks, reducing complexity and considering the possibility of unfavourable future actions, therefore making themselves vulnerable (e.g. Bachmann 2001; Luhmann 1979). In this context is a valuable to note that according to Kroeger (2012) organizational trust exists between interpersonal and system trust.

Referents

Organizations can be both objects and subjects of trust, i.e. referents. As a concept of organizational trust, it refers to both trust in *individuals* and trust in the *organization* (Shockley-Zalabak, Ellis, & Winograd 2000). In case of interorganizational construct trust is placed in a group of individuals such as *a partner organization* (Zaheer et al. 1998, 143). Kroeger (2012) refers organization trust as an aspect in which trust is placed between an external observer and an organization as the trusted objective. From this perspective organization, which is managing and operating a digital open innovation can be considered as an object of trust.

Antecedents and consequences

In organizational context trust has a profound role. By adapting to the economical perspective trust is calculative (e.g. maximizing gains and minimizing losses) and by reflecting to the sociological and psychological thinking it is relational (e.g. social orientation,

identity and trustworthy behaviour). While integrating of these perspectives on *organizational trustworthiness* it allows to research the antecedents of the trustworthiness, which refers more specifically to the perceived characteristics of a trustee as a person (Schilke & Cook 2015), and a collective actor or firms (Schilke & Cook 2015; Schoorman et al. 2007). The key factors of trustworthiness are *ability, benevolence and integrity* (Mayer et al. 1995; Pirson, & Malhotra 2011), which can apply to interpersonal and interorganizational levels (Schoorman et al. 2007, 345). In the context of strategic alliances, the sources of trustworthiness of partners are *contractual safeguard* (calculative trust), and *organizational culture* (relational trust) (Schilke & Cook 2015, 278); and distributive *fairness*, and partner *similarity* (Robson, Katsikeas, & Bello 2008, 651-652). Other key drivers are *governance mechanism* and *values* (Barney & Hansen 1994). Schilke & Cook (2015, 279) believe that the lack of *knowledge of the partner firm's characteristics* can diminish the cultural antecedent of trustworthiness. To mitigate the information asymmetry, the researchers propose two mechanisms: *familiarity* reflecting to relational perspective, and *reputation* to reflecting to calculative trust (ibid). According to Kroeger (2012) trust refers to institutionalized *roles and routines* within organizations. Further, Zaheer, & Harris (2006, 190) see that routines can be both antecedent and consequence to trust.

When choosing a strategic partner, trust plays an important factor. Trust can be based on partner's *competences*, i.e. technical skills, experience and reliability needed to fulfil its obligations (Lui & Ngo, 2004). In contrast, Sitkin & Roth (1993) argue, that trust is based on partner's *integrity*, i.e. motives, honesty and characters. Connelly et al. (2015) have found that integrity-based trust is more potent for reducing transaction costs compared to competence-based trust. Further, Johnson, Cullen, Sakano, & Takenouchi (1996) have brought up two other dimensions of trust is strategic alliance: *credibility* trust as a rational component of trust, and *benevolence* trust as a subjective or emotional side of trust.

Referring to the consequences (output) of trust an interorganizational trust effects to direct *economic performance*, *intermediate relationships* (e.g. flexibility in strategy, increased information-sharing, joined goals, and greater exchange success) and *indirect effects* (e.g. mediation model and moderating roles) (Zaheer & Harris 2006); is an important source of *competitive advantage* (e.g. Barney & Hansen 1994; Schoorman et al. 2007), and it may *lead to lower transactional costs* (Dyer & Chu 2003). In interfirm level trust *lowers negotiation costs, reduces conflicts and improves performance* (Zaheer et al. 1998). Organizational trust *reduces social complexity*, which further reduces risk of trusting (Kroeger 2012). Jong et al. (2015) mention *performance* as the most critical consequence,

and recognize elements for example *communications, cooperation and conflict behaviour.* Zaheer, & Harris (2006) has found indications from several researches that *culture, region*, and *institutional forces* can have an effect to the antecedents and consequences of interorganizational trust. Moreover, Kroeger (2012, 4) claims that organizational trust is not solely system trust, but existing between interpersonal and system trust. The latter, namely system trust is introduced next.

3.2.3 Impersonal trust

Abstract systems and information systems such as digital open innovation platforms combine both technical means, guidelines and procedures, and professional expertise and competence. Due to the vast amount of available internet technology business interactions and transactions have moved, if not all but at least partially, from face-to-face interactions to computer-mediated forms of actions. Trust is embedded both on people and system, and therefore in this context trust is a potential determinator and factor of economical exchange on a digital open innovation platform. It seems to be relevant to consider the upper trust element, namely an impersonal trust. In addition, the other applicable factors for example system trust, institutional trust, and online trust are introduced for clarifying the trust perspective on the digital platform.

Organization trust includes impersonal element such as institutional trust (e.g. McKnight et al. 1998) or system trust (Luhmann, 1979). On top of existing web-based environments and operational systems impersonal trust is an interesting aspect, as knowledge work is increasingly initiated in computer-mediate matchmaking and carried out in temporary and technology enabled task forces and projects. *Impersonal trust* refers for example to trust in impersonal organizational factors such as vision and strategy, top management, the management group's goals and capability, technological and commercial competence, justice, fair processes and structures, roles, technology, reputation, and communications (Vanhala, Puumalainen, & Blomqvist 2010). Based on different disciplines dimension of impersonal trust can vary. On social psychology elements like justice and norm of reciprocity (e.g. Rousseau 1989) are critical. In the research of economics and strategy, trust can see enhancing for example knowledge sharing (Kogut & Zander 1992). In the organizational context impersonal trust consists of the dimensions such as capability and fairness (Vanhala et al. 2011, 504).

According to Shapiro (1987, 634) impersonal trust arise when social ties and direct contacts are weak or unavailable. The change from a face-to-face interaction to the society in which the interactions happen either at demographically large areas or more structurally complex systems the modern society depends on system trust (Luhmann 1988; Lewis & Weigert 1985). For example, Luhmann (1988) mentions *system trust* whereby a system is assumed to be operating in a predictable way, and where trust is placed in the function rather than in the people. System trust can be also defined as "a belief that a proper impersonal structure has been put into place enabling one party to anticipate successful transactions with another party" (Pennington, Wilcox, & Grover 2003; Lewis & Weigert 1985; Luhmann 1991; McKnight, Cummings, & Chervany 1998; Shapiro 1987).

In the context of e-commerce Harrison, & McKnight (2001) define *institutional trust* existing in web-based transaction environment. In context of vendor's Web sites, the institutional trust is created by ensuring that the impersonal structures and a place for successful transactions are available (Pennington et al. 2003, 200). Bachmann & Inkpen (2011, 284) propose that "institutional–based trust refers to the phenomenon that individuals or collective actors develop trust in the face of specific institutional arrangement in the business environment".

In the context of online economical exchange *online trust* is defined as "a reliance on a firm by its stakeholders with regard to the first business activities in the electronic medium, especially in its website" (Shankar, Urban, & Sultan 2002). More generally online trust is defined as "an attitude of confident expectation in an online situation of risk that one's vulnerabilities will not be exploited" (Corritore, Kracher, & Wiedenbeck 2003).

Referents

As referents of trust the technology (for example, the Internet and Web sites) is considered as an object of trust (Shankar et al. 2002, 4). In case of impersonal trust, the object of trust can be the *organization structure* (e.g. McKnight et al. 1998), *organization* (e.g. Robinson 1996) and *top management of the organization* (Mayer, & Davis 1999). Regarding system trust for example Blomqvist (1997, 281) claims that system trust can overtake the need for trust at the interpersonal level. Further, Luhmann (1979) argues that personal trust involves more emotions between individuals which in not the case with system trust. Instead, system trust rests on *presentational base*, i.e. appearance of a proper order (ibid). In context of online the objects of trust are *technology* and *the organization which deploys the technology* (Shankar et al. 2002).

Antecedents and consequences

As for the antecedents (input) of system trust in the very early stage, i.e. initial trust phase, users of the system focus on factors such as firm's *reputation*, *structural assurance*, *quality of the web page*, *customer's dispositional trust*, and *perceived situational normality*. Next stage, when they have some experience the factors include such as service provider's *ability, benevolence, integrity, and quality of web page*. (Salo, & Karjaluoto 2007, 609) Shankar et al. (2002, 332) find that the two important dimensions of online trust are *credibility* and *benevolence*. Giddens (1990) observes that the central sources of system trust are for example *institutional arrangements*, *standards of expertise*, *rules* and *procedures*, and advocated by individual.

Face-to-face experience enables the representation of interests and expectations to the business partner. System trust refers to the implementation of organizations' *aims* and *values*, which needs adequate *roles* and *routines* of individuals (Luchmann 1979), and acknowledgement and insights to *system of legal regulations, financial arrangements, and interests* between business partners (Bachmann 2001, 349).

Online transactions are riskier for example concerning *data protection* (Salo, & Karjaluoto 2007, 608). System trust can reassure business partners (Kroeger 2012, 5). Referring to risk taking in relationships many control systems are an alternate mechanism for the *risk management* (Schoorman et al. 2007, 346). If the risk is greater than trust (i.e. willingness to take trust) *the control system* may lower the perceived risk to a level which can be managed by trust, for example by "open book culture" and empowerment of employees (ibid). In the context of e-commerce, people are willing to use on-line services as they for example provide *good quality services* (Salo, & Karjaluoto 2007, 608; Gounaris, & Venetis 2002), and *customer bonding* (structural bonding and social bonding) (Gounaris, & Venetis 2002). In the context of online trust feature like *ease-to-use* (e.g. Davis 1989) is an important factor. In the online context Shankar et al. (2002, 332) define the potential antecedent of trust for example firm's *reputation* and *size*, user's *experience* with the firm and its *Web site*, user's *dependence* on the firm and *communications between the firm and user*.

The consequence of trust related to impersonal approach Granovetter (1985) observes that individuals and organizations opt to transact with established firms, and their members who are *engaged to repetitive transactions*, or *preferring ongoing relationships*. Institutional trust leads to a successful future if the *structural assurance* (for example regulations) or *contracts* are in place, and *situational normality* is in a proper order (e.g. McKnight et al. 1998). Online

trust leads to *a success* of an online enterprise or initiative (Beldad, de Jong, & Steehouder 2010). In the information system research Hart & Saunders (1997) claim that duality of technology (i.e. electronic data exchange) is the consequence of trust and an enabler of control. Other potential and relevant consequences of online trust are *satisfaction*, *uncertainty reduction*, *commitment*, and *long-term interaction with the Web site* (Shankar et al. 2002, 331; 332).

3.3 Trust as a process

In the previous chapters I have introduced the definitions of trust, the concepts of trust and levels of trust in this context. Albeit trust is conceptualized and measured in many business relationships less attention has been given to the dynamics and evaluation of over time. Huang & Wilkinson (2013) considers business relationships as complex adaptive system and propose a dynamic process model by describing the interplay among for example the perceptions, experiences and interactions over time, and evolution of trust. Further, Rousseau et al. (1998) distinguish different phases of trust as follows: trust building phase, where trust is formed; trust stabilizing phase, where trust already exists; and dissolution, where trust declines. Also, Lewicki & Bunker (1996) share an idea about stage wise evolution of trust. In addition, in the context of interorganizational relationships Ring & Van de Ven (1994) propose a process framework consisting of temporal explanation for emergence, evolution and dissolution of cooperative.

Further, in interpersonal relationships trust can grow and decline over time being dynamic in nature (e.g. Lewicki et al. 2006). In terms of attitude that trustor holds towards trustee Lewicki et al. (2006) introduce four areas in interpersonal trust development: behavioural approach and three specific psychological approaches (unidimensional in which trust and distrust are bipolar opposites; two-dimensional, in which trust and distrust are differentiable dimension: and transformational, in which trust takes different forms that develop and emerge over time). The latter dimension supports the idea of trust transforming and developing in phases, see Table 5. In case of online trust, it is a dynamic phenomenon rather than static (Grabner-Kräuter & Kaluscha 2003).

Table 5. Transformational dimension to trust development (adopted from Lewicki et al. 2006)

Factor	Transformational
Trust definition	The basis of trust (expected costs and benefits, knowledge of the other, degree of shared values and identity)
Trust measurement	Measured by scale items where trust is rated along different qualitative indicators of different stages
Level of trust to beginning	Trust begins at a calculative-based stage Trust initiated by reputation, structures (provide rewards for trustworthiness and deterrents for defection)
Causes the level of trust to change over time	Trust grows: positive relationship history, increased knowledge and predictability of the other; when parties come to develop an emotional bond and shared values Trust declines: positive expectations are disconfirmed

Trust formation phase

Trust is considered as a precondition to collaboration (e.g. Lane & Bachmann 1998). In addition, the starting point of a trust can differ. In a model described by Lewicki et al. (2006) all relationships start in calculus-based trust phase, where an actor evaluates the benefits and costs of the relationship, and elements such as vulnerability, risk, predictability and reliability are critical. Movement to the next stage, knowledge-based trust happened in extended relationships, where the parties are getting more information from each other's and engaging to repeated and varied activities and interactions. The last transition to the identification phase trust happens very rarely, for example in cases where with a very close relationship or when the focus moves from own interests towards joint benefits. (Ibid) In contrast, Rousseau et al. (1998) claim that the core elements are calculus-based trust (i.e. based on rational choices and economic exchange) and relational trust (i.e. based on repeated interaction and availability of information). Shapiro, Sheppard, & Cheraskin (1992) emphasize the calculus-based trust in business relationships, when parties aim to determine the nature of interdependence and prior experience with partner targets to minimize the risks and uncertainties. In addition, both prior experience with the partner (e.g. Das & Teng 1998), or in case of lack of experience, the good reputation of the partner (e.g. Pera et al. 2016; Lindgreen et al. 2012, 208) are basis for the collaboration to start. In case

of services which are characterized as a low-level of asset specificity only low level of trust is required, and institutional-based (i.e. system-based) trust can enhance the transactions (Bachmann & Inkpen 2011, 295).

Ring & Van de Ven (1994, 96-98) propose that in the interorganizational relationship the development and evolution phases consists of three sequences. First is the negotiations stage (i.e. for example development of joint expectations about motivations, investments and perceived uncertainties). Second, in the commitment stage for example establishment of governance, informal handshakes and formal legal agreement are reached. Lastly, the execution stage in which for example commitments and actions are put into effect and the persons involved are familiarizing other's as persons. (Ibid)

Initial trust

Das & Teng (1998) argue that some initial trust is required the collaboration to start. In business relationships the early interactions are often business oriented, or in case they have interacted or otherwise introduced before, they have something in common. Formation phase of trust is more cognitive and calculative based on prior knowledge, beliefs and information of partner which is used to evaluate for example the partner's resources, skills, reliability and interests (e.g. Das & Teng 1998; Lewicki & Bunker 1996; Shapiro et al. 1992). Initial trust is an anticipation of something forthcoming (e.g. Lane & Bachmann 1998) or based on part satisfactory experience (e.g. Gulati 1995). The formation of initial trust phase includes faith in humanity (i.e. goodwill and reliable) and trusting stance (i.e. belief of better interpersonal outcome) (McKnight et al. 1998). It is suggested by Rousseau et al. (1998) that initial trust is not a control mechanism against vulnerability but a substitute for controlling. Trust determines the likelihood that people are willing to trust, and for example by the prior availability of data about others (Mayer et al. 1995). Open and fluent communications is a key factor to a relationship (e.g. Anderson & Narus 1998) including proactive information exchange which both builds the initial trust (e.g. Das & Teng 1998).

Trust in implementation phase

As well as the initial trust formation trust implementation happens in different levels: in interpersonal interactions, in interorganizational level and in the level of institution or system. Kroeger (2012, 8) raises the aspect that how a subject of trust moves from interpersonal to the interorganizational level, and how this type of trust persists over time. According to Schoorman et al. (2007, 346) at the very beginning of the relationship the propensity, as a dispositional quality, is an important factor. During relationship, judgements

of ability and integrity will form relatively quickly, whereas judgement of benevolence will take more time (ibid).

In the actual transaction phase both parties define the form, rules and governance to the collaboration, which can consist of contractual agreements (e.g. McKnight et al. 1998) and governance mechanisms (e.g. Isckia & Lescop 2015). Despite of the control mechanisms the relationship can also rely on social knowledge. In the relation between formal contracts and psychological contracts trust can be seen a reason not to use legal controls (e.g. Ring & Van de Ven 1992).

Trust evaluation against performance

Trust is built on an individual level to gain long-term benefits of the relationship between business partners (e.g. Anderson & Weitz 1989). Cooperative and participative firms invest to economic exchange (e.g. Anderson 1995), economic and technologic resources and social commitments (Ring & Van de Ven 1994, 106), credibility and efficiency (e.g. Williamson 1993). However, the accurate estimation of the performance is quite challenging.

In sociology trust is only about the past, whereas economists focus on the prospects for future gains or losses (Zaheer, & Harris 2006, 181). The continuance of the relationship in the future encourages collaboration between organizations (Heide, & Miner 1992). Role of the past in trust creation can depend on previous interaction between organizations and familiarity, and lead to increased trust (Gulati 1995). However, other researchers (e.g. Lui, & Ngo 2004) claim that the length of the relationship, or presence of prior relations are unrelated to trust. On the other hand, the valuation of future trust depends on the organization's rate of time discount: if the rate is low, it values for example the future benefits and cooperation more, than is case the rate is higher (Zaheer & Harris 2006, 181).

In sum, trust is dynamic phenomena and transformational by changing over time. Trust changes over time by having various drivers such as processes, mechanisms and events, which effects to the process. Trust is built in every step of a business relationship in time: in the initial phase of the relationship. Temporal aspect is also related to the levels of trust, which in this context are interpersonal level, interorganizational level and system level.

4 RESEARCH METHODOLOGY

In this chapter, firstly the research strategy and design of this study are presented following the description of how the methodological choices support the research question, which in this thesis is *how can a matchmaking platform provider meet its stakeholders' expectations for value creation?* Secondly, the empirical setting of the research is introduced. Thirdly, the process of the data collection is described. Fourthly, data analysis is explained, and following fifthly, the estimation of the quality of this research.

4.1 Research strategy and design

A qualitative research aims to understand the phenomenon of the research problem. The target is to clarify the meaning or purpose of the phenomenon, and to gain a holistic and deeper understanding. In practice, this means for example giving "voice to the informants" (e.g. Gioia et al. 2013) and space to the perspectives and experiences of people, and getting acquainted with the thoughts, emotions and motives associated with the phenomenon (e.g. Hirsjärvi, Remes, & Sajavaara 2010, 164). The main purpose of a *qualitative approach* is to get a proper understanding of the operations in the company rather than explaining and controlling of them (e.g. Alasuutari, Koskinen, & Peltonen 2005, 16). According to Guba & Lincoln (1994, 106) the so-called dimension of discovery, which is based on the data from qualitative research, is much more useful compared to the quantitative normative methodology. Given the interest in elaborating the value creation, its challenges and future potential on the digital open innovation platform, this study and individual case accordingly gives an opportunity to get meaningful information and to study and the expectations of the matchmaking platform provider and its stakeholders. Therefore, the choice of a qualitative approach seems appropriate for this research.

Case study is the most common way and a suitable approach in order to get a deeper understanding of a phenomenon and new information from a defined individual company or organization. According to Yin (2009, 4; 9) *case studies* are relevant when the researcher seeks to understand the complex social phenomenon, for example behaviour in small groups, organizational and managerial processes, or maturation of industries, and addresses either a descriptive question "what" or explanatory questions "how or "why". In this study the former approach applies more as the goal is to learn "what happened", yet the "how" fits well particular in case of value creation and building of trust.

To the new topic of the research area *inductive, case-oriented approach* is especially appropriate when the case study allows to test the applicable theories, or even build novel theoretical constructions from existing case studies and empirical evidences in area for which existing theories seem inadequate (Eisenhardt 1989, 532; 548). On the other hand, *an abductive discovery-oriented research* leads for example to critical reflection of empirical data by creating "a mystery" (Alvesson & Kärreman 2007, 1265; 1278) or "a doubt" (Locke, Golden-Biddle, & Feldman 2008, 908), and it combines both inductive and deductive steps of the process (Klag & Langley 2013, 151). Even though most empirical studies proceed from theory to data, the accumulation of knowledge involves a continual cycling between theory and data (Eisenhardt, 1989, 548). In this sense, despite the investigation of the theoretical background regarding trust and trust building in the beginning, the empirical evidences gathered through the case offer valuable insights to the particular case, as well as discovery of new aspects regarding value creation on the platform.

Most social phenomena are processes and related to *time* (Bidart, Longo, & Mendez 2016, 743), and temporal object is a central factor in process analysis (e.g. Pettigrew 1997, 345). In *processual analysis*, case study allows to search patterns in process, compare different case, and to observe process in order to find any mechanisms that shape it not forgetting the possibility of interaction between inductive and deductive pattern recognition (Pettigrew 1997, 339). Thus, in this study the value creation can be seen as a process, where certain elements have been influencing how the value is seen in the beginning and during the collaboration phase. When the collaboration proceeds actors can find out elements which are causing challenges and need to be fixed in order to create new value potential. At the same time this particular case allows comparison of these factors in a certain stakeholder group and between the different stakeholder groups. According to Langley et al. (2013,1) *a processual and dynamic view* explores "how and why things emerge, develop, grow, or terminate over time […], thus, focuses empirically on evolving phenomena, and it draws on theorizing that explicitly incorporations temporal progressions of activities as elements of explanation and understanding".

Gehman et al. (2017, 15) emphasize that qualitative research is about finding an appropriate theory-method fit and that methodology provides orienting principles and tools that are to be modified and customized for the purpose. The defining *the unit of analysis*, i.e. "the case", is meaningful regarding the data as it distinguishes between data about the subject of the case ("the phenomenon") and data external to the case ("the context") (Yin 2009, 32). The formulation of the research question as well as the research strategy and

the interview questions are based on the previous literature and theories regarding the value creation and stakeholders' trust. The unit of analysis in this research is the digital open innovation platform. A nested case study research design (Yin 1989) was chosen because of its inductive power to expose the complex social phenomenon (Yin 2009, 4; 9). In this so-called nested set of cases the focal actor is the open innovation platform owner, i.e. matchmaking platform provider, who is sustaining relationships and collaborating with its ecosystem of stakeholder groups, and firms within the groups (see Figure 7).

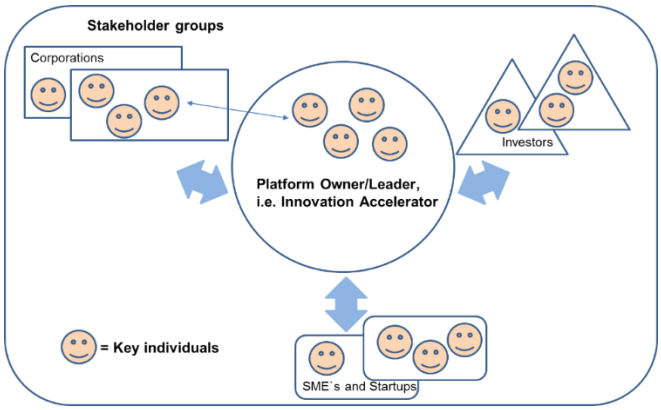

Figure 7. The nested case.

In this research *the stakeholders' expectations* on the digital open innovation platform is *the phenomenon of interest*, which consist of different interesting areas, namely various expectations within the stakeholder groups, value creation and trust building activities by the central actor on the platform. The research problem, i.e. *how can a matchmaking platform provider meet its stakeholders' expectations for value creation?,* is potentially linked to several theories and the phenomenon is relatively new, so the approach is selected to get a holistic view of case, reflect to the existing theories and define new concepts. To study the phenomenon further and increase understanding about the case, the following sub-questions are formulated accordingly:

1. *How do different stakeholder expectations differ from each other?, and*
2. *How can platform leader create value on the digital innovation platform?, and*
3. *How can platform leader build trust among different stakeholders?*

The case research allows the utilization of versatile *material* including data repositories, observations, and interviews, which helps getting answers to the research problem. Yin (2009, 106) emphasises that *interviews* are essential sources of case study information. Especially, if the phenomenon of interest is episodic and infrequent of nature, interviews

are highly efficient way to gather rich and empirical data. If focal events are recent, the interviews are particularly accurate. (Eisenhardt & Graebner 2007, 28). In this study the identified *secondary data sources,* which provided a valuable background information for the orientation to the case, were internet pages, press releases and the digital platform, whereas *the primary data sources* were the owners of the platform, and individuals who worked for the firms and were involved with the case. Given the interest in studying the case regarding the sequential processes of value creation retrospectively it allows to understand the current value creation factors throughout the previous programs, open calls and pilots within the platform, identify the potential challenges or burdens, and define the future success factors for development of digital platform to a next level. Essential is also the comparison of the expectations within the stakeholder groups and between different stakeholder groups. It enables broader exploration of research questions and theoretical elaboration (Eisenhardt & Graebner 2007).

4.2 Empirical research setting

Next the empirical setting of the research is described. The setting of the empirical study consists of three parts. Firstly, explaining the reasons why this setting was selected in order to study further phenomenon of the interest in this thesis, and secondly presenting of the case. Thirdly, the data gathering method explained and the key informants are introduced in this context.

4.2.1 Selection of the empirical research setting

The case was selected due to own interest in digital open platforms, which initially emerged firstly from the previous experience of new ways of organizing collaboration, and secondly the interest in the potential of developing the business opportunities parallel in a national and global levels. Further, there was a possibility of an access to the digital platform owner and its network, which is in relatively early phase and focusing niche markets both, at this stage, in geographically (i.e. Nordics) and in specific business area. In line with the aim the single empirical setting is selected to study relatively rare phenomenon and to understand the related expectations within and between different stakeholder groups, i.e. how they see the value creation and how they trust to the platform and central actor of the platform, i.e. matchmaking platform provider.

4.2.2 The case description

This research focuses on studying an existing digital open innovation platform, which is owned by a platform leader, in this case called as a matchmaking platform provider. The platform is multi-sided, external industry-wide platform (e.g. Evans 2003; Boudreau & Hagiu 2008; Gawer & Cusumano 2014; Gawer & Henderson 2007). The aim is to examine the value creation of the platform to its stakeholders (corporations, SMEs and start-up companies, and investors) and the facilitation of trust building by platform matchmaker. The platform is referred as "Beta" to disguise its real identity.

The "Beta" platform was launched in 2013 and is based on the concept developed by a large international corporation. As a pilot "Beta" hosted a corporation program in 2015, where three selected corporations set open calls for the SME's and start-up firm to join with their solutions. The SME's and start-up firms, which were selected to the piloting phase with corporations, had a possibility to get additional strategic support during the program from "Beta" and its partners.

"Beta"'s purpose is to offer an effective way for large corporations to find innovative solutions for renewal, and for start-up and growth companies to find new business opportunities. "Beta"'s services include online tools, in which the corporations can set open calls, and where different stakeholders can find each other and open a dialogue regarding the possible business opportunities. In addition, "Beta" organizes a yearly event, in which stakeholders can meet face-to-face, and for example the SMEs and start-up firms are able to pitch their business cases and meet potential investors. Until now "Beta"'s focus has been mainly the Nordic area, in the next phase "Beta" is aiming at building more global network in collaboration with other clusters worldwide.

4.2.3 Interviews and the key informants

Probably the most commonly used data gathering method in qualitative research is interviewing (e.g. Mason 2002, 62). In this study along to the access to the secondary sources for example internet pages and digital platform as a source of background information of the case, the primary source of data is interviews. The data material is focused on semi-structured interviews, where the purpose is to allow interviewee providing

his or her own insights in an open, not leading manner (Yin 2009, 107), and discover of new aspects.

The main approach is using numerous highly knowledgeable informants, who are able to give diverse perspectives to the phenomena (Eisenhardt & Graebner 2007, 28). In this research the levels of informants are versatile. The key informants of the study are first of all the digital platform owner and workers, who are able to shed a light to the history of the platform, business model, customers, targets and future plans. First and foremost, they are the focal point to the firms they collaborate with on the platform. In addition, to gather diverse experiences regarding the previous programs, calls or other collaboration with the digital platform owner and reflecting to their expectations, it is essential to give the voice to the key stakeholders of the platform. They were in different organizational positions, located in various countries and having various experience and perspective to the platform. The key informants, their organizational level, background (nationality, gender), and their level of experience within the platform are introduced in Table 6.

Table 6. Key informants.

Interviewee group	Organizational level	Background (nationality, gender)	Level of experience with the platform
Platform owner / matchmaking platform provider (*	Executive level	European; country A; male	board member
	Executive level	European; country A; female	established the platform; board member
	Executive level	European; country A; female	development role; CEO
	Operational level	European; country A; female	development role
Corporation 1	Executive level	European; country A; male	setting of corporation call; participated events
Corporation 2	Operational level	European; country B; male	setting of corporation call
Corporation 3	Executive level	European; country A; female	participation to a corporation venture program; setting of corporation calls
	Operational level	European; country A; male	participation to a corporation venture program; setting of corporation calls

Corporation 4	Executive level	European; country C; male	partner of the “Beta” platform; having similar type of an own platform
	Executive level	European; country C; female	partner of the “Beta” platform; having similar type of an own platform
Corporation 5	Operational level	European; country A; male	participation to a corporation venture program
SME and start-up 1	Executive level	European; country A, male	responding to corporation call; participated to event
SME and start-up 2	Operational level	European; country A; female	responding to corporation call
SME and start-up 3	Executive level	European; country D; female	responding to corporation call; participated to event
SME and start-up 4	Executive level	European; country A; male	participation to a corporation venture program; responding to corporation call; participated to event
SME and start-up 5	Executive level	European; country A; male	participation to a corporation venture program; responding to corporation call
Investor 1	Executive level	European; country E; male	participation to event
Investor 2	Executive level	European; country A; female	participation to event
Investor 3	Executive level	European; country F; male	participation to event
Investor 4	Executive level	European; country G; male	following-up the platform
Investor 5	Executive level	European; country A; male	participation to event

*) CEO and manager of the platform were interviewed together in three sessions.

Regarding the purposeful sampling the key question is the access to the data with the right focus. In addition, the consideration of size of sample and number of categories should help to understand the process rather than represent a population or all similar categories. The size of the sample is dictated by the social process under scrutiny, meaning that the saturation point is reached when the data stops telling anything new. (Mason 2002, 134-135) In this case the main drivers are the access to the data, i.e. to the informants, and saturation point. The sampling criteria of informants were as follows: interviewee shall represent one of the key stakeholder groups of a platform (either corporation, SME and

start-up firm, or investor) and being involved and having connections to the digital platform. As the platform is in a relatively early phase, some limitations and challenges were recognized for the number of interviews. Typically, one person only had used the tool, or in fact the size of the firm was so small that only one person was in contact with the matchmaking platform provider. Therefore, the setting of the interview groups ended up to having at least five firms per each stakeholder groups, where at least one representative was interviewed. In addition, in some point the saturation point was reached, and the data started to partly repeat itself.

4.3 Data collection

In this chapter the data collection phase is followed through. Qualitative research is always based on appropriate rather than statistical samples. Data collection is about how best to generate data from chosen data sources (Mason 2002, 53). Semi-structured interviewing has some core features, for example the interactional dialogue; rather informal in style; having a thematic or topic-centred approach; and ensuring that the interview produces the situated and contextual knowledge (Mason 2002, 62). According to Gioia et al. (2013, 19) semi-structured interviews provide both retrospective and real-time statements from the persons experiencing the phenomena in focus. The main data of this study was collected through semi-structured theme interview in order to get descriptive answers from the interviewees. The main themes of interviews are typically based on the conceptual framework (e.g. Hirsjärvi et al. 2010, 208), for example in this research the following themes were established: start of collaboration, experience before joining the platform, current activities within the platform, goals, comparison between traditional and platform collaboration, motivation, expectations, collaboration, elements of successful digital platform, trust, communications, development of business ecosystem, and the future. The themes and supportive detailed questions under the themes are introduced in Appendix 1.

In this study the actual data collection started with acquiring pre-understanding about the platform. Pre-understanding is crucial in gaining an overall view of the case (Gummesson 2000, 106). Therefore, the data gathering started with introducing the research plan to the representatives of the platform and gathering of a background information by interviewing four persons working with the platform. Two person works for the board of open innovation platform, one is a CEO of the platform and one is working for the operational site of the platform. the data collection process is introduced in Figure 8.

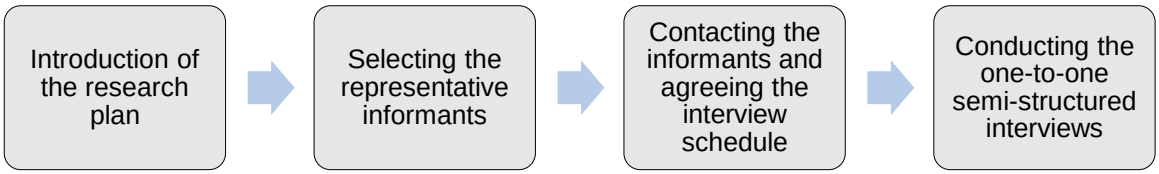

Figure 8. Data collection process.

The interviewees consisted of the stakeholders, i.e. persons and their companies, involved with the platform and having practical experience with the central key actor, i.e. matchmaking platform provider (see Table 6). The contact information of the persons in three key stakeholder groups was gathered from the owner of the platform. After the list of representatives was set the short introduction, background and purpose of the research was sent by email proposing the data and time for the interview. The themes of the interview were not sent in the first place to get open, honest and transparent answers from interviewees.

The data collection and interviews of the stakeholders were conducted in January - February 2017, and they ranged between 45 to 60 minutes. All interviews were conducted by phone due to distance constrains, and both in Finnish and English depending of the nationality of the interviewees. In the beginning of each interview it was clarified that all information regarding the interviewee information and the content of the interview will remain confidential, and asked permission for recording. The interviews followed the interview plan what comes to the themes and questions, but both additional questions were asked when applicable, and some questions were left out in case they were not relevant due to the level of the interviewee's true experience with the digital platform. All interviews were recorded and transcribed, and some additional notes were made during the interviews as well. In addition to the five interviews with platform representatives, the overall 16 interviews were conducted to the stakeholders, half of them (8 interviews) was done together by me and the supervisor of this thesis, Professor Kirsimarja Blomqvist, and another half (8 interviews) by myself. The interviewees were positive and shared quite openly their experiences, view of points and opinions including a wide range of development aspects. Last interview was the validation discussion in August 2017 with "Beta" about the preliminary results of this study.

4.4 Data analysis

In this study the guiding theories, when defining the interview themes and questions, were about trust and building of trust. However, the eventual process is closer to the abductive data analysis strategy as moving back and forth between gathered data, own experience, explanations and broader concepts (e.g. Coffey & Atkinson 1996; Mason 2002, 180).

The data was analysed on three levels: each case firm was analysed separately, then each stakeholder group was analysed, and lastly, all stakeholder groups were compared (see Figure 9). The findings of the analysed themes, namely the value creation phase, the value creation challenges and the value creation potential, are introduced closely in the next chapter 5. “Findings”.

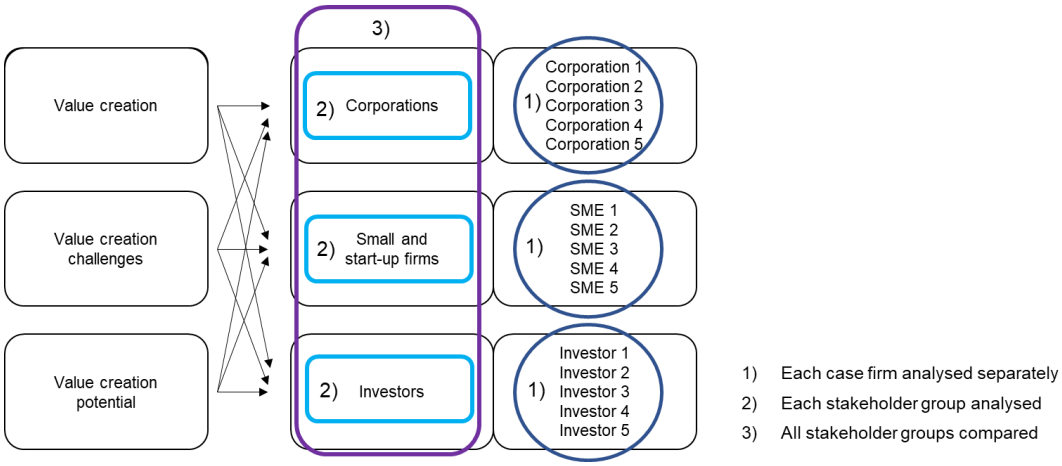

Figure 9. Levels of analysis of findings.

Gioia methodology is a systematic holistic approach to a new concept development and is designed to bring qualitative rigor to the inductive research. Instead of imposing a kind of the preferred prior constructions or theories on the informants and their experiences, already in the early phase of data gathering and analysis the voice is given to the informants themselves. It creates an opportunity to discover new concepts rather than relying on the existing concepts. (Gioia et al. 2013, 11; 13) Thus, during the preliminary thematic analysis of the data (e.g. Clarke & Braun 2013, 120) certain new three themes emerged, namely value creation of the platform, i.e. how the stakeholders see the already realized value, value creation challenges, and value creation potential. In addition, the following themes

were observed: communications, operational collaboration with the matchmaking platform provider, and time.

In this study the Gioia methodology is applied to define the aggregated dimensions. These so called 2nd-order "aggregated dimensions" normally emerge from 2nd-order themes after they have developed from the 1st-order analysis (Gioia et al. 2013, 16). The Gioia methodology was followed so that firstly the data was organized into 1st-order concepts and secondly to 2nd-order categories, see Figure 10. According to Gioia et al. (2013, 16) 1st-order analysis tries to echo faithfully to informants' comments and terms. As the analysis proceeds the 1st-order concepts forms more abstract 2nd-order themes, which suggest the theoretical concepts, that potentially helps explaining the observed phenomena. (Ibid)

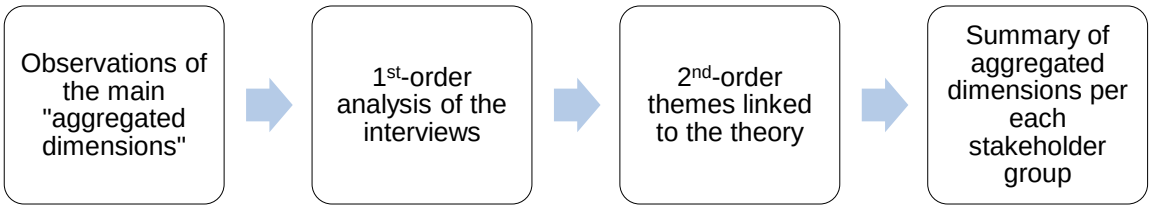

Figure 10. Data analysis process.

Qualitative research enables discovering and finding of interesting aspects throughout the data analysis. Therefore, the use of multiple investigators has its advantages by enhancing the creative potential and likelihood of surprising findings of the study, and confidence in the findings (Eisenhardt 1989, 538). Bearing this in mind the nearest colleagues were involved in the data analysis phase by giving their perspectives to insights of the data. In practice, the immediate outcome of the interviews was discussed already right after the interview sessions, and the more through data analysis was conducted so that as a first step the transcribed interviews were read through separately by me and Kirsimarja Blomqvist. The aim was trying to understand what the informants say. First, we went through the transcribed interviews, and proposed the 1st-order concepts for the supportive "power quotes", which illustrate the data in the most compelling way (e.g. Pratt 2009, 860). Then, we had a joint session where we together discussed, developed and agreed the 1st-order concepts. These joint sessions were organized for in corporations' stakeholder group for three interviews, for two SME and start-up interviews and for two investor interviews. The rest of the interviews I did alone, but based on proposals, which were together discussed and developed by Kirsimarja Blomqvist and myself. For the data analysis the

qualitative research tool NVivo 11 was used as the software makes it possible to store and organize the material by information source and content. One example of the 1st-order concept is in Table 7.

Table 7. Example of the 1st-orders for by large firms.

Code	1st ORDER CONCEPT	AGGREGATE DIMENSION
"the signal has strengthened and there is a need"	Need for innovation collaboration	VALUE CREATION
"the most challenging part is to work internally, to get people changing their minds"	Corporation culture and mindset	VALUE CREATION CHALLENGE
"this is something important because we have now a digital platform"	Learning new tools	VALUE CREATION CHALLENGE
"we have limited resources allocated to open innovation"	Limited internal resources	VALUE CREATION CHALLENGE
"global reach is one of the reasons, as we are seeking globally start-up firms"	Global reach	VALUE CREATION POTENTIAL

Next, referring to the literature review in the beginning of the thesis process, I proposed the 2nd-order concepts by myself. Then, we conducted together with Kirsimarja Blomqvist and Laura Olkkonen, who is researcher and expert on stakeholder expectations, the researcher triangulation to refine the 2nd-order concepts, which is explained in chapter 4.5. Example of the 2nd-order themes are introduced in Table 8 and in Appendix 2.

Table 8. Example of the 2st-order themes for by small and start-up firms.

1st ORDER CONCEPT	2nd ORDER THEME	AGGREGATE DIMENSION
Getting information about challenges (calls)	Communications	VALUE CREATION POTENTIAL
Proactive communication on platform activities		

Direct and personalized emails		
Getting information about challenges (calls)		
News about new members on the platform		
Communication about the concept to stakeholders		
Feedback about interest (views) on the platform		
Proactive communication on platform activities		
Easiness as platform and challenges free for start-ups	Efficient innovation tool	VALUE CREATION
Responding to calls (challenges)		
Efficient use of time		
Efficient use of time		
Digitalization provides convenience		
Reliable platform		
Basic filling-in web forms on the platform		
Easy application process		

Showing the path from data to aggregated data is critical, as it allows to assess the credibility of the theory and concepts (Pratt 2009, 860). Therefore, the data analysis is gathered in tables so that first the main aggregated dimensions are introduced according to each stakeholder group. The main findings are explained detailed in chapter 5.

5 FINDINGS

In this chapter, the results of the empirical data analysis are presented. As described earlier in chapter 4. Data analysis, the case involves three key stakeholders' groups which are collaborating with the matchmaking platform provider "Beta", and potentially within the digital open innovation platform. Members of the stakeholder groups have different level of experiences regarding the collaboration (see Table 5. Key informants in chapter four): they have joined so called corporation venture program; they have participated the yearly events; they have either set a corporation call or a few calls; they have responded to a call with an application, or they have had a pilot project with corporations. In this respect the analysis of value creation over time is divided into three phases (see Figure 11): 1) value creation, i.e. experience regarding the collaboration with "Beta" and other stakeholders or other type of participation (e.g. the events), 2) value creation challenges, i.e. how stakeholders see the challenges to a future value creation based on their experiences so far, and 3) value creation potential, i.e. stakeholders' opinion how a digital open innovation platform could create value for them, and maintain a value-adding platform.

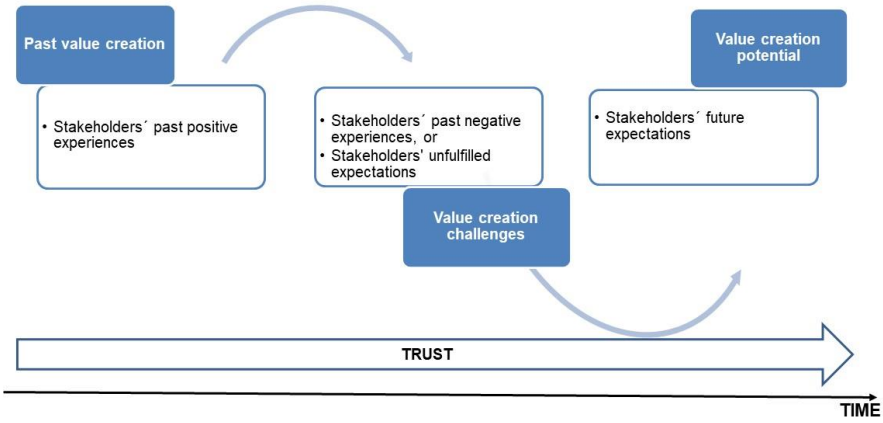

Figure 11. Trust as a foundation of a collaboration, and value creation over time.

Value creation happens and is created in the temporal phases of the relationship. Ring, & Van de Ven (1994, 112) propose that development processes (such as negotiations, commitment, and discharging stages) of interorganizational relationships are cyclical, rather that sequential, and seeking balance between formal (e.g. legal) and informal (e.g. social psychological) processes. In this case, the value creation phase is about the experience the stakeholders have had with "Beta" while participating corporation venture program, joining the digital innovation platform, collaborating within the platform or participating to the

annual events. In this chapter I also analyse the value creation challenges and value creation potential presented by the stakeholders. They are partially based on persons' experiences, and partially their opinions and visions. These themes – value creation, value creation challenges, and value creation potential – are introduces per each stakeholder group in sections 5.1 – 5.3. In section 5.4 the key findings are summarized in all stakeholders' groups. In addition, the value creation dynamics in collaboration are summarized in section 5.5. Then, in section 5.6 I analyse the trust building on the digital open innovation platform. Lastly, the time related factors in different phases of collaboration are introduced in section 5.7. The data is listed in Appendices 3 - 5. The quotes from the interviews are in italics.

5.1 Large firms' group

At first, I analyse the findings of large firm group regarding the value creation followed by introduction of the value creation challenges. Thirdly, I present the indicated value creation potential. Lastly, I summarize the key findings of the stakeholder group concerning value creation, value creation challenges and value creation potential.

5.1.1 Value creation

In this chapter, I analyse the key findings of value creation in the large firms' group. The large firms are called "corporations" in the text.

Regarding the previous experience with the digital open innovation tool "Corporation 1" have set an open call and participated the yearly events as well. So far, the firm sees that the platform is a cost-effective and agile tool for collaboration. It offers a potential to get novel ideas for firm's operations and business development:
"…in digital platform the good point is that is a good additional tool […] and an effective way to reach and collect and analyse materials […] and potential to geographical expansion."

The interviewee also appreciates the personal interaction with "Beta" 's representatives and other participants during the events. The communications have been smooth and clear:
"… active, agile, flexible […] positive experience of the organization and the key persons […] I have always received quick answers and comments…"

Thought, despite the limited size of a network when the corporation program started, “Corporation 1” values the focused, cross-industrial and global network as an asset:
“I appreciate the ecosystem […] that consists of a broad network of researchers, research institutes, firms of different sizes, investors, influencers, including the international collaboration […] it brings new business opportunities and business development opportunities.”

Compared to “Corporation 1” the second large firm, “Corporation 2”, has a limited experience with “Beta”. Despite of it, the collaboration and communications with “Beta” have satisfied the interviewee. Interestingly, “Corporation 2” is targeting to learning the novel innovation tools, which fits well to a corporation mind-set and needs. Even though they have known the matchmaking platform provider for a while they started the collaboration only last year by setting an open call. However, the firm sees the value in a same way as “Corporation 1”, namely the platform as very concrete, effective and efficient tool. It conveys the information and templates in one place without forgetting the possibility of managing both internal and external platforms in one place. This is obviously very important to a globally acting corporation. The tool fits well with the current needs, as they are looking for partners from an industry sector with ideas, and improvements for operations:
“…from the beginning we understood […] that this is what I want to do […] it’s exactly a match.”

“Corporation 3” has versatile experience with “Beta” and the platform. They have already joined the corporation venture program a few years ago by setting an open corporation call and collaborating with start-up firms. Some of the projects even proceeded to a pilot phase. In the meanwhile, the corporation has strongly refocused its strategy. They are generating business-driven innovation solutions and has increasing collaboration with small and start-ups firms:
“…it was recognized that these things needed to be done, and we need to do more with start-up firms and digitalization, focus more […] then our strategy changed […] it was also saw the investment to the start-up firms too. […] The timing was excellent, because the need was recognized by us, but an applicable tool had not been found yet. […] I felt that now there was a first actor who had a grip to a start-up and large firms’ collaboration […] find new partners, which can provide such solutions or ability to deliver the solutions that we haven’t had so far […] Our strategy changed …”

Personal interaction and smooth collaboration with “Beta” have been valuable to “Corporation 3”. They have gained new solutions and innovations to improve their operations. As a reflection to the new strategy, they have lately promoted the collaboration and piloting with start-up firms. In addition, they mention the value for their end-customers

and consumers. “Corporation 3” has benefited by learning how to use an agile, cost-efficient, flexible, and end-to-end service. They are focusing on development of an own tool as well.

“Beta” has a closer partnership with “Corporation 4”, which has its own innovation platform as well. Reflecting on their profound practical experience and continuous development work of design and technology of the tool it is evident that the representatives value the platform widely. Cost efficiency, easy-to-use characteristics, accessibility and availability for the whole global organization, sharing of information, openness, agility and reliability are valuable. In addition, digitalization plays an interesting role, while the open ideation site can be opened to the external partners case by case. The tool connects different parties virtually. From the network point of view, “Corporation 4” echoes the same aspects as the previous corporations, namely cross-industry innovation and global reach. However, in the sense of openness of both internal and external platforms, the company appreciates the possibility of more focused matchmaking for certain selective campaigns within the tool. Throughout these possibilities “Corporation 4” values the new innovations and thinking out-of-the-box, which create novel ideas for they business. “Corporation 4” mentions two new points as well: a platform is seen as a catalyst for technology transfer, and a provider of low risk approach for all counterparties.

“Corporation 5” participated a few years ago a corporation venture program, where they set an open challenge, and as a result of program, they collaborated and piloted with some start-ups firms. Like other corporations, “Corporation 5” appreciated the smooth collaboration with “Beta” and use of multiple communication channels diversely. Regarding the network value “Corporation 5” felt that the tailor-made program, as being a relatively low risk alternative with a known partner (i.e. “Beta”), fits well to their needs and expectation of the novel ideas for the business at the time. They gained visibility within the network and matching with limited innovation network. On the contrary, they were expecting a larger network. About the platform as a tool “Corporation 5” appraises the availability of a ready-made concept and handy tool. It enables the handling of applications, evaluation of ideas, collaboration, information sharing, and keeping up contacts in an effective, systematic and goal-oriented manner. An interesting point is the learning aspect. “Corporation 5” is willing to learn new tool, to learn from start-ups firm the agility, and to establish pilot projects. All in all, “Corporation 5” is interested in own capability building through the program and collaboration with start-up firms.

5.1.2 Value creation challenges

In this chapter I clarify the large firms' opinions on the value creation challenges on the digital open innovation platform.

In order to avoid burden "Corporation 1" considers the technical usability and workability of the platform as key factors. A major potential value creation challenge is that the large firms are establishing their own platforms. Presumably, it means that they are not as fully committed to the platform as in the beginning of the collaboration.

For "Corporation 2" the commitment to the platform can be challenging. For example, a large firm can alternatively use external brokers who evaluate the innovations for it. On the other hand, an accelerator could potentially be part of the service portfolio and among other competing tools or resources of which the large firms select the most suitable alternative for its needs at a time. Concerning the large firm's internal resources, the open innovation is a new way of organizing innovation process. Therefore, a large corporation might have a limited or inoperative organization structure for the purpose. There are some challenges in the following phases: time-consuming internal evaluation phase, or the actual implementation phase including its cost effect. "Corporation 2" sees that the communications break between an accelerator and the large firm during the evaluation phase of the proposals is unpractical.

Further, "Corporation 2" has observed that small and start-up firms invest very small extent to the applications and innovation process as it can cause transactional costs to them. The large firm is concerned about small and start-up firms' potential of releasing (accidentally) too confidential data:

"Then there is a risk of confidentiality […] We always advise people no to propose confidential data…"

"Corporation 2" mentions that the engagement of different firms outside the industry might be a confidentiality risk anyway. On the whole, the success of calls determines the value creation in the future even. However, "Corporation 2" admits that it is not entirely in an accelerator's own hands.

Due to a nature of its industry "Corporation 3" mentions that one of the challenges to a value creation is the need for vast and long-term investments which are required for the implementation of innovations. "Corporation 3" also indicates that the large firm's internal

commitment issues (e.g. lacking the top management's support, organizational changes, the overall minds-set and culture, capability to collaboration and selling ideas, linkage between innovations and the business units) might hinder the value creation."Corporation 3" reminds that large firms can set-up own tools or have other substitute tools for internal innovation. If the tool is available and used it should be technically workable.

"Corporation 3" comments also on the potential lack of readiness of small and start-up firms. They are probably not aware of all criteria of an industry, or they are technically unprepared for a piloting. The quality or a final success of an open call can cause value creation problems. Compared to the other previous large firms the "Corporation 3" also discovers the potential legal barriers (e.g. intellectual property rights or competition law) as factors diminishing the value creation on the platform:

"Certainly, the pain point of large firms is courage a sort of the initial phase innovation work, that first of all IPR is always a pain point […] another pain point is cultural […] of course there is also a competition law which needs to take into account so that what kind of actors can do collaboration."

"Corporation 4" echoes the previous large firms with the following points diminishing the value creation: existing corporation mind-set and culture, limited or lack of resources or organizational structure, need for large investment, engagement of top management and internal resources, collaboration for open innovation with internal and external counterparties, and firm's engagement to the platform:

"…the most challenging part is to work internally, to get people changing their mind-set […] we are dealing with very conservative business. It's difficult to have, people, even if they are, as individual very excited by the innovations…"

Concerning the internal collaboration, the value creation can be challenging: there is a missing link between strategic objectives and the operative level and its process; the needs and preferences vary generally; or the link between innovation programs and corresponding processes are lacking. According to "Corporation 4" the innovation and collaboration can be either too novel or too open to large firms. Also, the collaboration with potential business competitors' is problematic.

Further "Corporation 4" introduces the lack of a good management of the collaboration with other stakeholders, i.e. investors and small and start-up firms, which might hinder the value creation. It is partly related to the overall competences in the large firms, i.e. how to innovate and collaborate with third party partners. On the other hand, the value creation does not materialize if the internal decision making is imperfect. Finally, the integration to open

innovation processes and tools might be incomplete. Above all, the large firm can change its strategic focus so that it does not fit to the open innovation and collaboration accordingly. Then value creation can slow down or even finish.

“Corporation 5” presents some new aspects which are not mentioned by previous firms as yet. The lack of a proper coverage of the network, for example global reach, can diminish the value creation. On the other hand, the large firm potentially might not have an experience or resources to collaborate within the platform. Large firms’ commitment to the platform can be weaken due to the availability other potential service providers in large firm’s service portfolio. “Corporation 5” reminds that organizational rigidity can be an issue to value creation.

In case the collaboration is actual the technological and architectural boundaries can be too incompatible between large and small and start-ups firms which prevents or finish the further development:

“… for a long-running company the technological architecture and interphases are not ready for flexible integration of the small actors […] the established models and technical systems are not built so that small flexible actors could operate in this ecosystem. Piloting can be done but the integration to the actual production infrastructure is quite challenging…”

Interviewee thinks that balancing with small and start-up firms without promising too much is critical. “Corporation 5” reflects to the previous program where the support from an accelerator to start-up firms obviously was insufficient. However, lack of the materialized, concrete cases and references accordingly are elements which can cause value creation challenges to a platform.

5.1.3 Value creation potential

In this chapter, I analyse the perception of value creation potential by large firms on the digital open innovation platform.

“Corporation 1” believes that the value creation is possible if the network is developed more to a global and comprehensive direction, for example providing wider ecosystem, larger network, and more opportunities for partnerships. In addition, he sees the value of additional expert services for the stakeholders within the platforms, who are lacking appropriate

experts of their own. Interestingly, “Corporation 1” indicates the references in sense that they create continuity of the collaboration.

In addition to the availability of expert services and global innovation network “Corporation 2” encourages the accelerator to enhance the relevant competences, skills and additional resources.

“… support to even as a legal, from a legal point of view […], even supporting the project management […] It would require developing internal competences…”

On the other hand, the value creation can be achieved by building a closer partnership with corporations. The cost efficiency is something to be maintained. “Corporation 2” reminds to focus on the quality of calls and role of communications, especially during the process.

Also “Corporation 3” recommends the development of business-driven expert services along the platform, and wider global reach within the network. In addition, he points the capability of an accelerator to the selected the right actors in the network. For “Corporation 3” value creation is coming mainly from the partnership with on accelerator, for example by tailor-made solutions and an additional resource for corporations being part of their toolboxes. However, “Corporation 3” recognizes that corporations’ continuous learning, i.e. building own platforms, can diminish “Beta”’s value creation in the future.

For “Corporation 4” the same themes, i.e. expert services, focused and global innovation networks, and partnership, play a critical role in value creation. Also, the network with investors is an added value. Moreover, the importance of versatile communications is valuable and part of the collaboration.

“Corporation 5” considers the value creation in many perspectives. The valuable starting point is that the corporation’s top management supports the platform and collaboration within innovation. The platform enables the cross-industry collaboration, where the accelerator can for example by facilitate the process. Moreover, the accelerator can provide expert services (e.g. with ratings, orchestrating virtual organizations, and involving experts for evaluating the proposals). Based on their experience the platform is useful as an efficient and practical tool, where the accelerator is a focal actor. Reflecting on versatile communications the marketing of the firms on the platform increases visibility.

5.1.4 Summary

In this chapter I summarize value creation, value creation challenges and value creation potential in large firms' group (see also Appendices 3 - 5).

Summary of the value creation for large firms' stakeholder group

To sum up, value creation within the stakeholder group of large firms points the three factors that all corporations agree as a creating value: platform as an effective tool; focused and in some extend global and cross-industry network for innovation; and possibility of creating novel ideas for their operations and business. The communications and a smooth operational collaboration with "Beta" are a basis for the platform and cooperation.

In turn some of the themes are more scattered, such as digital connectivity of partners, transfer of technology, platform and innovations as a low risk alternative, and network as an asset. The facilitation is more linked to start-up firms and based on corporation's observation during the corporation program. Overall, corporation expectations were more operative and modest than strategic and large.

An interesting theme is learning, as it might have been a good motivator at least for some of the corporations to participate on the platform and build their own capacity and capability, for example for setting of own company specific platforms. Even though personal interaction is highlighted only twice it has played an important role when matchmaking provider has engaged large firm to join platform and participate programs.

Summary of value creation challenge for large firms' stakeholder group

Concerning the value creation challenges on the open innovation platform large firm stakeholder group seems to have basically a one factor in common, namely lack of commitment to the platform. Three firms out of five mentions also the firm's mind-set and culture as a critical factor in value creation challenges, as well as success of a calls, i.e. creation of references. Two firms mention the technological requirements in the industry.

The following themes are linked and related to an accelerator: lack of timely communications, technical usability of the platform, transparency regarding competitors on the platform, support to start-ups, and global network. Concerning other stakeholders, the elements of the value creation challenges are as follows: collaboration with others, lack of commitment of start-up firms, confidentiality, start-up readiness, engagement of start-up

firms. In addition, confidentiality, legal barriers, novelty, quality of calls, references, and suitability of technology are mentioned by single corporations.

An interesting group of themes is the large firm's internal barriers. The value creation challenges are major in case collaboration concerning the innovation process is out of the strategic focus, or the top management or internal resources are not fully engaged. Then, the internal competences, experience in open innovation and collaboration, decision making, structures and processes can be lacking behind. In addition, internal collaboration can be inefficient, or there might be other substitute tools is use and available. At the end, the implementation process can be challenging along with the continuous change processes which can disturb the proper integration.

Summary of value creation potential for large firms' stakeholder group

As a summary of the perception of value creation potential within the large firms' stakeholder group, there are three themes which are common to all large firms: availability of expert services, existence of global innovation network, and high quality of the calls. Also, partnership with other stakeholders or with an accelerator is an important value creation factor. Active and versatile communication especially about the process is given as a suggestion who to increase value of the platform. The value of network attracts large firms' stakeholder group, i.e. cross industry and focused innovation network, and networking with investors and start-ups firms,

5.2 Small and start-up firms' group

In this chapter, I analyse the findings of small and start-up firms' group regarding the value creation. Secondly, I introduce the value creation challenges as they have experienced in the past while collaborating with "Beta". Thirdly, I present the value creation potential indicated within this stakeholder group. The data is in Appendices 3 – 5.

5.2.1 Value creation

In this chapter, I analyse the findings of each small and start-up firm separately regarding the value creation. Typically, small and start-up firms have participated the face-to-face

events organized by “Beta” by pitching their business cases, and on the digital open innovation platform by sending applications to the open calls.

“Small and start-up firms 1” have participated the event which offered an opportunity for personal interactions and networking. The event also encourages the participation on platform and to an open call. Therefore, he remarks the tool as easy and “free-for-start-ups”. Also, the increased visibility of the firm in the network, particularly when firm is seeking financing, investors and connections with large firms, is valuable:
“… we have these corporations [names four by name]. They are, because of the large corporations are attractive, that their existences help to get visibility.”

“Small and start-up firm 2” has a first-hand experience about responding to an open call last year. The open call was introduced in “Beta”‘s newsletter. The call was clear enough, so the firm responded to the call with an idea on a common level. Thought, while drafting the response, they required some details regarding some parameters. “Beta” acted as a direct focal information point between the firm and the corporation, which worked well. To a start-up firm like “Small and start-up firm 2” platform is efficient in terms of time resource. It provides visibility in the network. The platform provides an opportunity to build networks, and connections to large firms, and to create new business ideas not forgetting the learning aspect.

“Small and start-up firm 3” has participated the yearly event and responded to an open corporation call. The firm sees the whole concept of a platform and the event as a valuable network of focused industry companies. It offers business opportunities, networking and contacts with investors and large firms. As the firm is seeking actively financing, they are actively updating the key investors of their recent activities. At the same time, they are interested in the personal interaction during the event, for example speed-dating with investors. Firm appreciates “Beta”‘s positive attitude and quick responses to emails. Via open calls “Small and start-up firm 3” is motivated in gaining references throughout pilot projects and testing with large firms. It helps arise investors’ interest. During this interview the latest process of an open call was still on-going.

“Small and start-up firm 4” has joined the corporation venture program and sent application to an open call. He considers platform reliable and convenient because of its digital nature. What comes to the value of a network and direct business contacts, he mentions particularly the network building and face-to-face meetings with right corporation and investor contacts

in the event, which enhance the trust building between participants. The “Small and start-up firm 4” gives credit to “Beta”. It has provided support during the program, events and open call process. In generally he sees that the business ecosystem is right for creating new business:

“… this business area where we are operating […] this is a kind of ecosystem business meaning that it is well networked, and probably it is far better for the business that there is a large group of firms who can benefit […] we were looking for more experimentation with customers…”

Similarly, “Small and start-up firm 5” has been part of the corporation venture program, participated the event and sent application to an open call. The platform has been a basic tool by making the application process easy for a star-up firm. He is echoing the previous firm that the event enables the meeting right contact in large firms, and it consist of well matching firms. At the same time the ideas and innovative solutions can be directed to the right firms:

“…this enabled us to get to the large firm’s radar with a relatively small own effort, as in some other situations when a small firm is trying to sell to the large firm, it is difficult, because radar does not even vibrate when you contact them. Whereas in this case the large firm was willing to collaboration, and therefore creating a great value for us.”

“Small and start-up firm 5” underlines the importance of personal interaction where individuals create value not solely on the platform, but for example to the end-customers. He appreciates the direct personal introduction of open calls by “Beta”, and an opportunity of meeting interesting persons during the events. The firm is seeking commercial pilots with corporations in order to get references. In his opinion “Beta”‘s good reputation ensures the involvement of start-up firms with ideas on the platform. The support from “Beta” has been a great value, i.e. facilitation in the beginning of the collaboration, the project management throughout the program, and thorough understanding of corporation’s expectations and start-up firm’s and project’s needs.

5.2.2 Value creation challenges

In this chapter I analyse small and start-up firm’s perception on the value creation challenges on the digital open innovation platform. In the end of the chapter I summarize the key findings of the whole stakeholder group.

“Small and start-up firm 1” underlines several factors which might prevent the value creation. Firstly, some of observations are related to the accelerator: the business models and particularly the earnings logics including the clear business goals; the importance of the pro-active, up-to-date and process related (i.e. match-making) communications; the accelerator’s own experience as an entrepreneur; increasing competition with similar platforms in relatively small market area; and the missing signals of the continuity of platform in the future. According to “Small and start-up firm 1” the administration of platform through e.g. contracts and the overall equal management of its stakeholders are important. One of the burdens for value creation is passiveness of the platform:

“… the investors very little operated through it [platform] actively after all, that they are surprisingly passive using such platforms, it is my own impression.”

Some of the points are connected to other stakeholders within the platform. For example, small and start-up firms’ products are not ready, so pitching is not timely yet. They are lacking references or restricted with resources. In turn, investors’ expectations are unclear, or they are too passive on the platform. “Small and start-up firm 1” reminds that platform must be usable (i.e. easy fill-in of information, easy finding of other members, and availability of a contract data).

“Small and start-up firm 2” presents three main obstacles for value creation, namely the maturity and resourcing issues of small and start-up firms, and lack of pro-active communications during the process by an accelerator:

“…that to know a bit of the status of the process and how long does it take to get some answers that what the next steps are, and did we get to the end or, how does this proceed, overall. As far as I remember I haven’t got the update.”

“Small and start-up firm 3” sees at least three communications related aspects which can cause value creation challenges: responsive, accurate and process-related communications to the stakeholders, particularly during the open call phase. The firm also discuss the platform’s passiveness, which can be seen as a lack of investors’ contacts, as an example. On the other hand, “Small and start-up firm 3” remarks that the case is quite similar with passiveness of small and start-up firms. He reminds that the usability of the tool is important.

“Small and start-up firm 4” concerns about the accelerator’s business model. Particularly the cost sharing structure should be clear and transparent. Other aspects which might

hinder the value creation are the lack of proactive communications or lack of updated information by an accelerator. As the created references are important to this stakeholder group the true number of contacts throughout the platform is unclear. In addition, he remarks that the large firms are unclear with their goals and that they are sometimes lacking relevant resources. The firm claims, that investors are not very active on the platform, nor interested in seed phase investments.

“Small and star-up firm 5” observes some new aspects concerning the value creation challenges. He is sceptic and experiences lack of evidences of value creation so far. He reminds that for small and start-up firms it is a question of investing, allocating time and resources to something which does not necessarily create value. It is impractical for a small firm. In generally, the finding of right contacts in large firms is difficult. Also “Small and start-up firm 5” suspects that large firms are lacking resources to evaluate start-up firms, which can harm the value creation of a platform.

5.2.3 Value creation potential

In this chapter, I analyse the small and start-up firm stakeholder groups’ perception of value creation potential on digital open innovation platform.

“Small and start-up firms 1” suggests several themes in which the value creation can be improved. Accelerator’s business model can be reconsidered what comes to the earning logic or development of the collaboration with local development agencies:
“… they could come and market themselves to the different local pitching events, and thereby acquiring new customers […]

An accelerator’s communication effort can be focused on targeted and active information about the open calls. He seeks for a broader and complementary expert network with other supporting firms, and additional practical support services, for example organizing extra pitching events locally. Concerning the network, the firm suggests a focused network with a global expansion, for example via licensing the platform concept:
“The target should be definitely to be as global as possible… to be profitable and to be able to develop further, so absolutely a goal should be to become more global.”

In his opinion the network when working efficiently and having more open calls can enhance the business opportunities. “Small and start-up firm 1” shares an idea that network opportunities can be expanded to other platforms, universities, and potentially international customers. For small and star-up firms the partnerships with large firms is essential and creates valuable references. Also, year-through marketing opportunities with local development agencies is another way of increasing visibility of small and start-up firms. “Small and start-up firm 2” summarizes the value creation potential in four main themes: maintaining proactive communications, ensuring investment opportunities, creating a network and business opportunities, and creating a user-friendly tool.

“Small and start-up firm 3” echoes the same themes as the previous firms. In addition, it promotes the value of continuous connections between small and large firms, also after the call, where an accelerator can act as an intermediary. The firm indicates the important factors for SME’s, namely financing, investing, visibility and marketing. Thus “Small and start-up firm 3” suggests for example on-line events and on-line pitching as direct way to reach potential investors:

“I was thinking about, maybe having an online pitching for investors. […] Especially because we are not so close to the Nordics so for us it’s also cost and time going to the events […] so maybe direct online connections to the investors. So maybe an e-pitch and e-meetings or something that could be more digitalized.”

“Small and start-up firm 4” sees the value creation potential coming from the open communications of the concept, and proactive communication of the activities on the platform, including engagement of stakeholder by informing them directly about the open calls. For the firm the importance of references (e.g. low risk pilots with large firms) is significant. Essentially, the personal interaction enhances trust to key persons, and the platform encourages to networking and being connected to a wider global innovation network:

“… it is essential, where the group wants to go to, that the actions are accordingly […] the concept works, and it is communicated to the stakeholders. This is the way how the spiral starts moving, and then the only way is to succeed, and when the global axle is found.”

The same as the previous firm “Small and start-up firm 5” introduces the role of trust building, and the proactive communications about open calls and platform activities, including the network opportunities as part of the value creation of the platform. Along the network “Small and start-up firms 5” sees that the personalized and dedicated open calls within the right ecosystem of firms motivates to participate. They value the marketing and

visibility for the potential customers, i.e. large firms. The firm quotes also the platform as an efficient tool, which eases the handling of applications.

5.2.4 Summary

In this chapter I summarize value creation, value creation challenges and value creation potential in small and start-up firms' stakeholder group, see also Appendices 3 - 5.

Summary of the value creation for small and start-up firms' stakeholder group
To sum up the value creation of small and start-up firms, they agree with the efficiency with the tool and personal interaction whether it is in the event with potential counterparties (e.g. large firms and investors) or with a matchmaking platform provider. Mostly the firms value the focused network as a provider of business opportunities.

However, in a minor part are the clear role of platform and platform owner's reputation. In some extent small and start-up firms are looking from support from an accelerator, but less than thought. Interestingly, themes like platform as a way to share financing information, and networking with investors have been less of a value. Even though it might be the opposite in reality, in case the firms shall introduce themselves to potential investors. Also, the creation of references and their value is less highlighted, as well as marketing and learning value on the platform.

Summary of value creation challenge for a small and start-up firms' stakeholder group
In the stakeholder group of small and start-up firms there is not common theme shared by all firms. Three firms share the concern about investor's passiveness on the platform, and maturity and resourcing of start-up firms. Communications including lack of communications whether it is about general, or process specific communications is relevant. Two firms are concerned about the business model of an accelerator, following the fluent usability of a platform.

Mostly firms have individual opinions. Reflecting mainly on platform management and an accelerator's performance, stakeholders are referring to for example competence, and equal management of stakeholders on the platform. The competition and importantly the access to large firms are minor as well.

Small and start-up firm's own perception, for example on a possibility of a match-making, creating of references, own activity and marketing (visibility) on platform, and the expected maturity level (i.e. no product or references yet) is an interesting observation, even though they play an important role for example in relation to investors and financing. Despite being slightly concerned about large firm's resources or their clear goals this stakeholder group is seeing their own resources sufficient, or not as a challenge. Also, the stakeholder group does not underline the investor's expectations as a major challenge. All in all, the passiveness of the platform, stakeholder group's own activity or lack of connections are not shared concerns of value creation. However, two firms discuss the lack of experienced value creation on the platform.

Summary of value creation potential for small and start-up firms' stakeholder group

As a summary small and start-up firms' stakeholder group shares the value creation potential if the communications by an accelerator is proactive and dedicated, marketing and visibility in the network is possible. Moreover, the networking and business opportunities enhance the possibility of creating references. The key elements of the network are its focused characteristics, global reach, and even potential to be expanded via licensing the platform. In addition, the firms are expecting expert or support service from an accelerator. To get financial support for their business "Small and start-up firm" stakeholder group appreciates the possibilities of financing and investment opportunities.

On the other hand, this stakeholder group is inconsistent in their opinions concerning the accelerator's business model, and platform as a tool which are mentioned only by a few firms. Interestingly, one firm sees the network opportunities even wider by broaden the collaboration and partnership to new directions, for example other platform, universities, and global customers. The following interesting perspective appears singly from small and start-up firms, namely their engagement by an accelerator, which apparently is a key factor in the starting phase of the collaboration. On the other hand, it is perhaps done properly by the accelerator without any complains. Surprisingly, the development of partnerships is not in a big role, but it might be hidden behind the value of the network which is having a rather strong ground. Personal interaction and its link to trust building are basics for a profound collaboration.

5.3. Investors group

In this chapter, I analyse the findings of the value creation, value creation challenges and value creation potential in the investors' stakeholder group. the data is in Appendices 3 - 5.

5.3.1 Value creation

Next, I analyse the value creation on digital open innovation platform for the investors. Almost solely the investors have participated the events because of the networking and matchmaking opportunities or listening the pitching sessions.

"Investor 1" is operating in Europe and focusing on energy sector. For many years he has participated the events, which provides an excellent opportunity to face-to-face meetings and networking with the community. He is expecting business opportunities and deal-flows accordingly. The participation means to him, that "not missing interesting ideas of ventures in the sector". For the Nordic star-up firms the network and the events enhance visibility and create connections. In addition, "Investor 1" appreciates the links to other investors. The platform provides an easy access to large firms in the Nordics as well. Regarding the platform as a tool it is efficient, i.e. requiring less travelling. "Investor 1" mentions that openness as a part of the business model of the accelerator is a valuable.

"Investor 2" has actively supported the accelerator with the events, and at the same time, following-up the potential business opportunities for themselves. Shortly, "Investor 2" sees the platform as a complementary tool to direct discussions and face-to-face meetings with the start-ups. "Investor 2" claims, that the platform provides more value to the large firms which are seeking new innovations:

"…I have understood that the aim is rather to help big corporations, which try to find new innovations…"

"Investor 3" invests mainly in Europe, and to start-ups firms which are ready to go to a market with a prototype. As they have participated the events a few times he welcomes the expansion of the event to the digital platform which improves the efficiency. Even though he joined the platform immediately as part of the networking he admits that he is inactive user:

"Why I never used it is first of all, I think, I was not actively engaged. Sometimes if you have tons of work on your desk, you need to be pushed into something."

On the contrary “Investor 3” appraises the well-organized events offering a good balance between existence of investors and star-up firms and providing novel contacts. Communication from “Beta” is in some extend regular, i.e. the newsletter is published approximately once per quarter.

To “Investor 4” the platform is a tool with several advantages for firms, for example solving the both existing and novel problems, and providing a win-win-win situation to large, start-up firms and investors. In addition, it is efficient and simple enough being a good match-maker:
“I think they [platforms] are good really good in terms of one creating, showing the big companies the need of innovation and that the innovation is usually only happening in the small companies […] and you need to work with the small companies in a win-win for everybody […] The innovation platform is like a dating site, like a “match-dot-com”. When a match is made you have a relationship and you don’t want to look at “match-dot-com” anymore.”

During the events “Investor 4” creates contacts. What is worth of mentioning he is very active concerning his own network of start-ups firms as he regularly shares the information about open calls in his network.

“Investor 5” explained that even they have participated the events a few times they do not have a specific strategy concerning the industry, and it’s not currently their core business. He admits that the platform or the event as such have not provided any added value yet.

5.3.2 Value creation challenge

In this chapter I analyse investors’ perception on the value creation challenges on the digital open innovation platform.

Concerning value creation challenges “Investor 1” is echoing the change of proactive communications as the other previous firms. However, the interviewee presents a few interesting aspects, for example the goal conflict whether it’s between investors and large firms or stakeholders’ expectations in generally. As a result of investors’ passiveness on platform the number of direct contacts is low. “Investor 1” admits that there are complementing or substituting tools for investors. Obviously, investors are focusing on firms

in certain level of maturity, and yield of the deal is important. “Investor 1” has recognized that open calls might be sometimes too broad.

For “Investor 2” the challenges of value creation are related to the novelty of the platform, as she does not use the platform regularly. Therefore, investor doubts the real adding value of the platform, as she already knows the local firms and actors (due to limited market) and has enough deal-flows. In addition, “Investor 2” prefers the personal contact with start-up firms and their founders. She suspects that the information of start-up firms expires quickly on the platform if not updated regularly. The visibility of a firms, e.g. web pages and the presentations, is critical:
“… one problem with the databases are that how well the entry is made […] and anyway, it is only the first thing […] due to years of commitment it is also the evaluation of the personal chemistry…”

Also “Investor 3” is passive user of a platform, partly because not being actively engaged by an accelerator as a user. “Investor 3” reminds the availability of other platforms or competing events, which might harm the value creation. Even though he is suspicions regarding the added value or the current need for deal-flows through the platform, he is still interested in news including other appealing communications in a compact form. As “Investor 2” he also prefers a personal interaction with firms. “Investor 3” is slightly concerned about data accuracy on the platform, i.e. lack of control of data or risk of wrong information shared by start-up firms

Also, “Investor 4” sees the following points as a challenge to value creations: investment criteria, passiveness of investors and availability of other complementing or substituting tools. “Investor 4” has recognized that large firms have established their own platforms as well, or they are lacking the right innovation focus yet.

“Investor 5” see that the value creation challenge is currently the lack of adding value, mainly because the specific industry is not on their strategic focus. He doubts the platform model. He reminds, that the maturity level of start-up firms is critical.

5.3.3 Value creation potential

In this section the perception of investors’ stakeholder group on value creation potential is analysed.

Starting with the “Investor 1” they are focusing on investment criteria, which in their case requires start-up firms focusing on energy, hardware and digitalization, and having a right business model accordingly. Therefore, the access to the right focused network is essential. The firm sees that the platform can be created as an efficient tool. What comes to the development of the platform “Investor 1” values the availability of various supportive service, for example the development of start-up firms to a more mature phase and support them to improve management skills. Concerning smooth communications, the firm proposes a push function in order to speed up the information flow.

Compared to the previous firm “Investor 2” introduce some new aspects regarding the value creation potential. The firm sees that the tool is having a potential of enhancing the personal interaction and matchmaking for investors. This is linked to the right and focused network of counterparties, where also the contacts of other investors can bring the value to the platform. “Investor 2” pays attention to maturity of start-up firms, as they need to be ready for global markets:

“Internationality is decisive, as we are investing firms that have a global potential…”

In addition, the accelerator can provide support, for example by adding the more interactive marketing opportunities for firms (i.e. video clips, interactive events), and improving the quality of open calls:

“… it could include a section for investor contacts […] a short presentation, for example 5-6 slides or some 20 sec video clips where an investor could summarize the areas they are interested in and the type of firms they are keen on with the contact information…”

“Investor 3” gives a diverse detailed view on value creation potential. Concerning an accelerator’s communication, the newsletter can be regular with novel content, right length and visually attractive including a push function to speed up the communications. The lack of active engagement of members of the platform concerns the representative. “Investor 3” proposes specific expert services as follows: filtered data and insights of markets, network information about start-ups, and introduction of stories, trends and summaries. Platform can be more active on matchmaking of investors by providing effective deal flows within the focused network. “Investor 3” considers the platform as an effective tool which is easy to use, consisting of accurate, providing filtered data, linking people and companies easily. On the other hand, “Investor 3” observes the value creation potential as a competitor to investors, as platform can disrupt venture capitalists and replace investors between “big money”, or strategic funds and start-ups.

In addition to previous investor firms “Investor 4” sees the value of learning while platform is exploring the new forms of organizing innovation. To this investor the success cases (i.e. references) and start-up firms’ readiness to global markets creates value.

The same aspects are pointed by “Investor 5” compared to the previous firms. However, “Investor 5” remarks the current business model of an accelerator by proposing a kind of incentive model and enhancement of openness. Regarding the tool it can be flexible in terms of software, and resource (time savings) efficient. The global nature of the network is more attractive as it can even enhance scalability.

5.3.4 Summary

In this chapter I summarize value creation, value creation challenges and value creation potential in investors’ stakeholder group, see also Appendices 3 – 5.

Summary of the value creation for investors’ stakeholder group
At least two aspects are shared within the group, namely the role of a platform as an efficient tool and the value of the platform as a provider of business opportunities for stakeholders, especially for start-up firms. Two firms mentioned the potential business opportunities. Only one interviewee, Investor 5, were unable to name any value yet.

On the other hand, investors do not share the value of openness of business model openness or marketing and visibility within the network, not the communications from “Beta”, as they were mentioned only by single investors. The reason for this is probably their passiveness on the platform itself, even though they participate the events actively. Therefore, the role of personal interaction is manifested relatively low despite the nature of regular engagement of start-up firms in face-to-face meetings by investors. Due to the passiveness investor’s group is gaining less add-value yet.

Summary of value creation challenge for investors’ stakeholder group
Concerning the value creation challenges in the investor stakeholder group there are not a single topic shared with all investors. However, three or four investors remarks that communication from accelerator and platform actions is important. However, as investors follow the investment criteria, that might slow down the value creation of the platform.

Generally, they are critical regarding the adding value of the platform. It might be the reason for their commitment and passiveness on the platform.

The value creation challenges that only single investors mention are for example business model of an accelerator, quality of calls or large firm's commitment or strategic focus. Interestingly the personal interaction plays a role only to two investors albeit the evaluation of a start-up firm is quite often based on personal encounter. Even though the investors are interested in new firms their lack of visibility is not widely noted. Moreover, as investors follow their investment criteria the maturity of small and start-up firms is a value creation challenge only for two investors. In addition, data accuracy seems to be relevant only for two investors, although the investors are used to evaluate firm data. Goal conflict between stakeholders is mentioned also two time, but its role and wider understanding of it is valuable when developing the platform. Despite to a low activity on the platform investors are not concerned about their engagement, the novelty of the tool, nor the lack of awareness of new possibilities for them.

Summary of value creation potential for investors' stakeholder group

Three common factors which can create value are platform as an efficient tool, existence of right and focused innovation network, and availability of support and expert service from an accelerator. Platform, which is providing valuable references is mentioned by three investors.

The following factors play a minor role for investors in creating a value potential: the business model (i.e. openness and potential incentives) of an accelerator, communications, and learning aspect. In addition, the quality of calls is mentioned only by one firm. In addition, the awareness of investment criteria and a right maturity of start-up firms are essential factors for investors. Investment criteria can be seen both limiting but also a factor of setting the right focus to the platform.

Surprisingly the global innovation network is not that important to investors when creating value on the platform. Another interesting observation from one investor is the role of an accelerator as a competitor to investors in their traditional role in financing. Investment criteria and the maturity of the firms are taken as granted, or business-as-usual, as well.

5.4 Summary within all stakeholder groups

In this chapter I summarize value creation, value creation challenges and value creation potential within all stakeholder groups.

5.4.1 Value creation within all stakeholder groups

The key findings regarding value creation of a digital innovation for all stakeholder groups involved are as follows (see Figure 12): All stakeholders share the value of platform as an efficient tool and personal interaction.

For corporations the active collaboration with the accelerator including the communications particularly the open call phase has been useful. Corporations have seen the platform as valuable cross-industry innovation network, which has a global reach. The network is seen a new way of getting novel ideas for developing their businesses. Learning and learning of a new innovation tool have been partly a valuable element for large firms.

For small and start-up firms the platform is a network, which enhances their business opportunities, particularly with large firms. Support which small and start-up firms have gained from the accelerator has been useful. Corporations together with small and start-up firms see the value of having a focused innovation network involved, including the learning aspect as well.

For investors the platform is a place of business opportunities, which they see valuable particularly for start-up firms. Investors and small and start-ups firms appreciate both the networking opportunities within the platform and event.

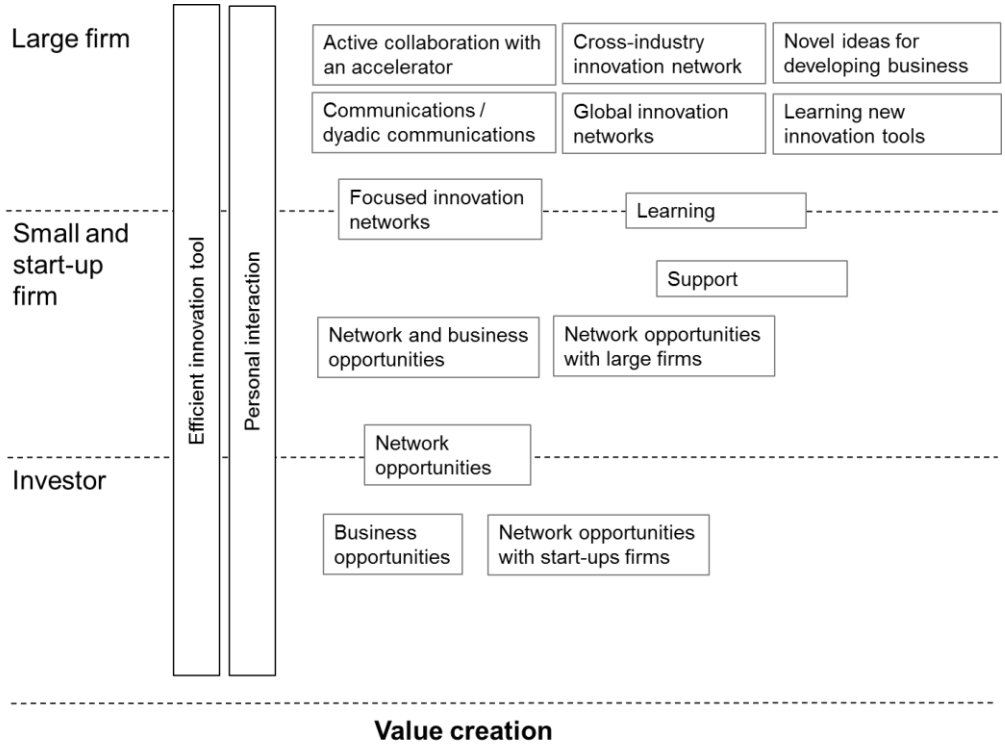

Figure 12. The main themes of value creation within all stakeholder groups.

5.4.2 Value creation challenges in all stakeholder groups

To sum up, value creation challenges varies among the all stakeholder groups. There is no shared common view any of the themes (see Figure 13). A few themes are shared between two groups, but still there is no major agreement on those as well. All the other themes are mentioned only by one or two firms.

I analyse a few similarities between two stakeholder groups as follows:

- Concerning accelerator two small and start-up firms and one investor are concerned about the accelerator's business model. Similarly, two small and start-up firms and three investors see the lack or quality of a communications as one factor which can burden value creation.
- Corporations and investors have a few points in common. One corporation and one investor point out the role of a quality of a call remarkable, whereas one corporation and one small and start-up firms pay attention to lack of references. Similarly, one corporation and one investor see the novelty of the platform as an issue for value creation.

- Regarding the lack of maturity of small and start-up firms it is important especially to the small and stat-up firms and investors, which makes sense in terms of a normal collaboration between these two stakeholders.

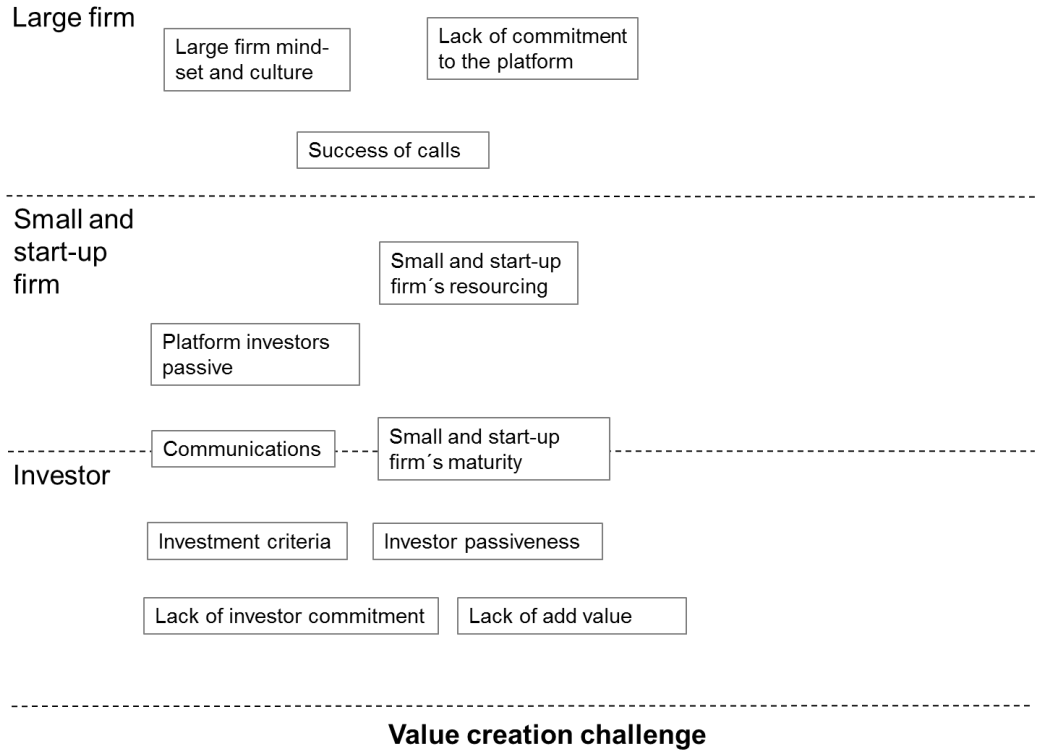

Figure 13. The main themes of value creation challenge within all stakeholder groups.

Thus, the value creation challenges are very different for stakeholders, and therefore the tackling of the challenges requires a good understanding of the expectations before and during the collaboration to create value on balance.

5.4.3 Value creation potential in all stakeholder groups

As a summary of value creation potential all three stakeholder groups (see Figure 14) they value the proactive communications and availability or development of expert services as an additional value. Both large firms and investors indicates the development of the platform as an effective tool. Moreover, the same stakeholder groups relay on focused innovation network also in the future.

Large firms are seeking a global reach in their networks, and improvement in the quality of calls. In the interphase of large and small and start-up firms the partnership obviously is relevant, and a valuable goal. In addition, small and start-ups firms value the new business opportunities. Throughout these opportunities they create more reference in which the investors are interested. Both investors and small and start-up firm appreciate the support service from the platform in the future.

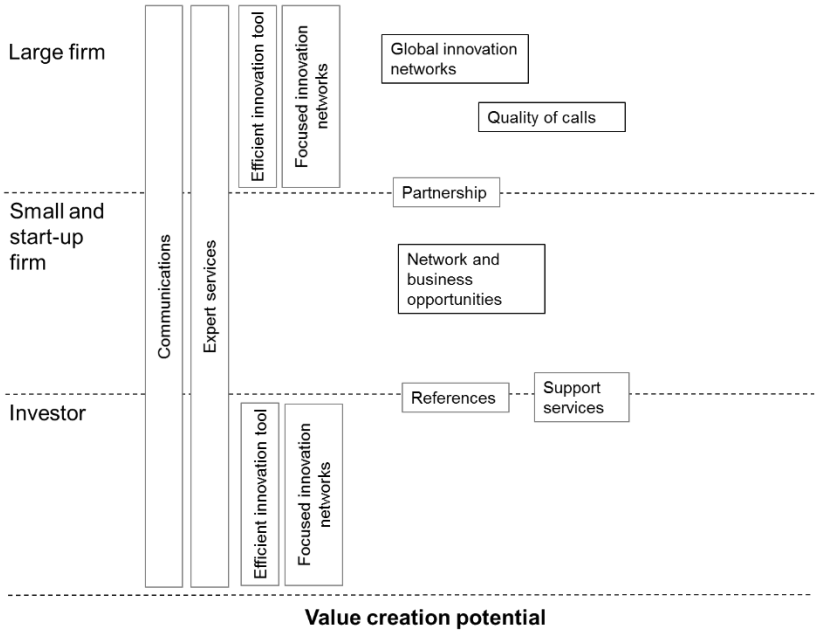

Figure 14. The main themes of value creation potential within all stakeholder groups.

5.5 Value creation dynamics

In this chapter I introduce the elements that are either providing or destroying value creation. I analyse the factors in each stakeholder group in value creation phase, in the actual collaboration, where the challenges are observed; and at the end of collaboration when the potential value creation elements are defined for the future.

Large firms

In the large firms' stakeholder group, the characteristics of the value creation elements are versatile as the expectations towards something new are high. Referring to the roles an accelerator is appreciated to be as an active connector and communicator, who facilitates the creation on relationships between partners and active collaboration. The platform is

creating value as a tool. It enables for example the technology transfer and allows the members of the platform to learn from other participants and use of a new tool. Some examples of the potential for value creation are concerning network as an asset including aspect of a cross-industry, focused and global innovation network. From the business point of view the platform is enabler of new business ideas and a relatively risk-free way of starting the mapping of new ideas. Only one element, namely learning new innovation tools, can also destroy value in case the firms are using the experience to create their own tools.

In the collaboration phase the large amount of challenges are emerging. A digital open innovation platform is a practical and novel tool to scan the business opportunities before a commitment to long-term investments which are typical for manufacturing industry. The versatile network and participants who are ready for collaboration, are on a right maturity level and have a right technology available, are an asset for the platform and value creation. If the platform manages to engage to their network both right large firms and their personnel, and start-up firms with right technology, they can make the platform attractive. In case this is not happening, the firms start losing their interest and commitment to the platform. However, reasons of the value destroying elements are mainly caused by the large firm's internal issues (e.g. culture, strategic position, managements lack of support, organizational changes, competences or resources), which are hardly in the control of the platform owner. In case the platform can remove barriers, increase openness, secure the confidentiality and right transparency between business partners, keep up the high level of quality of calls and ensure the realization of success cases, the digital open innovation can provide more value to its participants.

After the collaboration large firms are estimating the value and value creation potential in the future. In this case all proposed elements are providing more value for the participants. In the networking perspective the other firms' involvement, the availability of larger and more comprehensive cross-industry, focused and global network are creating value. In terms of platform owner, the development of competences, ensuring of resources and timely communications are seeing as an added-value. On top of the existing service the large firms are seeking additional services, for example expert and facilitation services. When the quality of calls improves the platform is a right place to promote and market the successful cases and references.

Small and start-up firms

In the stakeholder group of small and start-up firms the value creation elements in the beginning of the collaboration are focusing strongly to the opportunities the network is enabling. The reputation and clear role of the platform is important. Also, the personal interaction and support provided by the platform owner is valuable for the small and start-up firms. The platform is seeing as an effective tool, which enhance learning and a place where to share information and market the firms and their capabilities.

In the collaboration phase the platform owner can enhance value with an appropriate business model, equal management of the stakeholders, right competences and open, timely communications about the process and usable platform in generally. Small and start-up firms are keen on marketing opportunities and real value creating cases and references. They see that the value creation can decrease if the large firms' goals are unclear or they are lacking right resources. Concerning small and start-up firms own value creation they would like to have a place for marketing and be on the platform when their maturity and resources are right. The right active participants connected to platform are in a key role. A passive platform is unable to create any value for its participants.

For the future value creation small and start-up firms see plenty of potential to the digital open innovation platform. With a right business model, providing supportive and expert services, financing and investing opportunities the platform can provide value for the firms. At the same time, it can be more active place and tool for marketing purposes and introducing references. This stakeholder group mentions proactive communications, personal interaction and trust building as value providing characteristics. In relation to the other participants, the focus is on the development of the network further (e.g. including new stakeholders such as universities, international members, other platforms) throughout licensing models and creating new partnerships.

Investors

In the beginning of the collaboration the main value creation element for investors is the networking opportunity within the digital open innovation platform with other investors and firms of all sizes. They observe business opportunities. The platform represents an effective tool and a place for marketing and gaining visibility. With the owner the value providing factors are personal interaction, active communications and existence of a right business model. The destroying factor of value creation can be lack of true added-value.

In the collaboration phase the value creation elements are novelty of the tool, strong personal interaction, data accuracy and high quality of calls. On the other hand, the value can be destroyed with a wrong business model, inability to show added-value for the participants or a goal conflict between stakeholders. From their own perspective investors recognize risks to create a value if they are passive, or lack of engagement and commitment, their investment criteria are unmet, or they are unaware of all possibilities. Regarding to the other stakeholders, investors recognize that large firms might lack of innovation focus or commitment to the platform. With small and start-up firms if they have a right maturity and visibility on the platform, they can provide more value.

For the future investors' stakeholder group is introducing same topics (e.g. expanding the focused global innovation network, communications, offering of expert and other supportive services, development of efficient tool, learning, improvement of the quality of calls, and availability of references) as the previous stakeholder groups. On the other hand, they are proposing that they can introduce their investment criteria. To improve the existence of small and start-up firms with a right maturity on the platform a digital open innovation platform can be disruptive in organizing a risk finance as a new value creative element, as an example.

5.6 Trust building on digital open innovation platform

In this chapter the trust building related factors are analysed in the phases of before the collaboration starts and during and after the collaboration with an accelerator. In large firms' stakeholder group, the social trust related factors are meaningful before the actual collaboration phase, namely personal trust, confidentiality and information security (see Table 9). However, impersonal trust factors for example legal protection (IPR) and additional rules and norms, are affecting to the eventual contracting, i.e. whether the corporation is willing to start collaborating with an accelerator, and applicability to small and start-up firms. In the collaboration phase actual value creation are meaningful. The value is created if an accelerator is having right competences, treating the participants' fairly, and understanding of their goals and needs. An accelerator can build trust by introducing credible references at the end and improving its competence regarding the potential expert services.

Table 9. Trust building factors of large firms, small and start-up firms and investors.

		Collaboration phases		
Stakeholder group	**Trust concept**	**Before**	**During**	**After**
Large firm	Social trust	• Third party trust • **Personal trust** • Past experience on competing supplier may lower trust • **Confidentiality** • **Contracting**	• Competence • Fairness • Mutual value creation • Performance	• Competence in expert services • Customer reference • Partner references
	Impersonal trust	• System trust • Legal protection (IPR) • Information availability • **Information security** • Rules and norms	• -	• -
Small and start-up firm	Social trust	• References • **Personal trust** • Third-party trust • Lack of openness • Confidentiality • Contracting	• Communications • Competence • Fairness • Transparency	• Partner references
	Impersonal trust	• System trust • Reputation • Asymmetric information • Information security • Information trust	• -	• -
Investor	Social trust	• **References** • Reliability • Third party trust • **Personal trust** • Confidentiality	• Communications	• Customer reference
	Impersonal trust	• Reputation • System trust • Information security	• -	• -

Third party trust and confidentiality are meaningful for small and start-up firms' group but not as significant as personal trust, which has a strong role before the collaboration starts (see Table 9). During the collaboration trust is built for example by fair treatment of participants and possessing a right competence. Interestingly the role of references in trust building in the last phase is not that significant as expected. At the site of the impersonal trust the reputation, reliability, system trust and information security are the basic assumption to the stakeholder group and taken as granted, even though the information security is critical for the firms. One firm mentions that the lack of knowledge can lead to mistrust, i.e. asymmetric information.

In investors' group the references and personal trust are the most important in building of a social trust (see Table 9). The confidentiality in the beginning is critical if the aim is to build

a good collaboration and contract between participants. Accelerator's reputation plays a role to two investors, whereas information security is important only to one firm even if the investors are particularly interested in accurate information by the start-up firms. After the collaboration the availability of references is meaningful for example for the investment decision.

To sum up the trust building factors, the large firms are putting weight on the phase before the actual collaboration what comes to the personal interaction, legal issues and information security. These factors are critical before the contracting phase. The elements of a good performance during the collaboration consist of competent partner, i.e. an accelerator, who can treat all partners fairly, and more importantly, creating true value. To small and start-up firms personal trust is the most important factor. They value the third-party trust as well. Confidentiality concerning any information is a basis for collaboration. During the collaboration small and start-up firms are expecting fairness and transparency including a good communication, which build trust as well. To investors the trust building is focusing on the phase before the actual collaboration wherein the references, personal interaction and confidentiality are the most critical factors.

5.7 Different phases of collaboration

In this chapter I analyse the stakeholder groups and how they specifically indicate the time related factors in the phases of before, during and after of the collaboration. In group of large firms, they journey with the accelerator and its platform follows the typical route (see Table 10). First, they know the persons within the platform personally, and they have participated the events. Another critical point has been the corporation's internal refocus or strategic change concerning collaboration of innovation, which has led to a need for a partner and a tool. At the same time an accelerator has had the concept and service ready and available, so the corporations have been interested in piloting the tool and with the potential start-up firms. The actual collaboration phase has included the dedicated corporation program, setting of the open calls, and evaluating of the applications. At the same time the phase has allowed a learning opportunity for the large firms. After the actual collaboration the corporations are evaluating how to continue, whether set more open calls, or even establish an own platform. Further the enthusiasm regarding innovation related collaboration has inspired them to build own investment units or participate for example hackathons.

Large firms also recognize challenges that they are lacking right resources and time for an own platform and running own regular open calls. Therefore, they are more willing to pilot an available concept with a right partner, i.e. an accelerator who has and manage the service. The actual collaboration phase allows the large firms to observe the potential challenges, e.g. in the network with the participants such as the maturity of start-up firms, and readiness of internal processes. In the inventory phase when the collaboration is over the main observations are related to the implementation of potential innovations, e.g. projects are long-term and risky with a long ROI, or the development challenges of the internal processes.

Table 10. Phases in large firms´ stakeholder collaboration.

			Collaboration phases		
Stakeholder group	**Factors**	**Large firm´s internal status**	**Before**	**During**	**After**
Large firm	Time related factors	New focus or strategy • New organisation structure • New internal process • Need for an innovation agent Cultural change Internal changes Interested in piloting a new innovation tool: • Investing in open innovation • Earlier experience of a similar tool	Trust is needed for the collaboration to start • Knowing an accelerator in person • Participating accelerator´s event New focus brings an accelerator as a partner • Right timing • Available and existing concept and service for purpose	Participating a corporate program Open calls Learning in the corporate program Development of an internal organisation structure	Trust is needed for the collaboration to continue Internal development possibilities • Own platform • Internal innovation program • Investment unit • Participation to hackathons
	Challenges	Own platform is time consuming Lack of time and resources to run open innovations regularly Internal experts are lacking of time		Challenges in corporate programs Lack of diverse network while having an open call Sparring needs of start-ups in corporate programs Internal process in a development phase Timing of challenges Innovation process do not involve investors	Internal changes Internal processes Long ROI Projects long-term and risky Implementation of innovations is time consuming Availability of complementary and competing services

Small and start-up firms are typically participated the event and pitching their products or concepts (see Table 11). In the active phase of collaboration their either being part of the corporation program or have responded to an open call from corporations by providing an application of their idea. In the platform the updating of their date is simple and easy as the

level of needed information is rather general. The main challenge is the passive use and utilisation of the platform.

Table 11. Phases in small and start-up firms´ stakeholder collaboration.

		Collaboration phases		
Stakeholder group	**Factors**	**Before**	**During**	**After**
Small and start-up firm	Time related factors	Participating an accelerator´s events Participating an accelerator´s events with a pitch	Participating a corporate program Responded to an open call Prepared a proposal to an open call Presented a common idea before a NDA and contract with a corporate	Information updated quickly
	Challenges		Passive in using a platform	Lack of time and resources for using a platform

In phase before the collaboration investors are strictly following their investment criteria and typical processes including the active follow-up of firms with right industry focus, level of maturity of the firm, and readiness for the market with a product, or a service (see Table 12). Importantly they are interacting with representatives of the firms personally and meeting them regularly face-to-face to find out they capability to manage the firm and its goals. Some investors have participated corporation program, but mainly they role has been handling the relationships with start-up firms. However, they follow-up the information from start-up firms, their references and partners, which are valuable in making the financing decision, and which are increasing the credibility. Thus, on the platform the investors are rather passive.

Table 12. Phases in investors´ stakeholder collaboration.

			Collaboration phases		
Stakeholder group	**Factors**	**Investor´s internal status**	**Before**	**During**	**After**
Investor	Time related factors	Institutional investor focusing on start-ups Investor tracking firms carefully before investment Investor is meeting firm´s representatives several times in person before investment Investor investing to firms which are ready-for-market and having a prototype	Participated events Right timing	Participating a corporate program	Trust is needed for a collaboration to continue Timely information
	Challenges				Passiveness

6 DISCUSSION

In this thesis the digital open innovation platform is on the focus of the research. Referring to the theoretical framework, the definitions of platform is versatile and complex depending of the context. In this case digital open innovation platform “Beta” is available in the internet and members have access to the platform apart from time and place. Moreover, the open challenges are set, and the applications are sent and received on the platform as well. Therefore, the platform is operating digitally in the internet (Chang, West, & Hadzic 2006). The open challenges set by corporations are openly available on the platform. Consequently, it serves and mediates transactions between firms (Rochet & Tirole 2003).

The firms on the platform represent certain industry by building a multisided (Evans 2003) external industry platform (e.g. Gawer & Henderson 2007; Gawer & Cusumano 2014) and business (Moore 1996; 1998) and innovation (e.g. Chang, West, & Hadzic 2006; Iansiti & Levien 2004) related ecosystem consisting of relevant stakeholder (e.g. Gyrd-Jones & Kornum 2013). Due to a current geographical nature of the platform, it can be also called a cluster (e.g. Pauwels, Clarysse, Wright, & Van Hove 2016), of which aim is to connect firms locally by concentrating on a specific industry (e.g. Porter 1990). Further, the cluster approach applies to the future targets as the platform aims to build wider a global cluster with similar type of constructs. In addition, the form of “Beta” platform is more like an online community, as defined by Faraj et al. (2012), which connects different firms rather than being a place for an open innovation. These firms disclose the ideas in one-to-one interaction with their counterparty firms unlike with all members on the platform (Frey, Lüthje, & Haag 2011). In all, in this case the digital open innovation platform is multi-dimensional and applicable for many definitions.

The case platform offers a place for matchmaking and finding new business partners. The participants on the platform consist of the central actor and leader of the platform, i.e. the platform owner and accelerator (e.g. Spagnoletti et al. 2015; Cohen & Hochberg 2014) and connected firms. “Beta” is an enabler of the platform who manages and builds the ecosystem (e.g. Isabelle 2013). Firms are connected to the central actor of the platform either posting open innovation challenges or calls (i.e. by large firms) to the platform (e.g. Boudreau 2010; Chesbrough, Vanhaverbeke, & West, 2014) or providing their (i.e. by small and start-up firms) solutions and innovations for the challenges. By contrast, investors are following-up potential start-ups firms or seeking companies for investment (e.g. Marcus et al. 2013; De Clercq, Fried, Lehtonen, & Sapienza 2006) and observing development

potential of the large firms. At the centre, the platform owner's role is acting as an accelerator and a matchmaker between firms by providing the digital platform as a tool and a place for open calls.

In this chapter, to answer to the main research question, that *how can a matchmaking platform provider meet its stakeholders' expectations for value creation?* first I reply to the three sub-research questions and present the theoretical conclusions of the research by comparing them to the previous research results and introduce the reply to the main research question. Secondly, I evaluate the trustworthiness of the study. Thirdly, I also propose some managerial recommendations, and lastly, I introduce the potential limitations of the research and make some suggestions for the future research.

6.1 Meeting the stakeholders´ value expectation

Value creation is basis of business relations, and firms are actively seeking for example new business partners, development of business performance, economic value and use value (e.g. Anderson 1995; Lindgreen et al. 2012; Lepak, 2007). Moreover, value creation process is dynamic (e.g. Langley et al. 2013) and varies over time according to different phases of the firms' maturity, strategic targets (e.g. Kunisch et al. 2017) and organizational transformation (e.g. Orlikowski 1996). As proposed by Lindgreen, Hingley, Grant, & Morgan (2012) the conceptual framework of value creation can incorporate and adapt value orchestrating in business and industrial markets in three phases: 1) building phase of value creation, 2) analysing of value and potential challenges related to it, and 3) defining the future value creation potential. In this research this three-phase model was used as well.

The aim of this thesis was to study empirically that how a matchmaking platform provider, (i.e. the owner of the digital open innovation platform) can meet its stakeholders' expectations for value creation. Based on the key findings and existing theoretical framework the value creation and trust building in collaboration, by taking into a consideration time aspect, are introduced in the model as shown in the Figure 15. This study shows that trust is a critical factor in every phase of the collaboration: from the beginning of the relationship, during the collaboration and for the future continuation of the collaboration. In addition, created value depends of the maturity of the stakeholders' phase in business and different phases of collaboration in time.

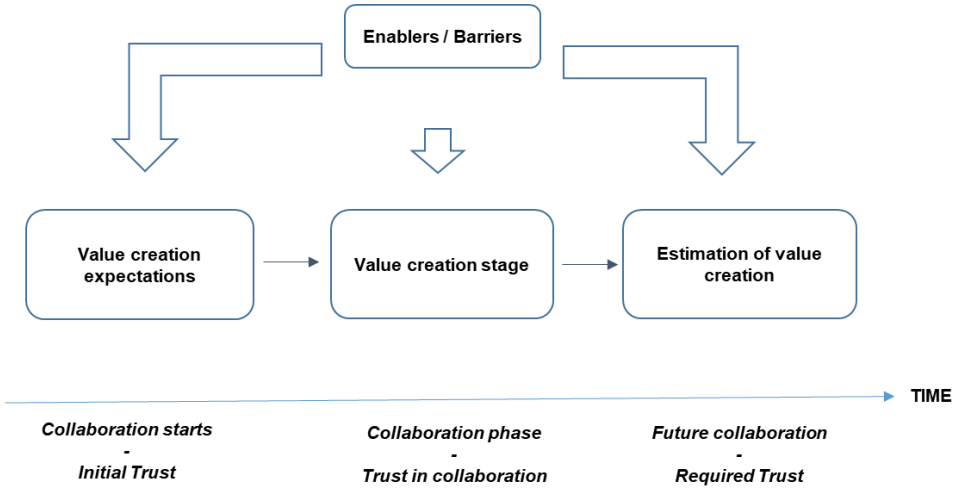

Figure 15. Value creation and trust as expectations in three phases of collaboration in time.

6.1.1 Value creation expectations

The value creation expectations within each stakeholder group were studied in different stages of collaboration: first phase was the initial phase of collaboration, second phase the actual collaboration between digital open innovation platform owner and the firm, and the last phase in which the future collaboration potential was considered. To answer the first sub-research question, *RQ1: How and why do different stakeholders' value expectations differ from each other,* I reviewed the value creation in these three different stages. Here, I review the first two phases, which determines so called short-term expectations. The later phase, namely the future potential, which is related to the longer-term expectations, is discussed in the next chapter.

Personal relationship and recognition of other organisations and firms

In the beginning of the collaboration, the motivations for joining the platform varies both firms and organizational levels as well as personal levels, as also found by Isckia & Lescop (2015). In the relationship building, a positive expectation and a critical fundament is trust (e.g. McEvily, Perrone, & Zaheer 2003; Uzzi, 1997). The stakeholders trust to the platform owner by reputation and by knowing them personally, and therefore they are willing to join them. The sociality aspect is supported by Faraj et al. (2012) who claims the importance of building of social ties within OCs. Firstly, the role of personal interaction and relationship especially with the platform owner, i.e. interpersonal trust, plays an important role to each

stakeholder group. The results show that all small and start-up firms are dissimilar, and their expectations vary. The basis from their side is that the owners of the platform have a solid competence to manage the platform and in an equal manner of its stakeholders (e.g. Gawer & Cusumano 2014; Moore 1998; 1993). From the owner of the platform the firms expect open communications and a clear information, transparency (e.g. Gillespie, Bond, Downs, & Staggs 2016) about the business model, and easiness of the platform as a tool. Especially due to a nature of the investment criteria investors are primarily focusing on their personal interaction with their natural counterparties, namely representatives of small and start-up firms, with whom they are interested in creating business and network opportunities. Apart from investment criteria investors prefer to meet the entrepreneurs and know them personally.

Secondly, the firms are interested other firms who are involved on the platform. The trust building between and with other firms, i.e. interorganizational trust, starts quite often during the face-to-face interactions in the events organized by owner of the digital open innovation. It means that the firms know each other's at some level before the representatives of the firms connects to the actual digital open innovation platform. The personal trust derives to the interorganizational level so that the firms are interested in collaborating with the firms who are linked to the platform owner, and further operating on the digital open innovation platform. As a result, they are seen as a trustful counterparty by reputation (e.g. Pera, Occhiocupo, & Clarke 2016; Lindgreen, Hingley, Grant & Morgan 2012, 208).

New business partners and networking

In common, the stakeholders see the platform as an extension to the traditional way of finding interesting potential new business partners and novel way of creating diverse business ecosystems with focused networks for the development and growth purposes (e.g. Lepak, Smith, & Taylor 2007; Lindgreen, Hingley, Grant & Morgan 2012; Pera, Occhiocupo, & Clarke 2016). Some elements of value creation in the early phase of collaboration differs between the three stakeholder groups in detailed.

For large firms the digital open innovation platform represents a mediator of novel ideas for their own business development, which is supported by De Oliveira & Cortimiglia (2017) who for example defined mobilization of resources and new competences as antecedents of value creation. For increasing of the networking opportunities, the platform offers a chance to increase the cross-industry innovation networks in a global dimension (e.g

O'Mahony & Ferraro 2007; Pittaway et al. 2004). In the practical site corporations see value, if the communications and collaboration with the owner of the platform works well (e.g. Gawer & Cusumano 2008; Gawer & Cusumano 2014). Large firms are more eager to bring their business to a new level, for example by learning new innovation tools, gaining novel ideas and expanding their global network.

Small and start-up firms focus on the learning aspect (e.g. Pera et al. 2016) and increasing business opportunities and developing networks, e.g. innovation networks with large firms. It is connected von Krogh & von Hippel (2006) who emphasize the collaboration between firms as a source of innovation. In addition, they appreciate the opportunity of creating networks and business, particularly with large firms (e.g. Lindgreen, Hingley, Grant & Morgan 2012, 208; Kenney & Zysman 2016, 68; Pittaway et al. 2004, 145). From the platform owner the small and star-up firms are seeking more support (e.g. Moore 1998; 1993) than other stakeholders, which is natural due to their limited resources. On the other hand, in the interphase with investor their share a similar goal, namely to have variety of business opportunities.

Further, investors' goal is to network with small and start-up firms and increase business opportunities accordingly. Investors are traditionally building their trustworthy relationship in personal level to the representatives of the firms, which indicates their passivity on the platform. They are keen more of a face-to-face interaction rather than acting solely on a platform.

Tool

The results show that digital open innovation platform is seen as an efficient innovation tool (e.g. Frey, Lüthje, & Haag 2011, 415), i.e. a place for value-creation interaction, namely exchange of technical information as claimed by Toon, Robson, & Morgan (2012). Also, firms are interested in learning aspect of the new innovation tools (e.g. Lepak, Smith, & Taylor 2007, 182). Seeing the platform as a creator of computer-mediated connections the firms put weight on the security (e.g. Baskerville, Spagnoletti, & Kim, 2014; Perks & Jeffrey 2006) and workable tool, which are the cornerstones of the system trust. Another important aspect is an interpersonal interaction (e.g. Frey, Lüthje, & Haag 2011, 400) with persons who are working in the digital open innovation platform and are connected to the tool. Especially for small and start-up firms, the platform is a practical tool for marketing their

capabilities and products, and at the same time increasing their visibility towards the large firms and corporations, and their potential investors as well.

Potential barriers

In the phase of collaboration, when the actual collaboration phase starts between firms, the value expectations begin to differ more between stakeholder groups, and the value creation challenges start appearing. For large firms the barriers can be internal, e.g. a large-firm mind-set and culture (e.g. Oh, Phillips, Park, & Lee 2016, 3), which can hinder the implementation on new tools. Another critical factor is the success of the cases and their results (e.g. Sproull & Arriaga 2007) for their business purposes. If the results are not positive enough the large firm's commitment (e.g. Fontenot & Wilson 1997) to the platform might weaken.

In turn, small and start-up firms can suffer of resourcing problems, especially compared to the large firms' resources, but also their key stakeholder group's, namely investors, passiveness on the platform. It might be the cause of investors' expectations towards small and start-up firms, i.e. they should be in a right maturity phase according to investor's investment rules and criteria. If the investors are unrecognizing interesting firms, who at the same time fulfil the investment criteria, the added value of the platform is insignificant. Because of that, investors might become passive and lose easily their commitment to the platform, and continue their own preferred way, i.e. meeting the firms face-to-face outside the platform. Lack of communications (e.g. Fontenot & Wilson 1997) and flow of a relevant information (e.g. West & Lakhani 2008, 227) between small and start-up firms and investors affect to their intentions to collaboration and slow down the commitment and value creation on the platform.

6.1.2 Value creation

The previous chapter I processed the short-term targets between the actors regarding the value creation expectations. After the different actors on the digital open innovation platform have joined and collaborated with the network by initiating open calls and responding to them, they have a chance to estimate the true added value of the future collaboration. Based on the stakeholders' experience and expectations on a longer-term the platform

owner can consider the future value creation elements. To answer the second sub-research question, *RQ2: How can a matchmaking platform provider create value for diverse stakeholders,* I estimated the stakeholders' view to the future value creation on the digital open innovation platform, and how they define the future potential.

Large firms

For large firms the results show that the commitment to the digital open innovation platform is critical. It can easily decrease due to several reasons. Some of them are firm's internal burden, which are out of control of the platform owner, e.g. lack of suitable mind-set and culture, sufficient organizational structure, full engagement of top management, workable processes or effective internal collaboration (e.g. Blomqvist, 2002). However, if the readiness is existing, the large firms can even start utilizing their resources to build for example own platform, which makes the role of an accelerator unnecessary. Also, the large firms can use external partners, e.g. innovation brokers or accelerators, to evaluate the innovations for them. The down-sides of the external evaluation is that it might take too long time, and by fact, the process is then in hands of external resources rather than under firm's own management.

The digital open innovation platform can offer diverse and key network for its members. The importance of global reach and coverage of the platform is attractive to the large firms. The focused innovation networks are interesting, but a longer-term, when more external industries and firms are to be involved, the large firms recognize that the confidentiality risk (e.g. Perks & Jeffrey 2006) increases. The main strategic burden for the large firms is that the implementation phase of innovations requires long-term investments (e.g. Morgan 2012), which might contain too big business risks and uncertainties. The quality and right maturity of the potential partner's firm is essential. The large firms are expecting that the small and start-up firms can provide high quality of solutions being aware of industry requirements and eventually having the readiness for piloting.

Small and start-up firms

Due to limited resources in the small and start-up firms they rely on expert services (e.g. e.g. Lindgreen et al. 2012, 208) and support (e.g. Spagnoletti et al. 2015, 369) for which a digital open innovation platform can potentially offer as a value-added support in the future. To the smaller firms the platform represents a place for marketing, and where to increase visibility and create new business references. The concern is the slowness of creation the

connections or missing of shared experience of value creation with the key stakeholders, i.e. investors and large firms, in case they are passive or not fully committed.

Investors

Investors are keen on the platform if the small and start-up firms are fulfilling their investment criteria (e.g. Sudek 2007, 91) and having a right maturity. They seem to be very critical that what is the true value of the platform for their needs. Investors believe more on the face-to-face interactions rather than seeing platform as a sole alternative to personal interaction, which might cause the passiveness and lack of further commitment to the platform in the future.

6.1.3 Trust building on the digital open innovation platform

Trust is seen as a key requirement for a successful collaboration, which is limited without trust (Gambetta 1998). Trust is considered as an expectation both in systems and between persons (Rousseau et al. 1998), as in this case in the digital innovation platform and its stakeholders. The more is at stake and higher the risks, the more trust is required to complete specific transactions successfully between business partners (Mayer et al. 1995, 726-727). The development of an effective process of collaboration can be grouped into inter-related categories, namely time, trust and territory (Miles, Snow & Miles 2000, 304).

In the traditional business ecosystems connections between firms are created in a personal interaction. The digital open innovation platform allows the firms to connect to new potential partners on a computer-mediated form. Therefore, trust building happens in many levels. To answer the third sub-research question, *RQ3: How can a matchmaking platform provider build trust among its diverse stakeholders?,* I estimated the meaning of trust in collaboration on the open innovation platform.

In this case platform the different trust levels – interpersonal trust, organizational trust, and system trust – are nested and inside one another (e.g. Shapiro 1987). Trust exists between persons, who know the matchmaking firm and its actors and between organizations, which are linked to the platform and to the system (e.g. Rousseau, Sitkin, Burt & Camerer 1998, 393). Zaheer, & Harris (2006, 185) estimates that interpersonal trust appears to be meaningful dimension of interorganizational trust, which is also highlighted by the firms on the case platform. Between the firms interorganizational trust influences both to relative

benefits of the network structure (e.g. Zaheer, & Harris 2006, 183). In this context the competence-based trust is also important, because the case is connected to technological service (i.e. digital innovation platform), which include technical issues such as data security; and service, which is provided by the central actor of the platform (i.e. innovation platform owner), and its capability to serve other actors on the platform (i.e. stakeholders of the platform).

Referents of trust

In this case the targets of trust are persons managing the platform and firms on the platform. Zaheer et al. (1998) argue that origin of trust is always grounded in an individual perspective. This is the case even if the individual is part of a certain group (i.e. stakeholder group) and share a similar orientation (Zaheer et al 1998, 143). Also, target of a trust can be an organization (Zaheer et al. 1998), which in this case is the platform and other firms within the platform. In an interorganizational context, organization can be considered as an object of trust, or as a subject of trust (Kroeger, 2012, 1). In case of a system trust, a system is assumed to be operating a predictable way (Luhmann 1988; Lewis & Weigert 1985), which in this case is the platform as a workable tool. Therefore, it can be said that individuals and stakeholders trust a system, a digital open innovation platform as an object.

The results show that the trust is based on three elements on the open innovation platform. Firstly, social trust exists on a personal level between platform and its stakeholders. Secondly, platform owner can enforce trust between organisations, namely between firms which are operating, seeking for collaboration and broaden their network on a platform. Third element of trust is related to the digital open innovation platform as a tool which is linked to a system trust.

Next, I evaluate the trust building in each phase of collaboration starting with the phase before the actual collaboration, then the trust elements in the collaboration phase and finally the required trust for the collaboration in the future.

Initial trust

The basic element of collaboration is the importance of building an initial trust (e.g. Salo, & Karjaluoma 2006) among them in one-to-one level. Trust is needed for collaboration to evolve (e.g. Miles et al. 2000). In the online world end-users are willing to trust the parties with whom they are dealing with, and further willing to collaborate with them. They believe to achieve long-term benefits if they maintain the relationships. (e.g. Morgan, & Hunt 1994)

According to the results trust is needed for the collaboration to start on the digital open innovation platform.

To understand better for example the dynamics of cooperation and competition (e.g. Gambetta 1988) and facilitation of economic exchange (e.g. Granovetter 1985) it is essential to study interpersonal trust. First level of trust in the business relationships is the trust between persons and interpersonal relations (e.g. Rousseau et al 1998; Zaheer et al 1998). As introduced by McKnight, Cummings, & Chervany (1998) the social trust is meaningful to all stakeholder groups involved, and it is critical especially in the beginning of the collaboration, namely the formation of initial trust. It is built through personal relations on individual level (e.g. Lewicki, Tomlinson, & Gillespie, 2006; Kramer, 1999; Mayer, Davis, & Schoorman, 1995; Rousseau, Sitkin, Burt, & Camerer, 1998).

Referring to the social trust the results show that each stakeholder group emphasize the importance of personal trust and third-party trust: the stakeholders know the platform owners in person and the other firms involved; they have met in the events; or knowing them because of the limited size of a business ecosystem and network. Apart from personal trust, confidentiality is necessary before the actual contracting between business partners. This leads to the importance of interorganisational trust between firms.

According to results, large firms have been attracted to a right timing and availability of a concept and service of digital open innovation tool. The internal status of large firms before the collaboration has been quite the same: new focus or strategy, new organisation structure, new internal process, need for an innovation agent, cultural change or other internal changes. Therefore, there are more interested in piloting a new innovation tool and investing in open innovation. Some firms might have earlier experience of a similar tool, so they are also aware of the challenges, e.g. lack of internal resources and their availability on timewise, or how time-consuming the own platform is (e.g. Das & Teng 1998; Lewicki & Bunker 1996; Shapiro, Sheppard, & Cheraskin 1992). Large firms which might already have had some previous experience with another system consider joining more carefully (e.g. Gulati 1985). Small and start-up firms and investors are seeking good references before starting the collaboration.

In this case the second dimension is impersonal trust, namely system trust. It is a key factor when firms are operating partly on the computer-mediated platform, and basically sharing information with new potential firms. As the stakeholders are using the digital open

innovation platform as a tool the impersonal trust is built through system trust (i.e. confidentiality, information security) (e.g. Salo, & Karjaluoto 2007) and legal structures (i.e. IPR, contracts, rules and norms) (e.g. Giddens 1990; Bachmann 2001; Isckia & Lescop 2015). Some stakeholders take impersonal trust factors such as reliability, confidentiality, trustworthiness of the system and information security as already granted, as a basic assumption and existing starting point. In large firms' group IPR and easy availability of information and certain rules and norms on the platform are essential, whereas small and start-up firms and investors name the reputation of the platform and its owners as part of the trustworthiness of the system. Reputation of the match-making tool and its owners are considered as the fundamental basic element of the relationship by the stakeholders (e.g. Lewicki, Tomlinson, & Gillespie 2006). This is linked to the attributes of trust, for example competence, ability, benevolence, integrity and trustworthiness (e.g. Mayer, Davis & Schoorman 1995; Blomqvist 2002) of a platform owner to manage the ecosystem. Without a good reputation of the platform firms are unwilling to try the tool or cooperation further and take the risk (e.g. Mayer, Davis, & Schoorman 1995; Fulmer & Gelfand 2012).

Trust in collaboration

In the actual transaction phase both parties define the form, rules and governance to the collaboration, for example contractual agreements (e.g. McKnight et al. 1998) and governance mechanisms (e.g. Isckia & Lescop 2015). In this case the contractual model is quite simple: the collaboration starts when the large firms set open calls and the smaller firms answers to them. The actual collaboration has happened in the corporation programs which has been the assembling point for each stakeholder.

According to results large firms have set the open calls and throughout the programs used them as a learning experience and developed their internal organisational structure and processes accordingly. This is connected to the knowledge-based trust where the parties get more information from each other's and engage them to repeated and varied activities and interactions (e.g. Lewicki et al. 2006). Large firms have faced some challenges as well, e.g. lack of diverse enough networks during the open calls or right timings of the open calls. Large firms have also recognized that investors are not involved in their innovation processes. Small and start-up firms have responded to calls even though their other participation on the platforms has been rather passive, which is the case with investors too. Presumably, these stakeholder groups have estimated the benefits, costs and other elements, such as vulnerability, risk, predictability and reliability, of the relationship so that they are lacking calculus-based trust in the initial phase (Lewicki et al. 2006). From the

owner of the platform both large and small firms are expecting competence and fairness. The important elements of social trust in this phase are the competence (e.g. Mayer et al. 1995; Lui & Ngo, 2004) of the platform owner to search and engage the right members to the platform, and the equal treatment (e.g. Zaheer, McEvily, & Perrone 1998) of all members.

Investors and small firms are appreciating proactive communications. Social trust can be enforced throughout the active and even dedicated personalized communication about the platform and its members is relevant to keep up the members aware of news in the community (e.g. Anderson & Narus 1998).

Interestingly in this research, the system trust does not play a role in the collaboration phase. In this case the service of the platform can be considered a low-level of asset where system trust can be enhanced in transactions (Bachmann & Inkpen 2011, 295). Further, it can be a result of the role of the platform, which is only a matchmaking tool and the actual collaboration happens between firms outside the platform between firms. Moreover, the basic assumption and a starting point is that the system is trustworthy, and information secured.

Future trust

As the end-users might be in different maturity phases, stakeholders' trust is dynamic (Gillespie et al. 2016, 242-243). In the beginning the firms have certain expectations in terms of economic value, i.e. calculus-based trust (e.g. Rousseau, Sitkin, Burt, & Camerer (1998). Trust declines if positive expectations are disconfirmed (e.g. from Lewicki, Tomlinson, & Gillespie 2006). Therefore, trust is needed for the collaboration to continue.

The using of the platform has been a new experience and experiment to the firms. It has offered a ready-to-use tool, available concept and selected network. However, the continuation of the collaboration is based on the evaluation of the results, delivered performance and the created references, in other words the created business value, and satisfaction and commitment (e.g. Hart & Saunders 1997) to the system as a tool. Especially the large firms are critical whether the investment to the open innovation platform is creating added value. For small and star-up firms the platform can offer an avenue to market their capabilities and share relevant information quickly to a selected network. Investors see these factors beneficial as well. On the other hand, it seems that the engagement of investors to the users of the platform remains challenging. Investors are more observing

the availability of economic and technologic resources and social commitments (e.g. Ring & Van de Ven 1994, 106) rather than committing themselves to the platform.

6.1.4 Summary

To answer to the main research question, that *how can a matchmaking platform provider meet its stakeholders' expectations for value creation?* I here summarize the key points.

Value expectations

The value expectations vary depending of the firm's maturity and strategic goals in their business. The value creation requires management complex relationships in a wider stakeholder ecosystem with varying expectations rather than handling the dyadic relationships with firms solely (e.g. Barrett, Oborn, & Orlikowski 2016). At the same time, it is challenging to navigate between complex strategic landscapes that actor on the platform are facing (Gawer & Cusumano 2013, 421).

A successful platform orchestrates processes like coordination, governance and renewal as proposed by Isckia & Lescop (2015) to ensure continues development. According to results stakeholders' short-term value expectations rely on the relationships, practicalities of a tool, network opportunities, cross-industry connections, learning and active communications. Firms are seeking interesting counterparties with a good reputation and successful open calls with good results and references.

In this case, digital open innovation platform is acting as an effective matchmaking tool rather than a platform for pure innovation activities, which in this case happen in the one-to-one interaction between firms, and outside of the platform. The platform represents an interesting new way of finding potential firms with whom the companies are expanding their network even globally, seeking new business opportunities or building long-term partnerships.

Value creation

Digital multisided platforms can create a place for competitive advantage (Miles, Snow & Miles 2000, 300). Through the matchmaking the platform can offer a workable trustworthy tool to create novel connection with new companies with a global reach. Large corporations are seeking new products and service in cooperation with partner firms such as flexible and

agile start-ups, as complementary to their own R&D processes. In the actual collaboration phase the expectation is to create value in collaboration with new novel partner firms.

However, the longer-term value creation is a challenge having a so called chicken-and-egg situation (e.g. Hagiu 2014, 72): the large firms need the small and start-up firms to bring new ideas and innovative collaboration; small and start-up firms need large firms to get new business opportunities and get valuable references; investors are keen on small and start-up firms in which they can invest in, with a right maturity phase and connections to large firms; and small and start-up firms need investors for financing. If some of these links are weak on the digital open innovation platform it will slow down the platform being active and attractive. If large firms are not finding right partners, they will learn, establish and manage their own platforms. Investors continue following the right small and start-up firms throughout their own networks and in face-to-face interactions as they have done earlier. The small and start-up firms are not able to build reference cases with large firms, and as a result, investors are not considering them as potential target as yet, so they are lacking financing. In the beginning the small and start-up firms are on an arm's length from the corporations without having a special role in the network. To become as a long-term and strategic partner to its stakeholders it needs more effort from the matchmaking provider.

Value creation is a dynamic process and it varies in time. To answer the challenge the digital open innovation platform and its owner can potentially create value by building four main pillars. Firstly, it can keep and further build solid personal relationships with the stakeholders. The business relationships are typically based on personal relationships and reputation of the firm. To knowing its stakeholders and their needs and expectations help to platform owner to create trustworthy and functional platform throughout the personal and interorganizational relationships (e.g. Ring & Van den Ven 1994) and engagement (e.g. Barrett, Oborn, & Orlikowski 2016; Sproull & Arriaga, 2007).

Secondly, the platform can provide and further expand a network and business opportunities (e.g. Kenney & Zysman 2016) in a global context. The overall benefit of the existing platform is its scalability from focused business ecosystem to a more global cross-industry platform. It attracts both large firms and small and start-up firms who have more potential to fulfil the investors' criteria.

Thirdly, it can establish strategic partnerships with the key stakeholders and firms (e.g. Corsaro, Ramos, Henneberg, & Naudé 2012; Gulati et al. 2000) to bringing the platform to

a more valuable level and ensuring the successful matches. The platform can offer strategic personalized hands-on matchmaking the right persons in the firms, and with right investors to ensure the financing of small and large firms.

Lastly, the platform can create more specific expert service (e.g. D'Andrea, Ferri, Grifoni, & Guzzo 2013) portfolio for the stakeholders who do not have their resources of their own, or who wants to outsource certain functions. The digital platform owner's role can be more as a strategic partner who is providing dedicated strategic services to the different stakeholder groups. For large firms it can collaborate and build partnerships closer with some selected corporations. The new business model can consist of expert services, of which the corporation can outsource to the platform owner, e.g. case evaluation services. For small and start-up firms the services can focus on for example management support. For investors the services can be for example a provider of accurate business and financial information about the small and start-up firms. Overall, the appreciated and remarkable added value for the firms using the platform is the availability of additional expert and support services, which enhance the development of the firms, and further a chance for the perfect matches. The firms' readiness for providing high-quality solutions improves, if they get personalized help for the platform owner.

Trust building

Trust is relevant in each level of business relationships both interpersonal and interorganizational including impersonal level as well. Stakeholders of the open innovation platform know the owner and matchmaker of the platform well in person and value its good reputation. Therefore, they trust to its capability and competence (e.g. Blomqvist 2002) to manage the platform. On the other hand, due to a limited, focused and relatively narrow business area they know the other firms on the platform and are willing to collaborate and build networks with them. Even though the digital open innovation platform has been a new concept to most of them the stakeholders have been willing to use the system as a result of the mentioned factors between persons and firms by considering it as an easy trustworthy tool.

Furthermore, the trust building is relevant in each step of the collaboration (e.g. Rousseau et al. 1998; Lewicki & Bunker 1996; Ring & Van de Ven 1994). Firstly, the knowing of the platform owner in person plays a central role in the initial phase of business relationship. Despite of the digital environment of the platform the personal relations are critical and meaningful for the stakeholders of the platform. The advantage of the relatively small

business ecosystem it that the owner of the match-making tool knows the members (e.g. Schilke & Cook 2015). When the digital open innovation platform expands its operations to become more global, this might be challenging.

Secondly, the matchmaking provider needs demonstrate its competence (e.g. Mayer et al. 1995; Lui & Ngo 2004). It can be related to the platform's internal resources, skills or the capability to offer some relevant expert services and support to the firms, e.g. evaluation of the calls and applications for the corporations, management services for the smaller firms, and financial information for the investors. When the times goes by firms have more and more opportunities to select complementary and competing services. Especially large firms' alternative can be the learning from the cases following the establishment of an own platform with the ownership and management over the whole process.

Thirdly, trust exists between organizations (e.g. Zaheer, McEvily, & Perrone 1998, 142). The right firms connected to the digital platform are important and basis for the decision to join the platform and seeking economic exchange. All stakeholders are keen on business and networking opportunities which needs trust between organizations. The owner of the digital match-making tool can enhance the building of the interorganizational trust. The owner of the platform knows firms' strategic position; it recognizes the needs of the large companies and the possible offers of the smaller firms to find a right match; and it can even recommend and them to each other (e.g. Johnson, Cullen, Sakano, & Takenouchi 1996). Activity of the stakeholder on the platform depends of the right members, firms and interesting case and high-quality open calls, which then leads to outstanding performance, valuable results and meaningful references. It means that the owner of the digital open innovation platform needs to engage right stakeholders, increase the diversity of the global network and develop the platform according to the needs of the ecosystem and platform members. Thus, the fulfilment of the initial expectations and further, the performance of the platform and finally, results of the project can lead to a longer-term relationships and commitment to the tool.

Lastly, system which allows collaboration between various business partners without limitation of time and place is an advantage, especially in the global dimension. The digital open innovation platform is a tool in which the system trust (e.g. Luhmann 1988), confidentiality and information security (e.g. Baskerville, Spagnoletti, & Kim 2014) are the cornerstones of the future collaboration. Therefore, the system needs to be workable and

information security guaranteed, especially when to network expands globally and becomes more diverse.

To sum up, the more the stakeholders, new locations and business areas the more complex the trust building is going to be. By considering these elements, namely building of trust in every level (interpersonal, interorganizational and impersonal levels) and each step of the phase of the collaboration in time (initial, implementation and future collaboration phase) the digital open innovation platform is facing potential challenges. However, by building on the experience the digital open innovation platform has gathered in the limited business area and location so far, and by focusing on ensuring right competences, additional services and a reliable system the platform can offer a flexible alternative to other collaboration models.

6.2 Evaluation of the study

In this chapter I estimate the reliability and validity of the results in qualitative nested case study context. In the theoretical part of this study the available literature and research related to the topic was utilized in an extensive and judiciously manner from various reliable sources. The emphasis was to use references from the well-known and widely-referred researchers. At the same time the intention was to review the latest available research on the topic as the context was relatively novel.

The data of this study was collected by interviewing 21 persons connected to the context, namely the owners of the platform and their stakeholders from 15 companies. In the qualitative research the number of interviews is small limited from the perspective of traditional quantitative research (Koskinen et al. 2005, 265). Reflecting to the number of interviews the material can be considered comprehensive in relation to the reliability of the research. Also, the interviewees were the key actors and in the central position in the case and context. In respect to the main questions of the theme interviews the saturation was observed during the interviews, in which the same type of answers started to repeat themselves, which also advocates the adequate coverage of the research. Therefore, it can be estimated that the number of interviews was enough and brought enough information for the research.

In this study the used research methods are introduced comprehensively, which improves the reliability of the research. Secondly, the used researcher triangulation gives reliability to the data analysis, and the extensive introduction of results respectively. Triangulation can be viewed as a research strategy to enhance the reliability and validity of a qualitative study. Triangulation refers for example to use of multiple (two or more) interviewers, observers and analysts in qualitative research to reduce potential bias and develop a comprehensive understanding of the phenomena (e.g. Patton 1999, 1195). In this research researcher triangulation was used in two phases: firstly, in data collection phase during interviews, i.e. two interviewers conducting the interviews, as explained in chapter 4.3 Data collection, and secondly, in data analysis phase, i.e. three researchers coding the data, as explained in chapter 4.4 Data analysis. These two aspects, namely introduction of research methods and usage of researcher triangulation, allow a closer evaluation and analysis of the research results and derived conclusions.

The basis of the research was to study primary the trust dimension between owner of digital open innovation platform and its stakeholders including the trust to the platform itself. However, in the very early phase of the research the focus moved more to the value creation on time, as the trust dimension solely was not that so critical to the stakeholders as expected. On the other hand, the trust dimension was still linked to the research because it obviously played an interesting key role in the collaboration and value creation phases. The study was able to provide answers to the main research as well as to the three sub-questions accordingly by using the theme interviews, and drafted questions. The results of the research were interpreted against to the previous research and theoretical framework. Because of this flexible refocusing of the research by extending the area from trust dimension to value creation, and considering the reliability and coverage aspects, this study can be estimated being successful.

6.3 Theoretical and managerial implication

Theoretical value of this research two dimensional. On the other hand, the definition of the platform is as diverse as the theoretical review showed. In this case the platform is mostly a matchmaking tool rather that a tool for concrete collaboration and innovations. In addition, the theoretical background review showed that the business ecosystem can consist of different actors with different needs and expectations. On the other hand, this research supports the theoretical framework of value creation and trust. Overall, the research managed to combine both the relatively new context, namely open innovation platform, with

the business relevant dimensions, namely value creation and trust building, in a new interesting meaningful way.

Some managerial implications, development ideas, and suggestions can be drawn from the introduced results as well. The case firm has been working on the platform for a few years now by achieving a good basis of local firms, and by experiencing a new way of match-making and collaboration between stakeholders. From the development point of view the company is in a good interesting position. Digital open innovation platform provides an additional mediate to the traditional face-to-face business interaction, which still is a basis for collaboration. Throughout the computer-aided services the potential business partners can find novel connections and collaboration opportunities by using the platform as a match-making tool. However, the needs and expectations vary between different stakeholders' groups mainly because of their different maturity and phase in the context of business development. As the results show, the owner of the platform can focus on the future improvements by reviewing the past results from the programs and open calls and the feedback from its stakeholders.

The intention of the case platform is to grow and expand globally. This situation creates some challenges to a service provider in recognizing and moreover fulfilling the expectations when the network expands and becomes more diverse. Additionally, another challenge remains, namely following-up of very different, continuously shifting and changing expectations and needs of the partner companies. This aspect causes some managerial challenges for the platform yet not impossible to be solved. Next, I divide the recommendations in two parts. First, I go through the short-term implications (see the inner circle in Figure 16), and then the long-term potential (see the outer circle in Figure 16).

In a short term, there are at least four focus areas where to improve the services: building and keeping personal relationships, developing communications, continuously engaging of firms, ensuring the effectiveness of the tool and enhancing the high quality of calls. In the beginning of the collaboration the relationship management is crucial. The first contact with the potential stakeholder and new firm is critical: the firms appreciate the personal approach. Most importantly, trust to the platform is built through those one-to-one contacts. Also, the expectation is that the owner of the platform can translate the large firms' goals and needs to the potential partner companies and make proactive matches accordingly. This needs continuous follow-up and dialogue with stakeholders, both large firms and small and start-up firms. As the case platform is limited in resources, the relationship building,

and their management can be a bottleneck in the future, if there is not enough time and resources to maintain the close personal relationships to the firms.

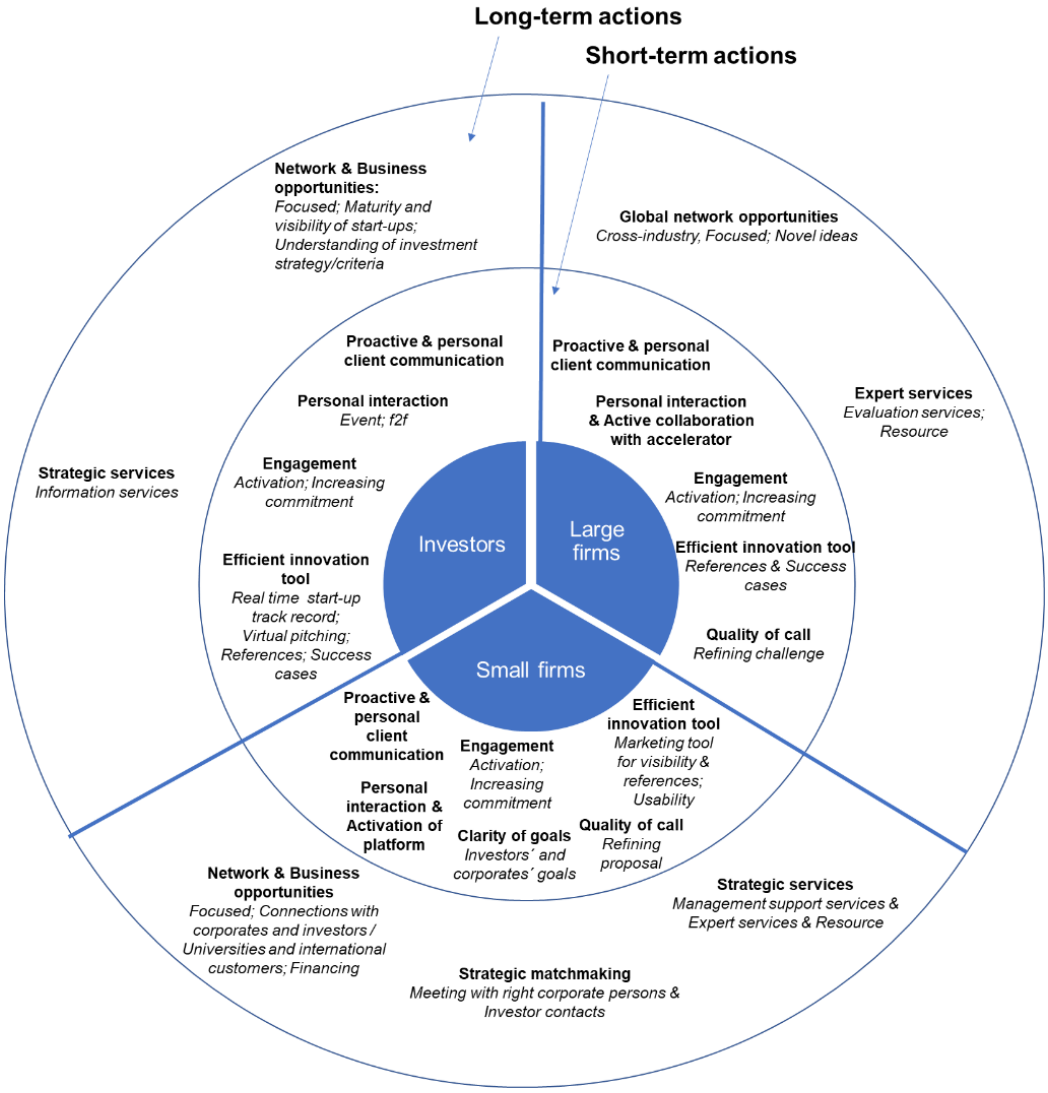

Figure 16. Short and long-term implications and development suggestions.

The cornerstones of the platform are relationship management, personal and proactive communications and continuous engagement. The next step, after the trustworthy relationship is build, is engagement, involvement and activation of the firms that they start using the tool and being active on the platform. Therefore, the owner of the platform can act as a personal catalyst between firms and persons who are presenting the companies. The proactive communication is valuable for all stakeholders. Some firms even prefer dedicated and personalized communications, for example the introduction of the new firms on the platform, trends related the business ecosystem and relevant data analysis.

The digital open innovation platform is a practical computer-mediated tool to the stakeholders. Therefore, the development of the tool requires some key elements, which improve either the usability of the tool, the matchmaking practices or the information sharing. For example, the platform can increase the visibility of the firms to the ecosystem and network. It can be a marketing place to small and start-up companies so that they can upload online pitches and their references. In this way, it makes them available for investors' and large firms' reviews anytime and anyplace.

The success of the platform depends on the attractive potential business cases. The quality of the cases is important for all actors on the platform: firstly, large firm can assure variety of interesting small and start-up firms to send applications to the high-quality cases; secondly, the small and start-up firm is clear of the requirements and can focus on their application and delivered solution; thirdly, investors can follow-up the attractive small and start-up firms with interesting references; and fourthly, the owner of the platform demonstrate successful references both to the existing partner but also to the new stakeholders. In practice, the firms are seeking successful cases and valuable references that prove the utility and value of the platform before they consider their own participation. The digital open innovation platform, which can show a large dedicated network of firms and successful cases as a result of collaboration, can draw more firms, and hence, increase its network.

In a longer-term the expectations are focusing more on the platform which offers wider business opportunities and attractive networks including some strategic services for its stakeholders. According to the owner of the digital open innovation the aim is to expand the operation to become as focused as today but with more global network. This helps firms to open and create new business in new market area by offering the availability of variety of open calls and potential partners in a global context. On the other hand, the expansion of the network means that the number of firms increases and at the same time the variety of expectations become more complex. With the existing resources and skills, the platform is probably unable to handle the new structure because they have managed the existing but rather limited local network in a very person-to-person level. However, the good basis for the personal interaction and connections and a place for meeting with other firms on the platform, are the events the owner has organized.

Also, the expansion plans can offer a momentum and new opportunity to the platform to consider the development of the existing business model. It can serve better the existing

and new stakeholders and be as a forum where to meet virtually with a global reach. By offering new resources for its stakeholders and providing strategic and so-called expert services (e.g. information services for investors, management and strategic match-making services for small and start-up firms, and evaluation of the application for the large firms) the owner of the platform can create better added value for the stakeholders and engage them to the platform.

6.4 Limitations and suggestions for the future research

One limitation of this study is that the original idea, namely researching the role of trust on the digital open innovation platform, played minor role unlike expected. Therefore, I moved the focus during the research on the other hand, more from the assessment of trust to the value creation factor but keeping the trust dimension closely as a part of collaboration. As this study is part of my master thesis, time was limited and therefore it was impossible to reset the research setting and interview the key persons again. Thus, a deeper and thorough study of the value creation stays limited although the data consist preliminary and supportive elements also for the study of the value creation aspect.

For this study the qualitative approach was selected as a part of the research strategy. In qualitative research the number of interviews is limited, and therefore it is difficult to generalize the results compared to the classical quantitative research (e.g. Koskinen et al., 2005, 265). However, due to a relatively early phase and age of the case platform the interviews cover well the key stakeholders involved with the case. According to my estimation, increasing of the number of interviews could not bring any new data for the study.

At the moment, the case platform is operating in a certain business area and location. The interesting next research direction would be the comparison of similar platforms in a same location and on the other hand, different platforms in different locations and even focusing on different business areas.

The future study should continue exploring both development of trust within the case and materialized value creation. The latter can also include the estimation of the value capture, e.g. true business value, on the digital open innovation to its stakeholders. Moreover, as the platform is planning to expand its operations global, it allows the longitude research to

study further the value creation and the actual realization of business value capturing in more global context. In addition, the future research can focus on user activity in different business areas and cultural aspects that how they affect to the value creation and trust building.

The research could also focus on the separate stakeholders to understand their strategic refocusing, internal processes, resource management and decision making related to the digital platform. This leads to another interesting topic, namely stakeholder management, that how even wider and complex platform can be orchestrated and manage its stakeholders who has variety of expectations and changing business environment. Linking to the stakeholder management another future research question is that how to engage stakeholders and what type of engagement methods are applicable to a digital open innovation platform. Lastly, the new organizational models like digital open innovation platforms are here to stay, so what the future business models mean for the organisations, collaboration and value creation.

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APPENDIX 1. Interview themes and questions.

GENERAL QUESTIONS	
Start of a collaboration	As a start, would you introduce yourself shortly and describe how you have been working with the digital open innovation platform so far? (We would like to know how this collaboration started) - How did the cooperation with the platform start?
Experience before joining the platform	What kind of relationship or experience you/your organization had with the - Platform (owner) before joining the platform? - Participants/members before joining the platform? What kind of experience you had of working in any other digital innovation platform before the case platform? (How common or easy was that for you and your organization?)
Current activities	What are your current typical activities/operations within the platform? How often do you engage in the platform? What do you do? Who (and what functions) is involved from your organization? Please describe.
Goals	What is your goal regarding the cooperation in the platform for the short term and long term? (Do different parties in your organization have similar or different goals?)
Comparison	Based on your opinion (and experience so far), how is collaboration in digital platforms different to the traditional, not technology-enabled collaboration? - In your opinion, what are the pros and cons?
DIGITAL PLATFORM VALUE CREATION	
Motivation	Why did you choose to work with the digital open innovation platform? What were the motivations or important criteria that you considered when you decided to start collaborating within the case platform? - What are the benefits and potential value? - What are the risks and potential costs?
Expectations	How has cooperation with the platform fulfilled your expectations so far? - What has worked well (+)? - What could be developed further (-)? - Are there some challenges that could be solved and developed?

	- Are there some positive surprises or disappointments that you could describe? From your point of view, how do you see the expectations that the other platform participants have towards you and your organization? How about the case platform provider expectations for you?
Collaboration	Could you describe more closely the pros and cons of platform collaboration? How have the following elements lived up to your expectations and what has been disappointing/ not fulfilled your expectations so far? - Digital platform itself? (+/-) - Processes related to the digital platform? (+/-) - platform as an organization? (+/-) - platform's key persons? (+/-) - Other parties (large firms, SMEs, start-ups, investors) (+/-) - Something else, what? (+/-) In your opinion, what have been your biggest challenges and successes so far while collaborating via the case platform? Why? Please describe.
PLATFORM DEVELOPMENT	
Successful digital platform	In your opinion, what are the key criteria of a successful digital platform (the case platform)? What kind of resources, skills and capabilities related to the case platform you appreciate the most?
Trust	In your opinion, what is the role of trust in digital platforms? How could the case platform build trust among its stakeholders? How about stakeholders with each other?
Communications	What kind of communications have been involved? What kind of communication you would prefer?
Development of Ecosystem	How could the case platform related ecosystem (i.e. large firms, SMEs, start-ups and investors) improve its performance?
Future	What do you think about the future of open innovation digital platforms?
AOB	Anything else you think would be important to understand in these open innovation digital platforms that (we did not ask) but would be important for us to think and understand?

APPENDIX 2. Value creation, value creation challenge and value creation potential by “Corporation 3”

1st Order Concept	2nd Order Theme	Aggregate Dimension
Smooth operative collaboration	Active collaboration with accelerator	Value creation
Agility	Efficient innovation tool	
Cost-efficient open innovation		
End-to-end service for innovation calls		
Flexibility when using the tool		
Network focus	Focused innovation networks	
Learning	Learning new innovation tools	
Willingness to pilot new tools		
Customer value	Novel ideas for developing business	
Ideas and improvements for operation		
Innovations		
New solutions for current and new business development		
Piloting with start-ups		
Good collaboration with nice people within accelerator	Personal interaction	
Large and long-term investments required	Industry specific challenge for large investments	Value creation challenge
Need for internal champions for idea selling	Engagement of large firm’s internal resources	
Corporations give up accelerators and set own platforms or open innovation tool	Lack of commitment to platform	

Connection to BU missing	Large firm challenge for internal collaboration	
Innovation tools	Large firm challenge for internal substitute tools	
Top management support	Large firm lack of engagement with top management	
Organizational changes challenge value creation	Large firm's organizational changes	
Corporation mind-set and culture	Large firm's mind-set and culture	
IPR	Legal barrier	
Competition law		
Too open innovation calls for results	Quality of calls	
Firms readiness for piloting	Start-up firm's readiness	
Firms reviewed industry's criteria		
Start-up solutions do not evolve to concrete projects	Success of the calls	
Technological requirements	Technology	
Smooth operative collaboration	Collaboration with large firms	Value creation potential
Availability of suitable solution	Efficient innovation tool	
Using of functionalities like evaluation tools		
Specific business development needs require specific business knowledge	Expert services	
Selecting optimal actors from the network	Focused innovation networks	
Global reach	Global innovation networks	
Market need in competitive business environment		
New partners		

Corporation interest in investing start-ups	Innovation network with start-up firms	
Complementary service for those who do not have the resources or knowledge	Partnership	
Corporation learning diminishes value creation		
Corporation tailored solution		
Defining optimal approach to collaboration		
Growing strategic importance of open innovation causes corporation resourcing		
Platform as part of the corporation open innovation toolbox		
Planning phase and innovation calls separate services		
Designing call carefully	Quality of calls	
Proposals not enough specified or too early phase		

APPENDIX 3. Aggregated dimension – Value creation within all stakeholder groups

2nd Order Theme - Value creation	CORP1	CORP2	CORP3	CORP4	CORP5	SME1	SME2	SME3	SME4	SME5	VC1	VC2	VC3	VC4
Active collaboration with accelerator	x	x	x		x									
Business model											x			
Business opportunities											x	x		
Clear role						x								
Communications	x	x			x								x	
Connecting diverse parties digitally				x										
Cross-industry innovation network	x	x		x										
Dyadic communications	x	x												
Efficient innovation tool	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Facilitation					x									
Focused innovation networks	x	x	x	x	x		x	x	x	x				
Global innovation networks	x	x		x	x									
Information sharing about financing						x								
Innovation tool for technology transfer				x										
Lack of value add													x	
Learning					x		x		x					
Learning from start-up firm's agile practices					x									
Learning new innovation tools		x	x		2									
Low risk alternative					x									
Marketing						x	x							
Marketing and visibility											x			
Network and business opportunities							x	x		x				
Network asset	x													
Network opportunities						x	x	x	x		x		x	x

2nd Order Theme - Value creation	CORP1	CORP2	CORP3	CORP4	CORP5	SME1	SME2	SME3	SME4	SME5	VC1	VC2	VC3	VC4
Network opportunities with investors								x			x			
Network opportunities with large firms						x	x	x		x		x		
Network opportunities with start-up firms											x	x	x	x
Network opportunities with start-ups and large firms											x			
Novel ideas for developing business	x	x	x	x	x									
Personal interaction	x		x			x	x	x	x	x	x		x	
References								x		x				
Reputation										x				
Risk management				x										
Support									x					
Support services							x			x				

CORP = Large firm

SME = Small and startup firm

VC (venture capital) = Investor

APPENDIX 4. Aggregated dimension – Value creation challenge within all stakeholder groups

2nd Order Theme - Value creation challenge	CORP1	CORP2	CORP3	CORP4	CORP5	SME1	SME2	SME3	SME4	SME5	VC1	VC2	VC3	VC4	VC5
Business model						x			x				x		
Industry specific challenge for large investments			x	x											
Collaboration with investors				x											
Collaboration with start-up firms				x	x										
Communications						x		x			x	x	x		
Competence						x									
Competition						x									
Confidentiality		x													
Data accuracy												x	x		
Engagement of large firm's internal resources			x	x											
Engagement of start-up firms					x										
Expected SME maturity						x									
Global innovation networks					x										
Goal conflict											x	x			
Investment criteria												x		x	x
Investor passiveness											x	x	x	x	
Lack of awareness of possibilities												x			
Lack of clarity on investors' expectations						x									
Lack of commitment to platform	x	x	x	x	x										
Lack of communication about the process							x	x							
Lack of communications									x	x					
Lack of communications during evaluation phase		x													

2nd Order Theme - Value creation challenge	CORP1	CORP2	CORP3	CORP4	CORP5	SME1	SME2	SME3	SME4	SME5	VC1	VC2	VC3	VC4	VC5
Lack of connection on platform								x							
Lack of experienced value creation						x				x					
Lack of investor's engagement													x		
Lack of investor commitment											x		x	x	
Lack of start-up firm's commitment		x													
Lack of value add												x	x		x
Large firm accessibility										x					
Large firm challenge for competences				x											
Large firm challenge for decision making				x											
Large firm challenge for internal collaboration			x	x											
Large firm challenge for internal substitute tools			x		x										
Large firm challenge for open innovation collaboration				x	x										
Large firm challenge for resources		x			x										
Large firm challenge for structures and processes					x										
Large firm changes in strategic focus				x											
Large firm goals									x						
Large firm integration challenge				x											
Large firm lack of commitment														x	

2nd Order Theme - Value creation challenge	CORP1	CORP2	CORP3	CORP4	CORP5	SME1	SME2	SME3	SME4	SME5	VC1	VC2	VC3	VC4	VC5
Large firm lack of engagement with top management			x	x											
Large firm lack of experience of open innovation					x										
Large firm lack of innovation focus														x	
Large firm lack of organizational structure				x											
Large firm lack of resources				x	x										
Large firm lack of resources and processes					x										
Large firm lack of suitable organizational structure		x													
Large firm resourcing									x	x					
Large firm's organizational changes			x												
Large firm's mind-set and culture			x	x	x										
Legal barrier			x												
Marketing						x									
Novelty				x								x			
Openness				x											
Personal interaction												x	x		
Platform investors passive						x		x	x						
Platform management						x			x						
Platform passiveness						x				x					
Quality of calls			x								x				
References					x				x						
Small and start-up firm's activity								x							
Small and start-up firm's marketing								x							

2nd Order Theme - Value creation challenge	CORP1	CORP2	CORP3	CORP4	CORP5	SME1	SME2	SME3	SME4	SME5	VC1	VC2	VC3	VC4	VC5
Small and start-up firm's maturity						x	x		x		x				x
Small and start-up firm's resourcing						x	x			x					
Stakeholder equal management						x									
Stakeholder management						x									
Start-up firm releasing confidential data		x													
Start-up firm's readiness			x												
Start-up firm's visibility												x			
Success of the calls		x	x		x										
Technical usability of platform	x														
Technology			x		x										
Transparency with business competitors				x											
Usability of platform						x		x							
Value of support to start-up firms					x										

CORP = Large firm

SME = Small and startup firm

VC (venture capital) = Investor

APPENDIX 5. Aggregated dimension – Value creation potential within all stakeholder groups

2nd Order Theme – Value creation potential	CORP1	CORP2	CORP3	CORP4	CORP5	SME1	SME2	SME3	SME4	SME5	VC1	VC2	VC3	VC4	VC5
Business model						x									x
Collaboration with large firms	x		x												
Communications				x	x	x	x	x	x				x	x	
Competence		x													
Competence and additional resources		x													
Cost efficiency		x													
Cross-industry innovation network					x										
Disruption in organizing risk finance													x		
Efficient innovation tool			x		x						x	x	x		x
Engagement of small and start-up and large firms								x							
Engagement of small and start-up firms									x						
Expert services	x	x	x	x	x	x		x					x		x
Facilitation		x			x										
Financing						x		x							
Focal point of communications		x													
Focused innovation networks			x	x		x					x	x	x	x	x
Focused network activities										x					
Global innovation network opportunities through licencing						x									
Global innovation networks	x	x	x	x	x	x			x						x
Innovation network with investor firms				x											

2nd Order Theme – Value creation potential	CORP1	CORP2	CORP3	CORP4	CORP5	SME1	SME2	SME3	SME4	SME5	VC1	VC2	VC3	VC4	VC5
Innovation network with start-up firms			x		x										
Investing							x	x							
Investment criteria											x				
Large firm's top management supporting					x										
Learning														x	
Marketing					x	x									
Marketing and visibility								x		x					
Network and business opportunities						x	x	x							
Network opportunities						x		x	x	x					
Network opportunities with joint platforms						x									
Network opportunities with universities						x									
Networking opportunities with international customers						x									
Partnership		x	x	x		x		x							
Personal interaction									x	x					
Proactive communications										x					
Quality of calls	x	x	x		x							x			
References	x					x		x	x				x	x	x
Small and start-up firm's maturity												x		x	
Support services						x		x			x	x	x		x
Timely communications about the process	x														
Tool							x			x					
Trust building										x					

CORP = Large firm

SME = Small and startup firm

VC (venture capital) = Investor