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**Exploring the value creation in service ecosystem context: the case of
the information technology sector**

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ABSTRACT

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This thesis examines customer value creation in a service ecosystem context. The objective of this thesis is to develop a comprehensive view of value creation processes in a service ecosystem context and an understanding on the roles of the stakeholders involved in these processes, focusing on the information technology industry. The novelty of the two central concepts of this thesis, systemic customer value and service ecosystem, as well as the gap in the literature of empirical research on value creation in an ecosystem-level, opened an interesting research topic. The empirical study is conducted as a single case analysis, utilizing Group Decision Support System (GDSS) and also Analytic Hierarchy Process (AHP). The findings suggest that customer value is created by a complex combination of interactions among different actors of the ecosystem. Thus, value is not created by a single offering directed to the customer, but by an integration of services from different parts of the ecosystem as well as the active participation of customer in this process.

Реферат

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В данной магистерской диссертации исследуется создание потребительской ценности в контексте сервисной экосистемы. Целью данной магистерской диссертации является развитие комплексного представления о процессе создания ценности в контексте сервисной экосистемы и формирование понимания ролей заинтересованных сторон, вовлеченных в данный процесс, с фокусом на индустрию информационных технологий. Новизна двух основных концепций данной дипломной работы: систематическая потребительская ценность и сервисная экосистема в дополнение к отсутствию эмпирических исследований о создании ценности на экосистемном уровне открыли интересную тему для исследования. Эмпирическое исследование было проведено путем анализа единичного случая при помощи Системы Поддержки Принятий Решений (СППР) и также Метода Анализа Иерархий (МАИ). Полученные данные предполагают, что потребительская ценность создается сложными комбинациями взаимодействий между различными игроками экосистемы. Таким образом, ценность не создается единичным предложением, направленным на потребителя, а интеграцией услуг, созданных различными частями экосистемы, а также активным участием потребителя в данном процессе.

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I still remember the first day I entered the building of Lappeenranta University of Technology; I was so impressed by the lively colors and the welcoming people. However, back then I could not imagine the journey that would follow. It was an unforgettable experience, full of unique moments. My master studies have been a remarkable learning experience both academically, and personally. I learned so many things about myself and what is really important in life.

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I would like to conclude with some lines from the well-known poem of C.P Kavafis- **Ithaka**.

“As you set out for Ithaka
 hope the voyage is a long one,
 full of adventure, full of discovery.
 Laistrygonians and Cyclops,
 angry Poseidon—don’t be afraid of
 them:
 you’ll never find things like that on
 your way
 as long as you keep your thoughts
 raised high,
 as long as a rare excitement
 stirs your spirit and your body.
 Laistrygonians and Cyclops,
 wild Poseidon—you won’t encounter
 them
 unless you bring them along inside
 your soul,
 unless your soul sets them up in front
 of you.”

”Σα βγεις στον πηγαιμό για την Ιθάκη,
 να εύχεσαι νάναι μακρύς ο δρόμος,
 γεμάτος περιπέτειες, γεμάτος
 γνώσεις.
 Τους Λαιστρυγόνες και τους
 Κύκλωπας,
 τον θυμωμένο Ποσειδώνα μη
 φοβάσαι,
 τέτοια στον δρόμο σου ποτέ σου δεν
 θα βρεις,
 αν μέν’ η σκέψις σου υψηλή, αν
 εκλεκτή
 συγκίνησης το πνεύμα και το σώμα
 σου αγγίζει.
 Τους Λαιστρυγόνες και τους
 Κύκλωπας,
 τον άγριο Ποσειδώνα δεν θα
 συναντήσεις,
 αν δεν τους κουβανείς μες στην ψυχή
 σου,
 αν η ψυχή σου δεν τους στήνει
 εμπρός σου”

Argyro Almpantopoulou

May, 2013

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1. Introduction

1.1 Background of the study

As Darwin Charles once told: *“It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is the most adaptable to change.”* (Kelly and Hayes, 2010) In rapidly evolving global business, where whole industries change or even vanish and technologies are promptly altering, companies fight to preserve their positions and correspond to the rapid pace of international competition and technological progression (Collins and Montgomery, 2008). The need for firms to be competent, to move fast and adapt their businesses to the new state of play is preordained.

As Prahalad and Krishnan (2008) explain companies have to realize that the transformations that contemporary business is now encountering, will not leave unaffected the very essence of the firm along with its way of creating value. Hence, corporations, in order to be able to respond to the turbulence of the current era and create products or services that can engender sizable revenue flows and capture a place in this remunerative market, have realized that extensive cooperation and coordination with key players in the industry is indispensable, as the capabilities of one firm is no longer enough in order to create needed value. Consequently, they start building large, compound networks of firms, the Business Ecosystems, where the emphasis is on access rather than ownership of resources. (Basole, 2009; Prahalad and Krishnan, 2008)

Value creation represents the very reason of companies' existence as well as a fundamental process of economic exchange. (Wernerfelt, 1984; Bowman and Ambrosini, 2000; Vargo et al., 2008). In the service sector, this fact is even more distinct, as customer value is often the base of designing the offerings of companies and a determining factor for their competitiveness (see for example, Vargo and Lusch, 2008). Vargo et al. (2008) define service as

the application of competencies (knowledge and skills) by one entity for the benefit of another, which suggests that value is created collaboratively in interactive configurations of mutual exchange. Through this exchange integration and utilization of resources is made feasible and finally value is created. (Vargo et al., 2008).

The present study is a part of a research project at Technology Business Research Center (TBRC) in Lappeenranta University of Technology. The project name is: "Systemic Competitive Advantage- Development Tool for Solution Design". The project is funded by the National Technology Agency of Finland (TEKES). The aim of this project is to build a rapid development tool for creating competitive advantage based on systemic nature of customer value. Systemic competitive advantage is partly based on knowledge on customer value creation in networks and the project will help to create new management practices for businesses offering service solutions. The project covers the new concept of systemic value creation in three levels, individual, a firm, and a value network.

1.2 Research gaps and research objectives

The focus in the previous customer value research has been quite product-centric, with the concept of a solution taking often the form of tangible goods augmented with service (e.g. Windahl and Lakemond, 2006; Davies et al., 2006; Cova and Salle, 2008; Kapletia and Probert, 2010) and there has been a shortage of research on solutions originating from service industries (Nordin and Kowalkowski, 2010). Authors in different domains have emphasized the collaborative, systemic nature of value creation (Normann and Ramirez, 1993; Kothandaraman and Wilson, 2001; Davies et al., 2006), and called for more research on value creation at the level of service networks and value chains (Windahl and Lakemond, 2006; Cova and Salle, 2008; Matthyssens et al., 2009; Ostrom et al., 2010; Lusch et al., 2010).

Research on business ecosystems is being held mostly in a conceptual level with only a few studies providing empirical evidence (for example, Chou and Huang, 2012; Gueguen and Isckia. 2011). According to Anggraeni et al. (2007), research in business ecosystems has taken two main approaches: (1) the metaphorical and (2) the reality-based. The former one utilizes the natural ecosystem metaphor in order to explain business networks (see Moore, 1993; lansiti and Levien, 2004a; Mercan and Göktas, 2011) and the latter one considers business ecosystems a novel organizational form (e.g. lansiti and Richards, 2006; Moore, 2006). Vargo, (2009) and Frigidis et al. (2007) have highlighted that the concept of the business ecosystem has considerably been provider centric and consequently, neglecting the role of customers. Vargo, (2009) also stresses the need of business ecosystems to be investigated in terms of service-based, network-with-network relationships which will take into account the network of the customer. Relationship in this sense *captures the networked, interdependent, co-creative, nature of value creation through reciprocal service provision.*

The decision to investigate value creation in service ecosystem context was taken, because of emergence of the topic as well as the existence of gap in the literature of empirical research on value creation in an ecosystem-level. Furthermore, Adner and Kapoor (2010) stress that strategy literature (see for example, Jacobides et al., 2006; Pisano and Teece, 2007; Moore, 1996; lansiti and Levien, 2004a; Adner, 2006) has had the tendency to ignore the question of how value is created. Thus, the objective of this research is to develop a comprehensive view of value creation processes in a service ecosystem context and to develop an understanding on the roles of the stakeholders involved in these processes.

1.3 Research questions

Owing to the research gap, and the research objective targeted to fill the research gap, the main research question is:

How is value created in a service ecosystem context?

To open the main research question it will be necessary to profoundly understand the key concepts of value creation and service ecosystem, and agree on definitions of those.

The sub- questions that support the core enquiry are:

- 1. Where in the ecosystem does value creation take place?**
- 2. Who are the stakeholders involved?**
- 3. What are the stakeholder benefits from collaborative value creation in service ecosystem context?**

1.4 Definitions

Traditionally, value creation theorists have focused on company's output and price. (Vargo et al, 2008) For example, Porter (1985) defines value as the amount that customers are willing to pay for company's products or services. However, attempts to define value started in ancient Greece, where Aristotle first distinguished value in *use-value* and *exchange-value*. Adam Smith (1776) gave to value two different meanings: "value-in-use" which expresses *the utility of some particular object*, and "value-in-exchange" which refers to *the power of purchasing other goods which the possession of that object conveys*. In this thesis, the concept of systemic value is utilized. More specifically, systemic customer value means that the value delivered to the customer is dependent on several different but intertwined service and product functions, and is typically created by a network of firms (Pynnönen et al., 2011). Vargo et al (2008) define value *in terms of an improvement in*

system well-being and we can measure value in terms of a system's adaptiveness or ability to fit in its environment.

The term "Business Ecosystem" was invented by James Moore (1993) as: *"An economic community supported by a foundation of interacting organizations and individuals—the organisms of the business world. This economic community produces goods and services of value to customers, who are themselves members of the ecosystem. The member organizations also include suppliers, lead producers, competitors, and other stakeholders. Over time, they co-evolve their capabilities and roles, and tend to align themselves with the directions set by one or more central companies. Those companies holding leadership roles may change over time, but the function of ecosystem leader is valued by the community because it enables members to move toward shared visions to align their investments and to find mutually supportive roles".* Gossain and Kandiah (1998) have further developed the concept of business ecosystem to *"recognize the importance of creating value for customers through the provision of additional information, goods, and services and the use of internet and other enabling technologies".*

Vargo and Lusch (2011) have highlighted that it has to be realized that value creation takes place in and is fundamental for the emergence and evolution of service ecosystems, which they define as *"spontaneously sensing and responding spatial and temporal structures of largely loosely coupled, value-proposing social and economic actors interacting through institutions, technology, and language to (1) co-produce service offerings, (2) engage in mutual service provision, and (3) co-create value."* According to Lusch et al. (2010), a service ecosystem can be also viewed as value network. The difference between the two terms is that the service ecosystem describes better the adaptive and evolutionary features of a value network. In this thesis, both terms are going to be used under the same definition.

1.5 Research Methodology and delimitations

To begin with, taking into consideration the research questions of this study, the qualitative method seem to be the most appropriate. Since, according to Wilson and Natale (2001), the qualitative method serves the type of research that tries to create comprehensive understanding of a specific phenomenon and this capability of the qualitative method is necessary when trying to analyze subjects with high degree of novelty. In addition, it has been argued that the qualitative approach enables detailed and in depth studying of a topic as well as generates profound insights into internal mechanisms of organizations (Alasuutari, 1995; Hollifield and Coffey, 2006).

The selected research method for the needs of this thesis is case study. According to Robson (2002), **case study** is “*a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence*”. The case study approach is mainly able to generate answers to questions of who, why, how and is most suitable in occasions when the researcher has limited control. (Saunders et al., 2009; Yin, 2003). Furthermore, Halinen and Törnroos (2005) argue that case studies, when utilized for the study of business networks, can deliver particularly valuable and comprehensive evidence. Generally, case studies are considered as the most suitable for early phases of research on a subject, when the need for generating new theory is immense. (Eisenhardt, 1989). Morris and Wood (1991) have stated that the case study approach is particularly useful for those researchers that aim to gain rich understanding of the context of the study and the processes being carried out.

Figure 1 illustrates the case study method which is used for the purposes of this study. According to Saunders et al. (2009), a single case study approach can be utilized in situations where the case depicts a critical, extreme or unique case. Equally though, a single case may be more appropriate, when it is a representative one or when it enables the researcher to observe and

analyze a novel phenomenon. In fact, case study strategy can be seen as a lucrative way of exploring existing theory, challenging it and generating new research questions. (Saunders et al., 2009)

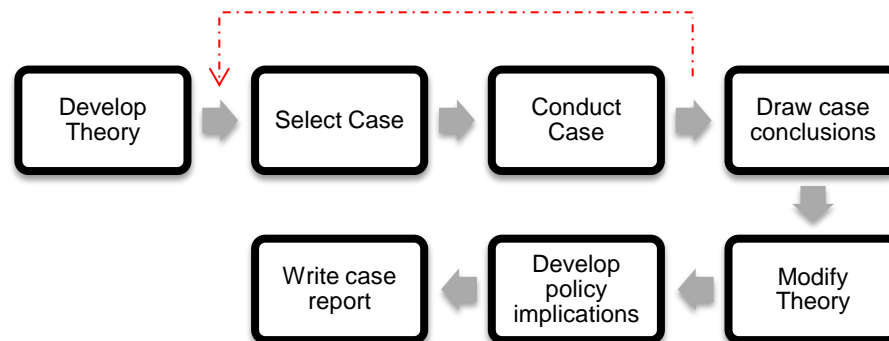


Figure 1 The case study method to be applied in this thesis (adapted from Yin, 2003)

In order to ensure the focus of the study and also tackle the problems of network boundaries and complexity, which arise in case research of business networks, Stake (1995) and Yin (2003) proposed placing limits on the case. (Halinen and Törnroos 2005; Baxter and Jack, 2008) Halinen and Törnroos (2005) suggested that the informants used in the empirical study are usually the ones to set the boundaries to the studied network. Furthermore, by delimiting the case network, the researcher is able to more efficaciously analyze, define the case and what belongs to it and to its setting. Thus, in this study the dyad-network perspective is going to be utilized, mainly because it is expected that the core of this phenomenon is possible to be revealed by this setting. (See figure 2)

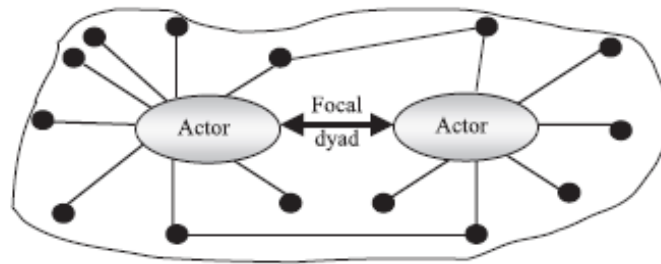


Figure 2 Dyad- network perspective for case boundaries (Halinen and Törnroos, 2005)

1.6 Theoretical Framework

The theoretical framework of this thesis incorporates Allee's (2000; 2008) and Vargo et al.'s (2008) frameworks. According to Allee, (2000;2008), value is created through complex dynamic exchanges between organizations, its customers, suppliers, strategic partners, and the community. Nonaka and Takeuchi (1995) highlight that this exchange does not only include transactions of goods and services among firms, but also knowledge transfer and sharing of intangible benefits. Vargo et al. (2008) add that value is created through the integration of firm's existing resources with those of other service systems that can contribute to system well-being as defined by the system's environmental context- a service system here is considered "*an arrangement of resources (including people, technology, information, etc.) connected to other systems by value propositions*" -. In fact, this notion of resource integration among different actors makes the value network approach the most appropriate for research related to complex service offerings- as is the case of this thesis-, since the resources and capabilities of one actor are not enough in order to successfully handle this type of offerings. (Mikkonen et al., 2008)

In this study, customer's role in the value creation process is considered to be essential. Normann and Ramírez (1993) proposed a novel understanding of customer value. More specifically, they suggested activating customers in order to create their own value. Ramirez and Wallin (2000) suggest that value

of an offering is collaboratively created with the customer and other stakeholders. In agreement with Ramirez and Wallin (2000), Normann and Ramírez (1993) state that in order to engage customers, a more profound constellation of a value-creating system is required. According to Pynnönen et al. (2008), value is based on a constellation of interactions that generate and form the value split among the actors in a value creating system, since the ability of the end customer and value creating actors to benefit from value creation and delivery is questionable. Helander (2004) also underlines the importance of end customer in order to determine the network's value-creation, mainly due to the subjectivity that characterize his/her perceptions of created and acquired value. Thus, the interaction between customer perceived value and the value creating system is an essential issue. (Pynnönen et al., 2008)

Figure 3 illustrates the value exchanges across the ecosystem. There are three main elements in this framework, roles, deliverables and transactions. In particular, roles are played by each service system/ actor, represented by the oval and rectangular shapes in the figure. Transactions or activities start from one actor and end with another. Solid lines are formal contract exchanges around product and revenue, while the dashed lines depict the intangible flows of information and benefits. Finally, deliverables are physical or non- physical elements that are exchanged between the actors. The triangles inside every service system/ actor indicate the usage of owned resources and capabilities.

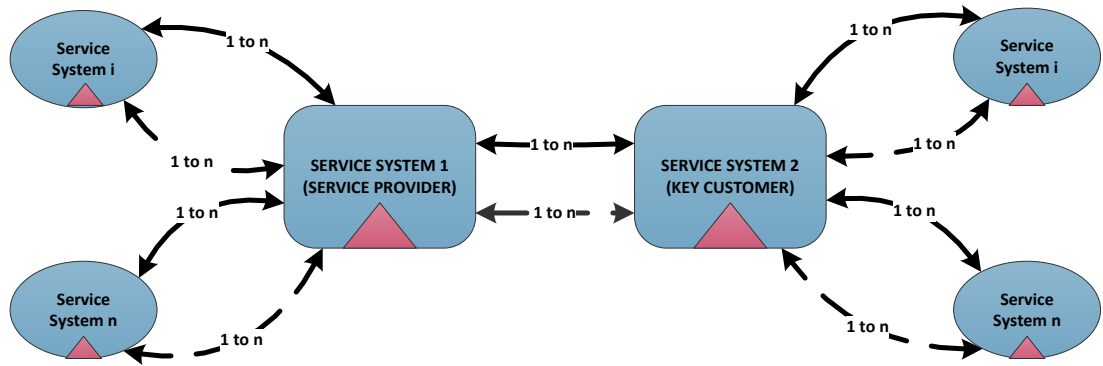


Figure 3 Value Creation in Service Ecosystems

2. Value and Value Creation

This chapter provides a review of existing literature related to the concept of customer value. The aim is to explore the different viewpoints and meanings of the concept, in order to lead the way towards understanding the systemic nature of customer value.

2.1 Origins and Evolution of the concept of value

Value has been a concept with long history, dating back to ancient Greece and the Athenian academy in the 4th century BC. Aristotle is considered to be the first to make a distinction between *use-value* and *exchange-value*. (Fogarty, 1996; Fleetwood, 1997; Vargo et al, 2008) According to Aristotle, use-value is the value that originates from an object's or a service's ability to be productive of a person's good. Thus, use-value is regarded as an individually experienced benefit. Additionally, the demand of that object or service is considered as function of use-value, where exchange-value is derived from use value. Both demand and consequently exchange-value are influenced by rarity. (Gordon, 1964) Finally, Aristotle believed that the fundamental prerequisite for any exchange to take place was the existence of individual needs. (Gordon, 1964; Fogarty, 1996)

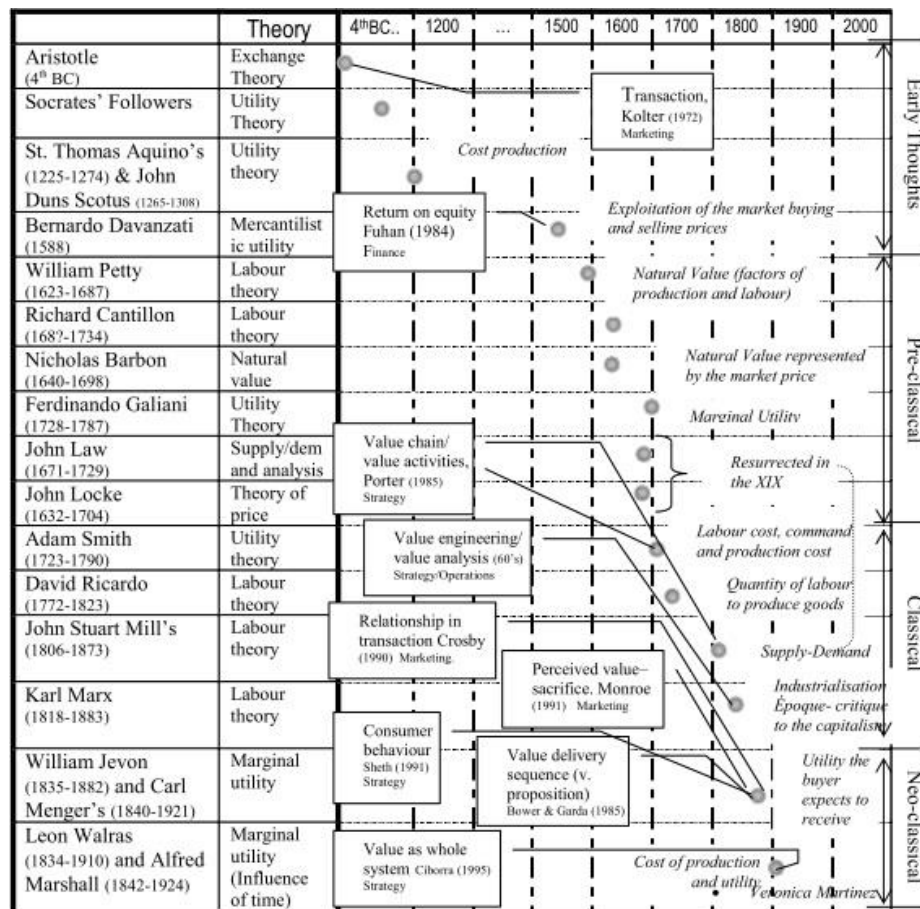
However, according to Fleetwood (1997), Aristotle was unable to identify an equivalent measure for exchange-value. Socrates' followers and then Schoolmen, like St. Thomas Aquino (1225-1274), John Duns Scotus (1265-1308) are recognized for introducing and further developing the notion that value is hinged on utility (see figure 4). (Dixon, 1990; Martinez and Bititci, 2006). Theorists before Adam Smith, such as, Barbon (1640-1698) Galiani (1728-1787) and Law (1671-1729) generally acknowledged use-value and the importance of wants and needs in it. Additionally, this era laid the foundation of the labour theory by introducing the factors of production (see for example: Petty (1623-1687), Cantillon (1734)). (Dixon, 1990; Martinez and Bititci, 2006; Vargo et al, 2008)

In the era that followed, initiated by Adam Smith (1723-1790), scholars turned their focus on exchange-value rather than use-value even though they were aware of the existence of the latter. (Dixon, 1990; Vargo et al, 2008) As stated by Smith (1776) *“the word VALUE, it is to be observed has two different meanings, and sometimes expresses the utility of some particular object, and sometimes the power of purchasing other goods which the possession of that object conveys.”*

In this period, schoolmen like Ricardo (1772- 1823), Mills (1806-1873) and Marx (1818-1883) together with Smith (1723-1790) introduced labor cost and cost of production. Smith (1723-1790) in order to tackle the challenges of measuring labor concentrated on value ingrained in commodities and their monetary value. The neo-classical era, as figure 4 shows, led by Jvons (1835-1882), Menger (1840-1921), Walras (1834-1910) and Marshall (1842-1924) was broadly influenced by Smith’s view of productive activities. Scholars at this time focused on the utility and the cost of production. However, there were scholars, like John Stuart Mill’s (1806-1873), who disagreed with Smith’s (1723-1790) view and accepted that every action that enhanced well-being should be consider productive, meaning including value-in-use. (Martinez and Bititci, 2006; Vargo et al, 2008)

Martinez and Bititci (2006) state that theories of the 19th century have been highly influential in various fields. As a case in point, John Stuart Mill (1806-1873) and his labor theory of demand and supply, influenced strategy authors, like Porter (1985) and his value chain framework. According to Porter (1985), value is the amount that customers are willing to pay for what a company offers (product or service) them and in order for the firm to be profitable, this value should exceed the costs that consist the creation of the product. Porter’s (1985) value chain consists of value activities (primary and support) and demonstrates value creation as the process of transforming inputs (resources) into outputs (products) (Stabell and Fjeldstad, 1998).

Except for Mill's (1806-1873) labor theory of demand and supply, however, the marginal utility theory from William Jevon (1835-1882) and Carl Menger (1840-1921) has also stimulated various theories. According to Martinez and Bititci (2006), these theories include the relationship in transaction, the perceived value-sacrifice, the consumer behavior and value delivery sequence (see for instance Crosby et al, 1990; Sheth et al, 1991; Bower and Garda, 1985). Bower's and Garda's (1985) work for the value delivery sequence highlights that "companies...have shifted from the traditional view of their business as a series of functions to an externally-oriented view of business as a matter of value delivery."



Note: the capsules (boxes) indicate the adoption of a value theory by other field. The dates into the capsules do not imply that these theories were discovered on the same year as the above dates.

Figure 4 Origins of value (Martinez and Bititci, 2006)

2.2 Customer value creation

2.2.1 The concept of customer value

The concept of customer value is characterized by its ambiguity. Customer value is a term that is determined by many different viewpoints as well as contexts it is examined in (Smith and Colgate, 2007; Woodruff, 1997). Woodall (2003) gives to customer value two main meanings. The first one, called value for the customer, relates to customer perceived value or customer received value whereas the second one, called value for the firm, relates to what the customer can deliver, also known as customer lifetime value. Woodruff (1997) explains that customer value, compared to considerations of value from an organization's perspective- which measures the monetary value of specific customers to the firm-, takes the customer's perspective by taking into account the customer's wants and perceptions of what the acquisition and usage of a company's product can offer.

Various authors in the past attempted to define customer value. However, their approaches in defining customer value have been unexpectedly miscellaneous. Some examples in case are the following: Zeithaml (1988) sees value as "*the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given*". Zeithaml (1988), though, highlights that these perceptions of gives and gets are highly subjective as they vary across consumers. Gale (1994) states that "*Customer value is market perceived quality adjusted for the relative price of your product*". Other significant contributions in defining customer value have been made by authors like Monroe (1990), Heard (1993–94), Anderson, Dipak, and Pradeep (1993), Butz and Goodstein (1996) (see appendix 1).

Generally, the common ground of these studies relates to the fact that they acknowledge that customer value includes customer's subjective perceptions of trade-offs between what they receive and what they give up in order to acquire and use a product (Smith and Colgate, 2007; Woodruff, 1997).

Nevertheless, according to Woodruff (1997), examining these definitions a bit deeper discloses one main, but highly important constructional difference, which relates to the usage of diverse not-well-defined terms, such as utility, worth, benefits, and quality, by the authors. The fact that the terms used are not clearly defined makes every comparison among the concepts problematic. Finally, Woodruff (1997) indicates that challenges might also appear because of the considerably narrow perspective that those concepts take when utilized in customer research.

Woodruff (1997) endeavored to tackle the above discussed challenges by providing a more comprehensive definition of value. Thus, as stated by Woodruff (1997) customer value is *“a customer’s perceived preference for, and evaluation of, those product attributes, attribute performances, and consequences arising from use that facilitates (or blocks) achieving the customer’s goals and purposes in use situations”* Parasuraman (1997) recognizes that Woodruff’s broader definition of the concept successfully reveals its richness and complexity. However, the existence of multiple contexts, cognitive tasks and assessment criteria bears major measurement problems.

Holbrook (2005) took a more philosophical approach (axiology) and provided the following definition to the concept which is also considered quite complex (Smith and Colgate, 2007). Nonetheless, his attempt has obviously managed to incorporate a number of central features of the concept, which, as described by Ulaga (2003) consists of unique individual perceptions and is characterized by its conditional, relative and dynamic nature. More specifically, Holbrook (2005) defines customer value as *“an (1) interactive, (2) relativistic [(a) comparative, (b) personal, and (c) situational], (3) preference, and (4) experience. Specifically, (1) customer value is interactive in the sense that it involves a relationship between some subject (a consumer) and some object (a product). Further, (2) customer value is relativistic insofar as (a) it*

reflects a comparison of one object with another, (b) it differs between one person and the next, and (c) it depends on the situation in which the evaluation occurs. Given such considerations, (3) customer value embodies a preference variously referred to by such terms as like/dislike, favorable/unfavorable, good/bad, positive/negative, pro/con, or approach/avoid. Finally, (4) such an interactive relativistic preference attaches not to the object itself but rather to the relevant consumption experience (involving fantasies, feelings, fun, and other aspects of customer satisfaction from product usage)."

Woodall (2003) uses the term "Value for the Customer" in order to represent demand-side views of value. In his paper, the author aims to provide a coherent theoretical anchor for value for the customer, mainly by exploring, explaining, clarifying and classifying the existing perspectives and ideas. Hence, Woodall (2003) concluded that value for the customer is *"any demand-side, personal perception of advantage arising out of a customer's association with an organization's offering, and can occur as reduction in sacrifice; presence of benefit (perceived as either attributes or outcomes); the resultant of any weighed combination of sacrifice and benefit (determined and expressed either rationally or intuitively); or an aggregation, over time, of any or all of these"*.

2.2.2 Customer value frameworks

Authors through the years have tried to explain customer value creation and provide specific frameworks. However, as Smith and Colgate (2007) observe there is no absolute agreement among the scholars. Additionally, according to Mikkonen (2011b) most of the research in the fields of management and marketing has provided various frameworks concentrating on customer value creation of a single product or service (see for example: Woodall, 2003; Ulaga, 2003; Holbrook, 2005; Khalifa, 2004; Smith and Colgate, 2007).

Park, Jawarski, and MacInnis (1986) provide an early classification of consumer needs that reflect value dimensions. The aim of their research was to provide a long-term framework for managing the image over time; they named that framework brand concept management. According to Park, Jawarski, and MacInnis (1986), consumer needs significantly impact the choice of brand concept. More specifically, they identify three main types of needs: *functional*, *symbolic*, and *experiential*. Functional needs refer to those needs “*that motivate the search for products that solve consumption-related problems*”. Symbolic needs refer to “*desires for products that fulfill internally generated needs for self-enhancement, role position, group membership, or ego-identification*”. Finally, experiential needs are defined as “*desires for products that provide sensory pleasure, variety, and/or cognitive stimulation*”. Smith and Colgate (2007) argue that since value perceptions are determined by consumer needs, wants, and preferences, we can indirectly conclude that Park, Jawarski, and MacInnis (1986) suggested three types of value: *functional value*, *symbolic value*, and *experiential value*. Nevertheless, Smith and Colgate (2007) identify two main limitations of this classification. It neither embraces the cost/sacrifice feature of customer value, nor suggests sub dimensions of higher-order constructs.

Another important contribution to theory of customer value creation is that of Sheth, Newman, and Gross (1991). The authors aimed to explain the reasons behind consumers’ purchase decisions for specific products. Thus, they identify five types of consumption values that influence consumer choices: *functional value*, *social value*, *emotional value*, *epistemic value*, and *conditional value*. More specifically, Functional value represents “*the perceived utility acquired from an alternative’s capacity for functional, utilitarian, or physical performance. An alternative acquires functional value through the possession of salient functional, utilitarian, or physical attributes. Functional value is measured on a profile of choice attributes*”. Social value is “*the perceived utility acquired from an alternative’s association with one or*

more specific social groups. An alternative acquires social value through association with positively or negatively stereotyped demographic, socioeconomic, and cultural-ethnic groups. Social value is measured on a profile of choice imagery". Furthermore, emotional value represents "the perceived utility acquired from an alternative's capacity to arouse feelings or affective states. An alternative acquires emotional value when associated with specific feelings or when precipitating or perpetuating those feelings. Emotional value is measured on a profile of feelings associated with the alternative". Epistemic value is defined as "the perceived utility acquired from an alternative's capacity to arouse curiosity, provide novelty, and/or satisfy a desire for knowledge. An alternative acquires epistemic value by questionnaire items referring to curiosity, novelty, and knowledge". Finally, conditional value represents "the perceived utility acquired by an alternative as the result of the specific situation or set of circumstances facing the choice maker. An alternative acquires conditional value in the presence of antecedent physical or social contingencies that enhance its functional or social value. Conditional value is measured on a profile of choice contingencies". Similarly to Park, Jawarski, and MacInnis (1986) Sheth, Newman, and Gross (1991) fail to explicitly capture the cost/sacrifice aspect of customer value. Moreover, there are dimensions of customer value that are not captured in this framework. (Smith and Colgate, 2007)

The frameworks that followed examined customer value in particular contexts. Namely, Ulaga (2003) investigated value in business relationships from a grounded theory perspective. More precisely, the author identifies eight categories of value and for each category three to four explicit benefits reflective of the category (see figure 5). Smith and Colgate (2007) state that Ulaga's (2003) framework managed to provide a quite comprehensive view of relationship value, even though, they argue, in business-to-business settings more types of customer perceived or received value exist.

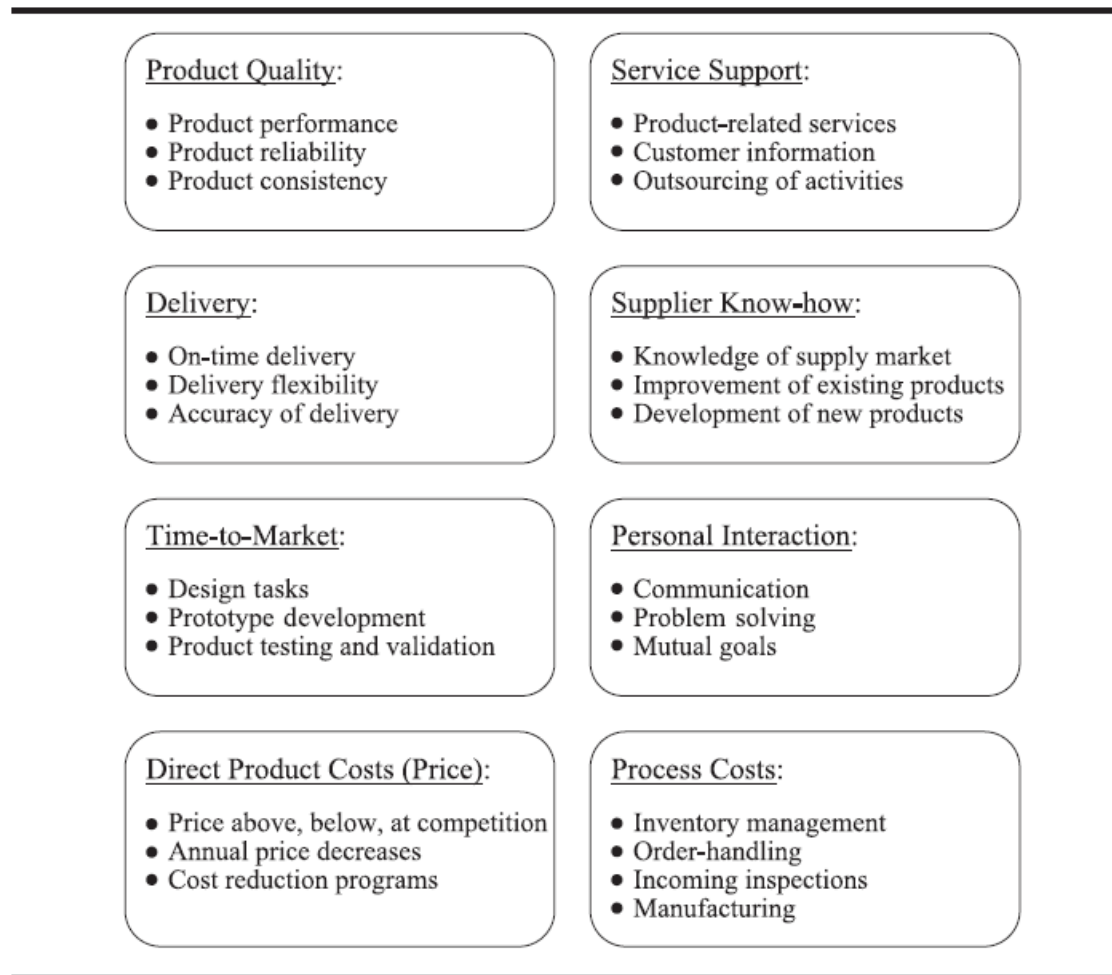


Figure 5 Relationship value drivers according to Ulaga (2003)

Woodall's (2003) rationalized sight of the value for customer domain facilitates comparisons, understanding and classifications of diverse interpretations/ presentations within the context of a clearly articulated schema. From the point of view of Smith and Colgate (2007) Woodall's framework represents the most comprehensive compared to earlier works. In particular, the Woodall's (2003) study recognizes five principal forms of value for the customer as shown in figure 6: Net VC (balance of benefits and sacrifices), Derived VC (use/experience outcomes), Marketing VC (perceived product attributes), Sale VC (value as a reduction in sacrifice or cost), and Rational VC (benefits expressed in units of exchange). The author divides

Derived VC further in five sub- categories as illustrated in figure 7. Woodall (2003) explains that value for customer perceived as “*use/experience outcomes*” (Derived VC) is suggestive of the Aristotelian concept of “*use-value*”. Furthermore, the author connects his notion of Derived VC to value experience as well as to consumer behavior perspective (see for example: Holbrook, 1996; Holbrook, 1999; Sheth, Newman and Gross, 1991) Important for the understanding of Woodall’s typology of value of customer is the correspondence of his primary forms to more recognized value conventions. Thus, “*Marketing VC*’ recalls Frondizi’s (1971) ‘*in-trinsic value*’; ‘*Sale VC*’ connects with the long-established, and purely economic interpretation of *value-in-exchange*; ‘*Derived VC*’ suggests *value-in-use (or experience)*; ‘*Net VC*’ conveys the *conjoint consideration of both benefit and sacrifice that underpins the idea of utilitarian choice*; and ‘*Rational VC*’ combines a range of these perspectives and looks directly to relate benefits with what we are prepared to pay for having them.”

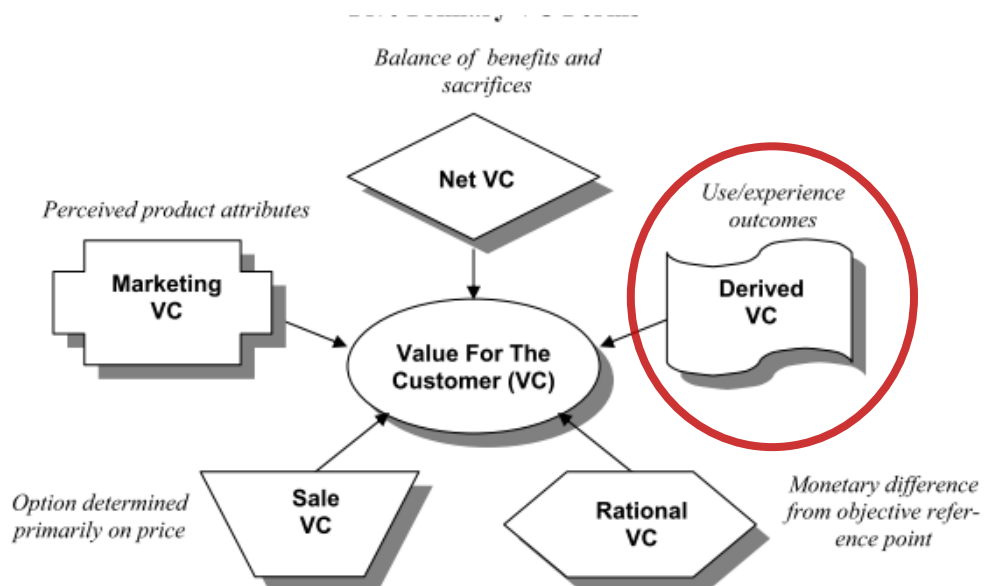


Figure 6 Five main forms of value for customer by Woodall (2003)

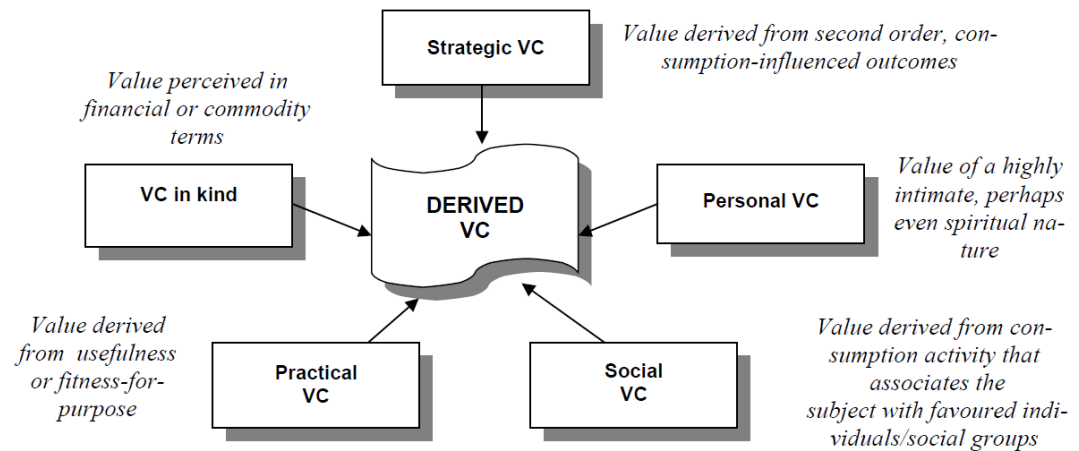


Figure 7 Sub-forms of derived value for customer (Woodall, 2003)

As mentioned in an earlier part of this thesis Holbrook's treatment of customer value is grounded on axiology (the study of quality or value). Holbrook's (1999; 2005) customer value typology reflects on three key dimensions of customer value: the source of motivation behind a value assessment (extrinsic versus intrinsic value), the orientation of the value assessment (self-oriented versus other-oriented value) and the nature of the value assessment (active versus reactive value). Holbrook identifies eight types of value: *Efficiency*, *Excellence*, *Status*, *Esteem*, *Play*, *Aesthetics*, *Ethics*, and *Spirituality*. (see figure 8, words in parentheses represent key examples of each type respectively). Mikkonen (2011b) highlights that Woodall's (2003) notion of Derived VC can be placed in Holbrook's typology as self-oriented. He also focuses his attention on Practical VC of Woodall's (2003), defined as value derived from usefulness or fitness-for-fitness, which seems to bear a resemblance to with *Efficiency* of Holbrook's typology. Smith and Colgate (2007), however, argue that it may not apply as well to business-to-business settings, regardless of its unblemished conceptual foundation.

| | Extrinsic | Intrinsic |
|-----------------------|---|---|
| <i>Self-oriented</i> | | |
| Active | EFFICIENCY (O/I ratio) {France Leclerc and Bernd Schmitt} | PLAY (Fun and Leisure) {Kent Grayson} |
| Reactive | EXCELLENCE (Quality) {Rich Oliver} | AESTHETICS (Beauty) {Janet Wagner} |
| <i>Other-oriented</i> | | |
| Active | STATUS (Impression) {Mike Solomon} | ETHICS (Justice, Virtue, and Morality) {Craig Smith} |
| Reactive | ESTEEM (Possessions) {Marsha Richins} | SPIRITUALITY (Sacredness) {Stephen Brown} |

Figure 8 Typology of Customer Value, based on axiology (Holbrook, 2005)

Heard (1993–94) takes a different approach to customer value. He argues that customer value is defined by three main factors: *product characteristics*, *delivered orders*, and *transaction experiences*, which are associated with basic value-chain actions or processes (namely: design, production, marketing) that reveal where value is created within organizations. According to Heard (1993–94) these factors are assessed by customers along four value dimensions: *being correct*, *timely*, *appropriate*, and *economical*. However, there are not only these three processes that create value; Heard (1993–94) argues that there are various sub-processes inside the organization that create other sources of value. Smith and Colgate (2007) provide some specific examples of these sources, such as product and corporate information (for instance, information about features, functions, benefits and use of a product) that can increase the perceived value of a product throughout its purchase and consumption, the physical environment and the customer-employee-organization interaction. Finally, it is thought by Smith and Colgate (2007) that these interactions can provide different types of value, such as experiential, functional/instrumental value, symbolic/

expressive value or even value concerned with the cost/sacrifice aspect of value.

Khalifa (2004) suggests an integrative configuration of customer value that reflects the richness and complexity of the concept. His framework attempts to integrate different but complementary perspectives already existing in the literature. Thus, the author developed the integrative configuration, which combines three models: *the value exchange model*, *the value build-up model*, and *the value dynamics model*. The value exchange model is mostly a benefits-costs model. The total benefits, or the total customer value, embrace utility value and psychic value, whereas the total customer sacrifices involve financial and non-financial customer costs. The value build-up model represents a comprehensive picture of the gross or total customer value. According to Khalifa (2004), customer value is affected by four main factors: *functionality*, *solution*, *experience*, and *meaning*. Finally, the value dynamics model reflects how customers appraise a supplier's overall offering. This model sorts features of customer value in five categories: *satisfiers*, *dis-satisfier*, *exciters*, *value magnifiers*, and *value destroyers*. This taxonomy is considered to be beneficial for designing service offerings, considering that it draws management's attention more on satisfiers, exciters, and value magnifiers while preserving a limit on dis-satisfiers and value destroyers. (Khalifa, 2004)

Finally, Smith and Colgate (2007) provide a customer value creation framework, which identifies four major types of value that organizations can create for customers: *functional/instrumental value*, *experiential/hedonistic value*, *symbolic/expressive value* and *cost/sacrifice value*. Firstly, functional/instrumental value "is concerned with the extent to which a product (good or service) has desired characteristics, is useful, or performs a desired function." Experiential/hedonic value "is concerned with the extent to which a product creates appropriate experiences, feelings, and emotions for the customer." Symbolic/expressive value "is concerned with the extent to which customers

attach or associate psychological meaning to a product to try to maximize, or at least realize value benefits". Consumers and customers also try to minimize the costs and other sacrifices that may be involved in the purchase, ownership, and use of a product. Cost/sacrifice value is concerned with transaction costs. Smith and Colgate (2007) attempted to develop a comprehensive customer value framework, which incorporates and further extends preceding theoretical foundations. The main aim is that the proposing framework applies to various contexts (consumer or business as well as goods or services).

2.2.3 Goals and value creation

Goal setting theory has been developed inductively by industrial-organizational psychologists, mainly by Locke and Latham (2002). According to Locke and Latham (2006), goal-setting theory is summarized regarding the effectiveness of explicit, challenging goals, the relationship of goals to affect, the mediators of goal effects, the relation of goals to self-efficacy, the moderators of goal effects, and the generality of goal effects across people, tasks, countries, time spans, experimental designs, goal sources and dependent variables. It is mainly founded on the idea that conscious goals influence action. Specifically, a goal is defined as the object or aim of an action, for example to attain a specific standard of proficiency, usually within a specified time limit (Locke and Latham, 2002). According to Pieters et al. (1995), goals serve two motivational functions. First, they affect the direction of behavior by expressing what people are trying to achieve, and in a more comprehensive sense how they plan to accomplish the goal in question and why, in first place, they are pursuing the selected course of action. Additionally, they influence the intensity of behavior by determining how vigorously an individual will pursue a course of action depending on the desirability of the main goal. Goals at lower levels in the hierarchy, "Subordinate goals", function as ways to accomplish higher-level goals, focal goals, as ends (Pieters et al., 1995).

Woodruff (1997) proposed the customer value hierarchy model, illustrated in figure 9, which suggests that customers consider of desired value in a means-end way. In particular, at the first level in hierarchy, customers consider products as bundles of explicit attributes and attribute performances. During the purchase and usage of a product, they formulate desires or preferences for specific attributes based on their capability to facilitate reaching desired consequence experiences, reflected in value in use and possession value, in the next level up in the hierarchy. In the highest level, customers learn to desire particular outcomes according to their ability to help them achieve their goals and purposes. Shocker et al. (2004) also argues that there is significant evidence in the literature (see for example: Barsalou, 1985; Loken and Ward, 1990; Ratneshwar et. al., 1996; Ratneshwar and Shocker, 1991) suggesting that customer purposes and goals are important in determining customers' mental representations of products. Thus, when it comes to evaluate products (perceived value) customers utilize the same desired attribute, consequence, and goal structure that they have in mind at that moment (Gardial et al., 1994; Zeithaml, 1988: in Woodruff, 1997). Additionally, the role of customer's use situation is also important as in case of any changes, the connections between product attributes, consequences, and goals and purposes change too (Woodruff, 1997).

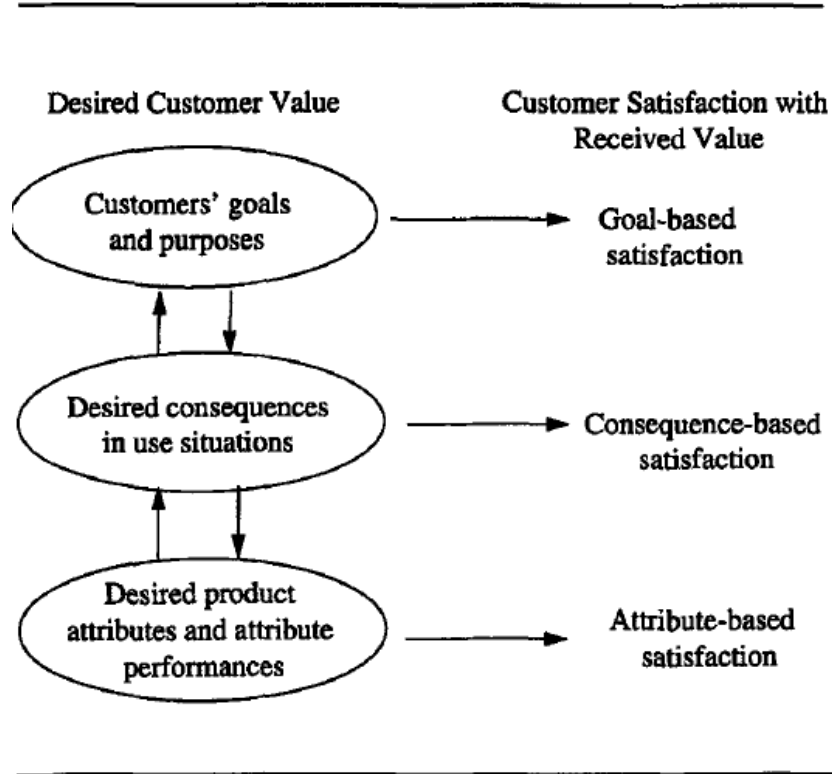


Figure 9 Customer hierarchy value model (Woodruff, 1997)

In business to business environment, it is important that service providers first deeply understand their customers goal structures in order to better understand, both end-user level and firm level value creation in their customer organization. Providers, thus, need to systematically map the value creation processes of the customer organizations, and the specific tasks (goals) through which the employees (end-users) create that value for the customers of their respective company. The focal goal (Pieters et al., 1995) binds the usage of different solution components together, and serves as key for successful integration. According to Hallikas et al. (2012a), systemic and well integrated service offerings can provide considerable time and money savings, regardless of the size of initial cost and with the proviso that the service solution works seamlessly. To understand the value of the systemic offering we need to study it from the perspective of user-experience design.

Thus, to make the different phases in the goal chain more consistent, the real usage of the service process needs to be thoroughly understood in terms of multiple daily-usage transition phases between the different parts of the solution. By increasing the consistency between tasks, it becomes easier for the user to switch between processes. Inconsistency between interfaces, according to Kalakoski et al. (2011), can cause costs to the customer in form of time spent and number of errors/faults increased, which will end up as negative effects to the service provider. In the ecosystem level, information seems to play a significant role in the customer's actual reaching of work-related goals. (Hallikas et al., 2012a) Thus, coordinating efforts from provider's side are essential in order for the customer to keep focus on the goal while using the solution, and also to assure that the customer does not experience any difficulty or delay in goal transition phases.

2.3 Towards the systemic nature of value

Companies today have to realize the new logic of customer value in order to be able to create value in an economy of service systems, which is characterized by increased complexity. This novel perspective to customer value adds the systemic view to customer value (Lusch et al. 2010; Pynnönen et al., 2011). The systemic nature of customer value draws on the fact that the value delivered to the customer depends on more than one attribute, and possibly on more than one firm. Thus, in this new era of systemic value, traditional management theories and methods might not be appropriate for companies to be successful. (Pynnönen et al., 2011)

According to Christopher (2007), the company and its customer offerings are considered as a complete and complex system, which makes it easier to structure and manage value creation. In this thesis systemic value creation is investigated in an ecosystem level and since ecosystems are considered as complex systems, that create value through sharing or applying resources and acquiring external resources (Maglio et al, 2009), it is suggested that to

understand the logic of systemic customer value resource-based view, systems thinking and complexity must be connected to that concept.

2.3.1 Resource- based view

The resource-based view describes the role of resources and capabilities in managing a company's position in a network, and the link between resources and customer value. (Pynnönen, 2008). The resource-based view assumes that the firm is a bundle of resources, which can diverge among firms, and explains that these resources and capabilities are the source of value (Wernerfelt, 1984; Barney, 1991; Teece, 2007). Barney et al. (2001) state that *"...resources and capabilities can be viewed as bundles of tangible and intangible assets, including a firm's management skills, its organizational processes and routines, and the information and knowledge it controls."* However, Barney (1991) argues that the potential of every resource in value creation differs based on four main attributes that are valuable, rare, imperfectly imitable and non-substitutable. In particular, valuable resources are those that allow the company to implement efficiency and effectiveness enhancing strategies, resources not meeting the conditions of that criterion are called assets or not rent generating resources, since they are bought and they are unable to secure distinctive competitive advantage (Barney, 1991; Bowman and Ambrosini, 2003). Further, resources have to be fairly rare, difficult for competitors to imitate and non-substitutable, meaning that no other resource can create a strategically analogous outcome, to create competitive advantage. Abilities, relationships, skills and knowledge are considered to be resources that meet these criteria, since they are usually not bought from markets. (Barney, 1991; Bowman and Ambrosini, 2003; Clulow et al., 2007)

Companies do not always own the resources and capabilities necessary to produce value to the customer. Barney (1999) identifies three ways a company has *to acquire the resources needed*, firstly, *to cooperate with*

another firm, secondly, to develop the resources itself, and lastly, to acquire a firm that already possesses them. However, the last two are considered to be more costly to implement. The type of resources the company is looking for, determines the degree of integration in cooperation relationships. Particularly, the collaboration seems to be tighter in the case of high dependency on value network's R&D resources, rather than when the firm seeks for marketing or production resources. Likewise, the collaboration is more integrative when resource profiles of partner firms are comparable, than in the case of complementary resource profiles. (Chen and Chen, 2003).

The resource-based view understands the value network as a collection of complementary and substitutive resources possessed by different companies (Kothandaraman and Wilson, 2001). Blomqvist et al. (2002) argues that firms can also improve their capability to create knowledge through cooperation with other firms, a view supported by Hamel (2002), who claims that value networks are a valuable source of new knowledge, because of positive feedback and learning effects that bring for their participants. Vargo and Lusch (2004) highlight that knowledge and skills (*operant resources*) are capable of acting on other resources to contribute to value creation and should consider the primary source for competitive advantage, because they produce effects.

2.3.2 Systems theory and complexity

A system, in a broad sense, can be described "*as a complex of interacting components together with the relationships among them that permit the identification of a boundary-maintaining entity or process*" (Laszlo and Krippner, 1998). Systems thinking emphasizes on considering the whole instead of the parts of a company and understanding how distinct actions can affect it. According to Senge (1990), systems thinking is a framework for realizing interrelationships and process of change as it focuses on understanding the causes and consequences behind short-term events.

Namely, Senge (1990) describes it as follows “*we learn best from our experience but we never directly experience the consequences of many of our most important decisions*”.

Maglio et al. (2009) suggest that “*a system is a configuration of resources, including at least one operant resource, in which the properties and behavior of the configuration is more than the properties and behavior of the individual resources.*” Based on that perspective, value can be seen as an improvement in a system, determined by the system itself or by the system’s ability to adapt to an environment. Thus, according to Wieland et al. (2012), value can be perceived as improved system viability.

Service systems can be better understood when investigated through the lens of complexity theory (Wieland et al., 2012), mainly because they not only comprise many actors with dynamic interactions, but also, as underlined by the primacy of operant resources, place people- customers and employees- instead of tangible goods in focus of their organizational structure and operations (Qiu, 2009). Complexity theory, according to Sawhney and Prandelli (2000), discusses that “*organizations that mirror the function of natural (organic) systems are better suited for turbulent business environments because of their ability to create and adapt. Firms that structure themselves as complex adaptive systems are able to operate in complex contexts with a high degree of flexibility, without degenerating into chaos*”. Holbrook (2003) defines a complex adaptive system as being “*composed of inter-related parts, interacting with its environment, subject to resulting feedback effect, evolving over time adaptively to fit the pressures imposed on it, perhaps attaining a sustainable advantage, and in the process generating certain emergent phenomena*”. In general, human systems are distinguished by open and evolving interactions that frequently create situations of complexity (Sterman, 2000; Sawyer, 2005: in Wieland et al., 2012).

Pynnönen et al. 2011 identify three key issues from a provider perspective that need to be tackled to create systemic value for customers. The first issue relates to improving connectivity among components of an offering system. Then, the second issue relates to the importance of a platform that allows effortless maneuvering of services and finally, the emerging role of free elements. Analyzing the systemic customer value of the company's offering allows the uncovering of the functions, resources and capabilities that generate the customer value, in terms of the customer meeting various goals. Integration between the offerings of several companies requires the generation of systemic consistency between actors and customer. (Kalakoski et al., 2011). Integration processes describe further the way ecosystems arrange and interact with these groups to serve multiple goals over the course of experience (Epp and Price, 2011).

3. The nature of service

The world today is undoubtedly characterized by services and the services sector has indisputably become a key driver of growth in today's leading global economies. (Basole and Rouse, 2008; Ostrom et al., 2010) In fact, according to Dominguez-Péry et al. (2013), approximately 80 percent of the United States and other prominent economies are driven by the service sector; in addition even countries that have generally concentrated on manufacturing are experiencing prompt service growth. According to Basole and Rouse (2008), the North American Industrial Classification System (NAICS), in which 16 of 20 sectors are services related and 250 of the new 358 new industries produce services, further proves the transition to a service-based economy. Furthermore, this trend is to some extent in line with service-dominant (S-D) logic (Vargo and Lusch, 2008). S-D logic considers the role of services as the basis of economic activity, and even claims that, in the context of developed countries, all modern economies are service economies (Lusch, 2011).

The rapid development of the service sector is a result of the intensity of international competition, which pressures companies to continuously innovate and excel operationally so that they can address swiftly evolving customer needs and wants, and achieve customer intimacy. (Rai and Sambamurthy, 2006; Agndal et al., 2007; Basole and Rouse, 2008) Today companies realize that they face considerable structural barriers to agility and competitive performance, such as the highly fragmented nature of business processes across industries, which results in bloated costs, lack of responsiveness to customers, and unexploited opportunities for innovation (Rai and Sambamurthy, 2006).

In business to business relationships, services can be perceived as a source of many capabilities. For reasons previously described, firms today increasingly concentrate their attention on their core competences, and many of them outsource the provision of required complementary know-how.

(Agndal et al., 2007) As companies struggle to meet continuously changing demands of their customers, who are gradually searching for all-inclusive solutions- that may contain both services and goods-, they are forced to differentiate their offerings. (Agndal et al., 2007; Lindberg and Nordin, 2008)

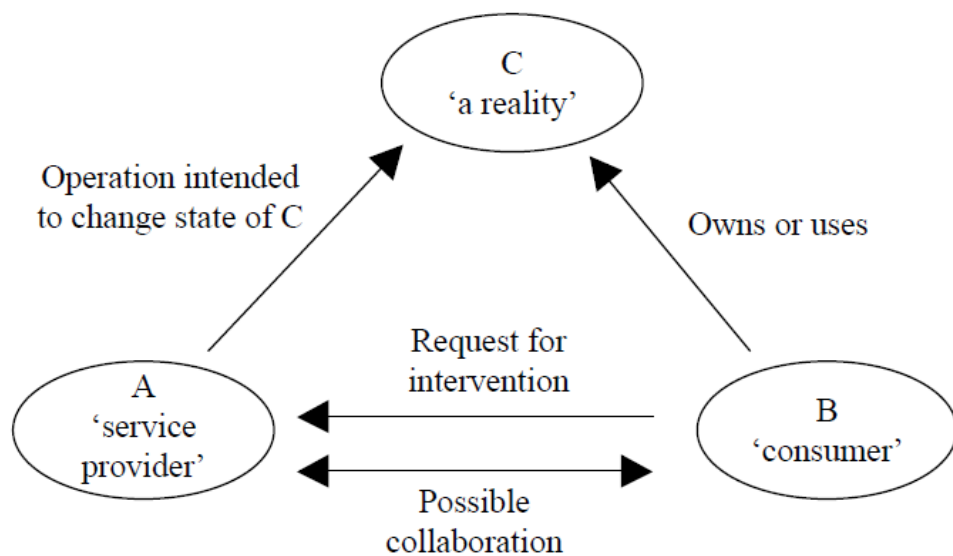
3.1 Definitions and distinctive characteristics of services

There have been many attempts to define services. However, the degree of consistency among them is quite low (Rai and Sambamurthy, 2006). Ambrose and Brandon-Jones (2010) identify four main perspectives for defining services and these are the residual, which focuses its attention on what services are not, the IHIP, which identifies four of main characteristics of services that are intangibility, heterogeneity, inseparability and perishability, and finally, the institutional and the unified service theory, which are the two most contemporary notions related to service definition (Ambrose and Brandon-Jones, 2010).

In the early conceptualizations, according to residual and IHIP notions, services have been defined in comparison with products (Lindberg and Nordin, 2008). Thus, attention is focused on what services do not include and how they must be marketed because of their diverse characteristics. (Lovelock, 1983; Grönroos, 1998; Spring and Araujo, 2009) Residual and IHIP definitions have received much criticism among scholars (see for example, Lovelock and Gummesson, 2004; Spring and Araujo, 2009; Ambrose and Brandon-Jones, 2010). On the other hand, the institutional approach and the unified service theory can represent useful alternatives to the definitions provided by residual and IHIP approach.

The institutional approach, as described by Spring and Araujo (2009), draws on the works of Hill (1977, 1979), Gadrey (2000) and Lovelock and Gummesson (2004) and defines services as operations in which ownership of resources and access to capabilities is traded (Ambrose and Brandon-Jones, 2010). Figure 10 depicts the *service triangle* which demonstrates the true

nature of service as institutional definition describes it. More specifically, a reality C is altered by a service provider A on behalf of a customer B. However, this transformation also depends on the reality C, and is a consequence of one of three situations, as figure 10 illustrates, a request for intervention by B, a right to use capacity granted by A, or a performance by A on behalf of B (Ambrose and Brandon-Jones, 2010).



Source: After Gadrey (2000)

Figure 10 Service Triangle (Spring and Araujo, 2009)

The unified service theory clearly defines and distinguishes service processes from non-service processes in terms of the nature of the customer input. According to Sampson (2010), unified service theory considers IHIP characteristics as simply being symptoms of service, meaning that they might occur in non-service processes by reasons other than the reliance on customer inputs, and that their existence depends on changes in the nature of customer inputs. Generally, IHIP characteristics become intense as consist of the customers themselves and their possessions, tangible or intangible (Sampson and Froehle, 2006). The purpose of the service process is to

transform these inputs in a way that is valued by customers. However, in non-service processes, the role of customers is rather different, customers are usually utilized in market research or for selecting outputs and they do not necessarily provide an input for the service to occur. (Ambrose and Brandon-Jones, 2010)

Generally, it is assumed that services are exchanged in intimate customer-provider relationships, where trust among the actors plays an essential role (Ellram et al., 2004; Åhlström and Nordin, 2006). Early scholar, Frederic Bastiat (1964/1848) argued that “*services are exchanged for services*”, a statement upon which recent scholars have drawn their arguments (Ford, 2011). Namely, it is assumed that the service concept encompasses exchange of intangible value elements, in interaction between customer and supplier (Norman, 2002; Vargo and Lusch, 2004; Vargo and Lusch, 2008). The customer is closely integrated in the service provision by offering ex-ante and ex-post feedback on gains (Hallikas et al., 2012a) Therefore, service provider and customer are co-producing the service, and thus co-creating value.

To sum up, table 1 below, adapted from Hallikas et al. (2012b), summarizes the main differences between goods and services, since literature, in its attempt to define services, inclines to mostly emphasize on their dissimilarities with goods (Axelsson and Wynstra, 2002). However, the next chapter will illustrate that the exchanges between customers and providers result in more complex service offerings, which function as solutions to specific customer requirements and may involve both goods and services (Vargo and Lusch, 2004; Lindberg and Nordin, 2008) .

Table 1 Characteristics of goods and services (adapted from Hallikas et al., 2012b, based on Grönroos, 2000; Rantala and Virolainen, 2001; Ellram et al., 2004; Van der Val et al., 2005; Ellram et al., 2007; Vargo and Lusch, 2008)

| Goods | Services |
|--|--|
| ➤ Tangible | ➤ Intangible |
| ➤ Homogeneous | ➤ Heterogeneous |
| ➤ Production and distribution are separate from consumption | ➤ Simultaneous process including production, distribution and consumption |
| ➤ Storable | ➤ Cannot be stored |
| ➤ Can be clearly demonstrated before purchase | ➤ More difficult to demonstrate before purchase |
| ➤ Expectation: specifications are precise | ➤ Expectations: vague service-level agreement |
| ➤ Quality: measurable, pre-specified | ➤ Quality: subjective, user-dependent |
| ➤ Can be transported | ➤ Cannot be transported |
| ➤ An item | ➤ An activity or a process |
| ➤ Core value produced in the facility; value as produced | ➤ Core value produced in the buyer-supplier interaction; value as co-created |
| ➤ Cost; pre-negotiated, per unit, easy to determine in advance | ➤ Cost; dependent on changing scope requirements, situation-specific, often is renegotiated, or changes with scope |

3.3 Towards service solutions

Nordin and Kowalkowski (2010) offer a critical examination of the literature of solutions offerings, aiming to provide a new conceptual framework, combining dimensions that can distinguish between different kinds of solutions, and connect their diverse characteristics. Their framework, as illustrated in figure 11, integrates four aspects of solutions, antecedents, characteristics, process and outcomes. As with the concept of service, there is no unanimous and rigorous definition of solutions, instead literature provides many often broad and generic descriptions that could be used for a wide range of different offerings. (Nordin and Kowalkowski, 2010)

Sawhney et al. (2006) define a solution as “*an integrated combination of products and services customized for a set of customers that allows customers to achieve better outcomes than the sum of the individual components of the solution.*” Sawhney’s et al. (2006) view of solutions is considered to be more precise and inclusive compared to other attempts (see for example, Miller et al, 2002; Johansson et al.,2003; Tuli et al., 2007). However, Nordin and Kowalkowski (2010) argue that this approach is limited by its inherent assumption that customers can elucidate their problems, which is not always valid. In fact, taking into consideration rapid technological progression and intensifying complexity customers are less likely to be able to explain their specific problem. Moreover, customers might also face difficulties in identifying competent solutions providers, because of extensive outsourcing of activities, that made them highly reliant on their providers for essential understanding (Fine and Whitney,1996: in Nordin and Kowalkowski, 2010).

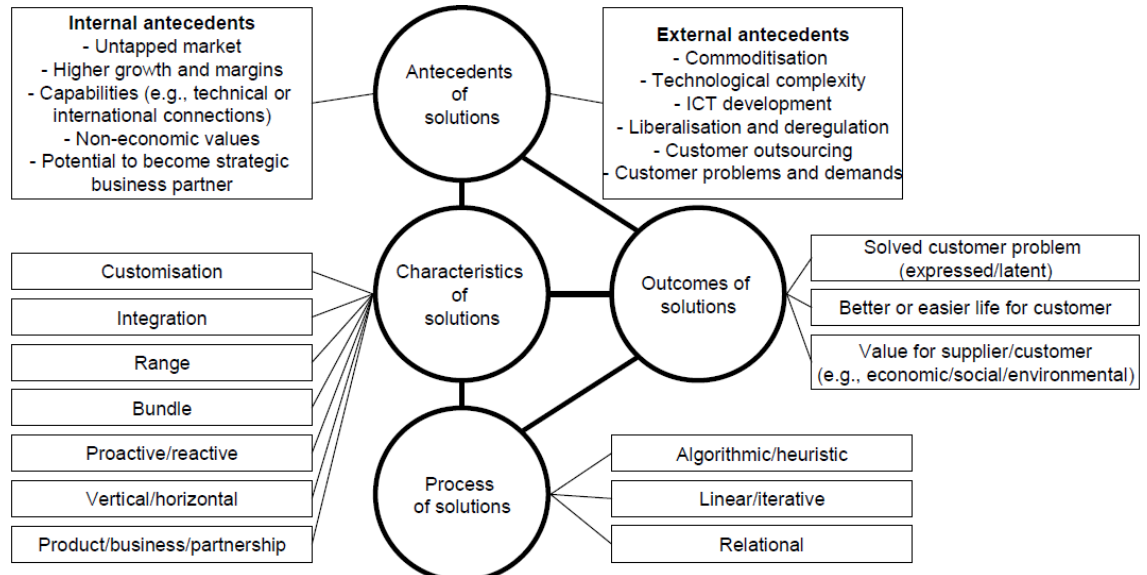


Figure 11 A solutions framework (Nordin and Kowalkowski, 2010)

Nordin and Kowalkowski (2010) state that there might be some characteristics that relate to all forms of solutions or even other types of offerings. Three such characteristics, identified by Johansson *et al.* (2003) and Sawhney (2006), may be high degrees of customization, technical-operational integration and customer-market integration, irrespective of the uniqueness of the solution. Therefore, it is important that integration delivers better customer outcomes than the sum of the distinct components. Nordin and Kowalkowski (2010) also highlight Tuli's *et al.* (2007) view that long-term orientation, significant investment in relationship-building, and an iterative nature might further contribute to the strategic differentiation of solutions offerings.

Gudergan (2010) claims that as companies increasingly replace single offerings with integrated solution systems (see figure 12), their connections with their customer become stronger. Thus, solutions create customer value as whole systems. Namely, a solution system includes and integrates all offerings, processes and interactions which are exchanged between provider and customer within the relationship, rather than simply consisting of single

transactions (Gudergan, 2010). Literature (see for example, Schuh et al., 2004; Anderson et al., 2006) has pointed out the need for companies to focus their attention on solution systems so that they can generate superior value to the customer based on the integrative nature of solutions and the closely linked relationships among the different parties. In fact, customer value experience is influenced by the way the different products and services, composing the solution, are integrated. If the usability and assistive capabilities in systemic setting are contemplated, the integration itself generates intangible systemic value, in form of solution level efficiency and convenience (Mikkonen, 2011a; Pynnönen et al., 2011).

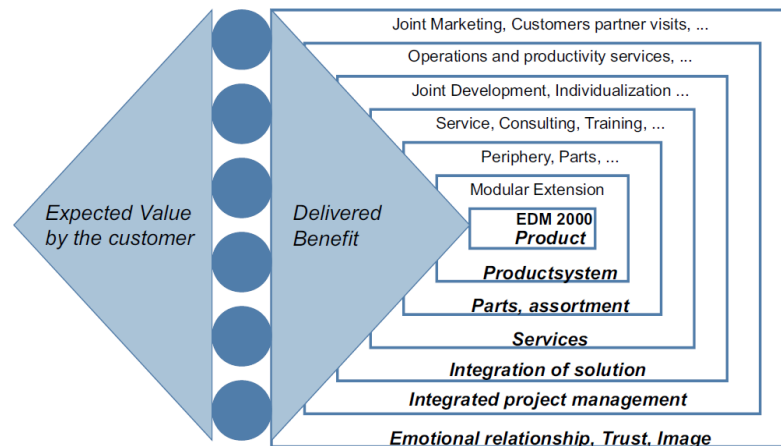


Figure 12 Solution system to deliver value to the customer (Gudergan, 2010; based on Belz, 1997)

The modular and systemic nature of solution offerings indicates that customers are offered several services that work together impeccably (Pynnönen et al., 2011). Hakanen and Jaakkola, 2012 propose that to provide collaboratively created efficacious customer-focused solutions, companies have to achieve consistency between not only the offering and the customer requirements and value expectations, but also between the goals,

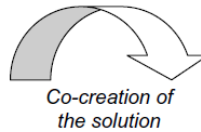
preferences, and resources of the provider firms. This consistency is the precondition for creating seamless solutions that deliver more value than the parts alone (Brax and Jonsson, 2009: in Hakanen and Jaakkola, 2012). Pynnönen et al. (2011) highlight that some of these parts may be more valuable than others and by analyzing the systemic customer value of the company's offering allow identifying the ones that generate the most value in meeting various customer needs.

Hakanen and Jaakkola (2012) study solutions as a network-level process of resource integration between multiple suppliers and their mutual customers. The authors focus their attention on factors that affecting the relational and interactive processes that, according to Tuli et al. (2007), are crucial for the customer's perception of solution efficacy. Figure 13 summarizes the results of their study. Therefore, to co-create effective solutions that satisfy customer needs, providers particularly need to commit to common goals as it has an effect on the coherency of customer experience and adapt the solutions content and the collaborative creation process to the customers' heterogeneous value expectations (Hakanen and Jaakkola, 2012).

Factors related to customer that affect co-creation:

- Uniqueness of problem/ need
- Clarity of need and requirements
- Openness and willingness to share information
- Willingness to involve the suppliers in value processes
- Benefits and value expected

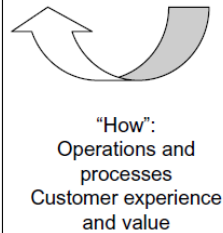
"What":
Core content of solution
Outcomes and value



Factors related to suppliers that affect co-creation:

- Scope of resources
- Complementarity of resources
- Willingness to share customer information
- Understanding on partners' resources and goals
- Degree of competition
- Degree of agreement regarding the content of the solution

- Willingness and ability to participate the process
- Clarity and predictability of customer resources and processes
- Desire for control
- Perceived person-centricity of the solution and value



"How":
Operations and processes
Customer experience and value

- Commitment to common goals
- Clarity of roles and tasks
- Possibility for planning and scheduling the process in advance
- Understanding on partners' operations and processes
- Trust and rapport
- Perceived value in co-operation

Figure 13 Factors that affect the co-creation of integrated solutions within business networks (Hakanen and Jaakkola, 2012)

4. Business Ecosystems

4.1 Background for network/ ecosystem analysis

Harland (1996), by utilizing a systems approach, attempts to examine the relation between the different levels of analysis. As figure 14 demonstrates there are four main systems levels in supply network research, which are identified as the internal supply chain, the dyadic relationship, the external supply chain and the inter-business network (Harland, 1996).

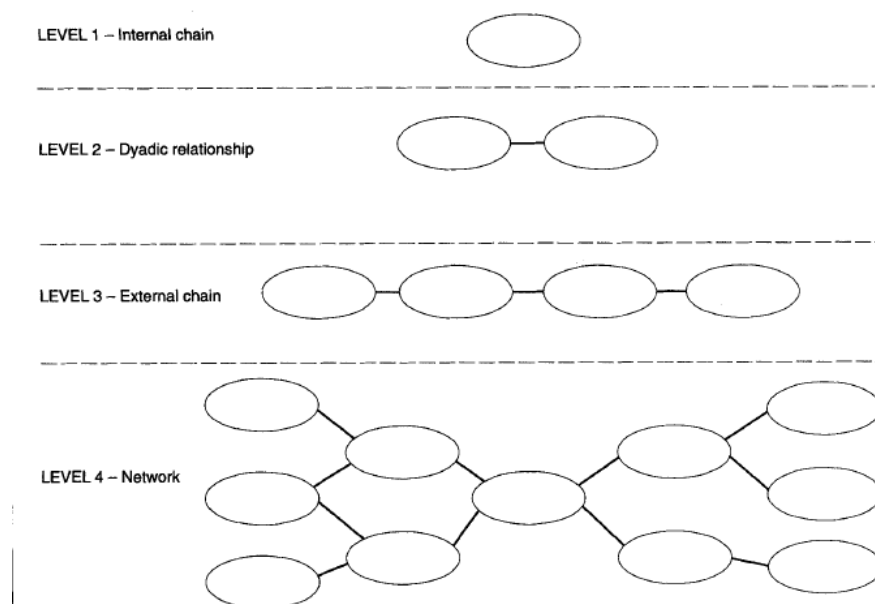


Figure 14 Levels of analysis in supply network research (Harland, 2006)

Harland (1996) based his research on the supply chain methodology designed by Harland, Williams and Fitzgerald (1993). According to this methodology, supply chain research involves the three levels of analysis illustrated in Figure 15. The analysis performed at each of the levels is characterized by its iterative nature. Namely, analyzing dyads creates understanding of chain behavior, as it enables comparison between relationships at different positions in the supply chain. Analysis of chains provides insight into the overall network. Furthermore, combining information gathered at the dyadic relationship level of analysis enables understanding of the network (Harland, 1996).

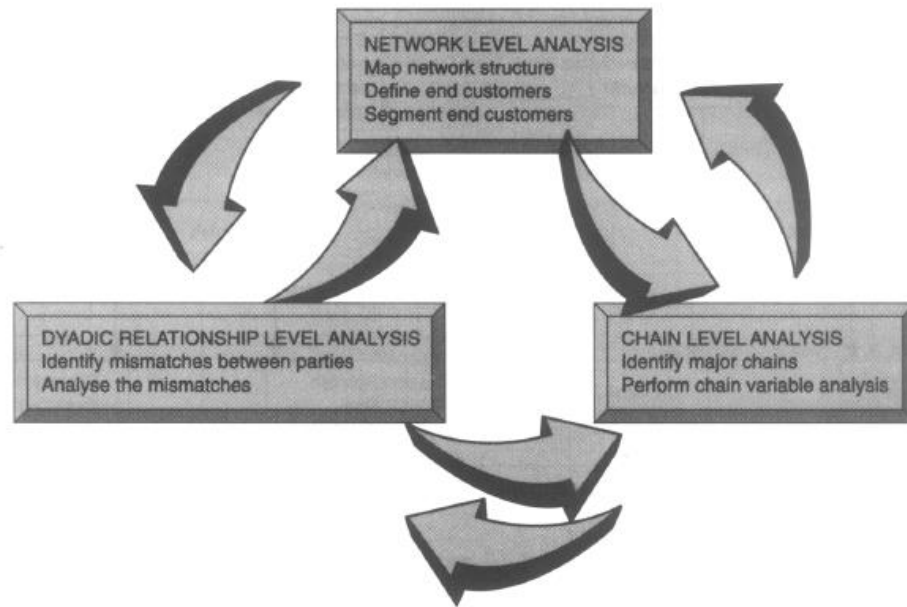


Figure 15 Levels of analysis (Harland, 1996)

Achrol et al (1983) in their research utilize the dyad as the unit of analysis. More specifically, they assume that the act of exchange between two economic agents, the transaction, is the central activity in marketing channels and concentrating on transactions induces a dyadic perspective wherein the relation between the two transacting parties is emphasized. According to Achrol et al (1983) analysis in transactional level concentrates on how different transactions are generated, carried out, or circumvented between channel members as well as on the reasons behind them. Figure 16 illustrates the key conceptual components of Achrol's et al (1983) framework. According to which, for every dyad there is a primary task environment, a secondary task environment and a macro task environment. The primary and secondary task environments might further be divided into an input sector, an output sector, a competitive sector, and a regulatory sector (Achrol et al, 1983).

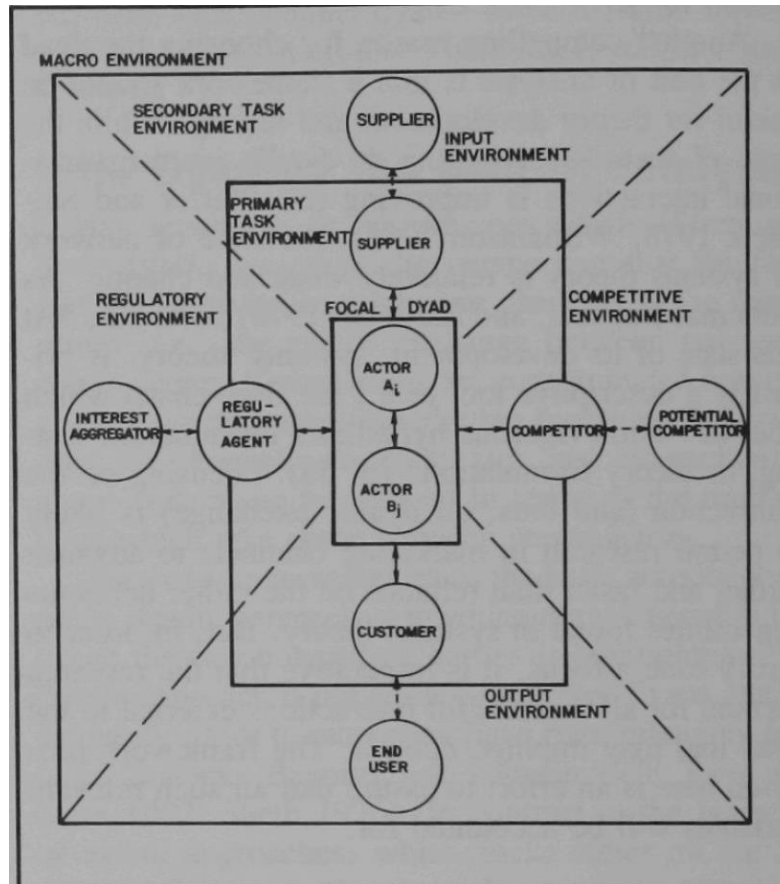


Figure 16 Environment of marketing channel dyads (Achrol et al., 1983)

Hearn and Pace (2006) describe the emerging shift in the conceptualization of value creation in business, from supply chain perspective to value ecology/network (see table 2). According to the authors, supply chain is used to describe the required stages a product goes through from origin to consumption. According to Rainbird (2004), efficacious supply chains put emphasis on utilization, system costs, and inventory turnover rate. Namely, supply chain emphasizes on distribution and minimization of the cost, that each stage represents, rather than product enhancement. Porter (1985) introduced value chain as a tool for systemically examining the sum of the activities a firm performs and their interactions in order to analyze the sources of competitive advantage. The value chain (see figure 17) divides a firm into its strategically significant activities with the purpose of understanding the

behavior of costs and the existent and prospective sources of differentiation (Porter, 1985).

Table 2. From chain to network, comparing key elements (Hearn and Pace, 2006)

| <i>Strategy elements</i> | <i>Supply chain</i> | <i>Value chain</i> | <i>Value ecology</i> |
|--------------------------|---|---|---|
| Customers | Consumers | Consumers | Consumers, suppliers, competitors etc. |
| Environment | Static/stable | Static/stable | Chaotic/uncertain |
| Focus | Supply side <i>or</i> demand side, not both | Supply and demand sides | Supply and demand sides |
| Value creation | Limited emphasis on value creation | Emphasises a value creation approach which adds value at every node | Emphasises a holistic approach to value creation throughout the ecosystem |
| Relationship type | Vertical integration | Timid teaming | Dynamic and evolving |
| Risk | Low | Medium | High |
| Profit focus | Increase own profits | Increase own profits | Increase ecosystem profits |
| Cost focus | Minimise own cost | Optimise own cost | Share costs |
| Knowledge leverage | Within the enterprise | Within the enterprise | Across the ecosystem |
| Knowledge approach | Storing | Hoarding | Sharing |
| Resource approach | Defending | Guarding | Sharing |
| Time orientation | Short-term | Long-term | Long-term |
| Key driver | Cost | Revenue | Knowledge |

Source: Andrews and Hahn, 1998; Rainbird, 2004

Porter's model, regardless of its internal emphasis, is also extensively utilized to describe external and inter-organizational chains. Porter (1985) argues that a company's value chain is embedded in a greater stream of activities which Porter describes as a value system. In this value system, suppliers have value chains (upstream value) that generate and distribute the procured inputs used in a company's chain. Moreover, products can pass through the value chains of channels (channel value) on their way to the buyer. Porter's value chain model suggests that every phase in the chain may create and add value to the product. According to Walters and Lancaster (2000) value chains lay emphasis on cost optimization and value maximization, compared to earlier described supply chains, where the focus is on cost minimization.

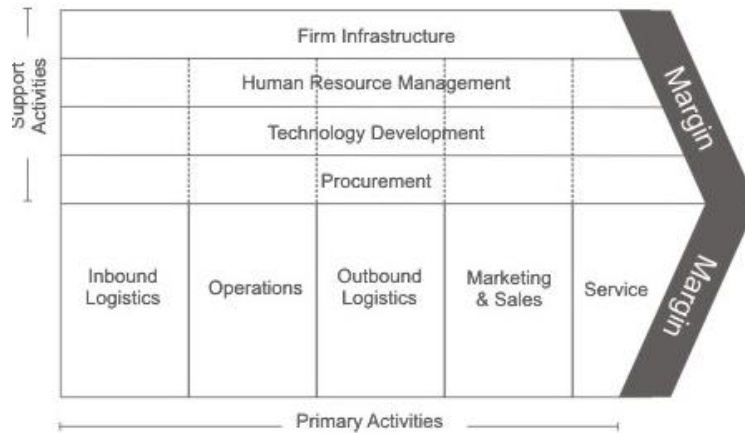


Figure 17 The generic value chain (adapted from Porter, 1985)

However, the core metaphor of a chain generates several limitations, mainly when applied to emerging digital and other creative industries. More specifically, a chain perspective implies a single linear process, does not take into consideration its environment, which it assumes as static rather than dynamic. Furthermore, it ignores the fact that value chain creation may be both competitive and cooperative process. Finally, it reckons on a simplified view of value, which overshadows the dynamism of value creation. (Hearn and Pace, 2006)

Aldrich and Whetten (1981) state that in order to comprehend the absolute complexity of inter-organizational relationships; network level of analysis should be utilized. Nevertheless, they underline the necessity to first understand basic dyads transactions. For the purposes of this thesis the network level of analysis is utilized. However, for reasons explained formerly, the focal dyad is brought into focus. Anderson et al. (1994) argue that in business-to-business settings, dyadic relationships between companies are of high importance; however they highlight the need to understand these relationships in their embedded context. Thus, in their study, they formulate business network constructs from the perspective of a focal dyad that is connected with other relationships.

According to Allee (2008) network analysis is useful in describing the value creation dynamics of business networks engaging in both tangible and intangible value exchanges to support the achievement of particular results. In other words, value network analysis enables the demonstration, analysis, assessment, and improvement of the capability of a business to transform both tangible and intangible assets into other forms of negotiable value, and the realization of greater value for itself (Allee, 2008). Business networks, as illustrated by figure 18, are composed by three main components activities, actors and resources. According to Harland (1996), actors undertake conversion activities, like production, activities taking place between actors are called exchange or transaction activities and relationships between actors symbolize valuable bridges as they provide access to other actors' resources. Thus, through relationships individual actors can mobilize resources. Anderson et al. (1994) highlights that resources developed in a relationship do not only influence those involved in that relationship, but also other parties. Therefore, innovations developed through interactions in several relationships might support each other. Finally, Ebers (1999) claims that inter-organizational network is subject to dynamic evolution because over time the forms, outcomes and actors' evaluations of inter-organizational networking change due to intrinsic development process.

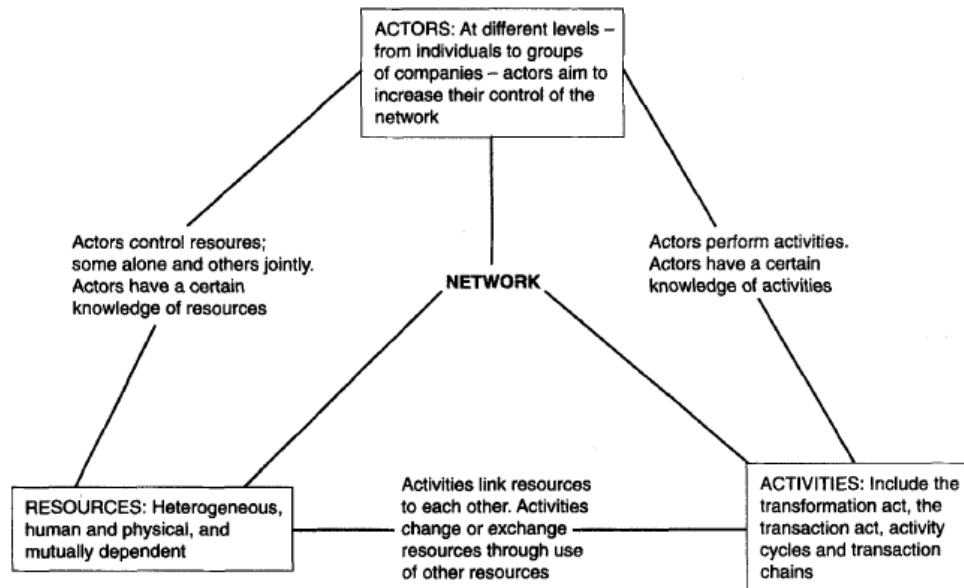


Figure 18 Network model (Harland, 1996)

4.2 The ecosystem concept

The term ecosystem, regularly utilized by both scholars and practitioners, originates in biology. Specifically, Arthur Tansley is considered to be the first to have used the term in 1935 and he described ecosystems as the human mind; dynamic and shaped by circumstances. (Morton, 2012) Biological ecosystems are composed of both plants and animals, and their mineral substrates and the energy they use. Further, ecosystems are the result of the forces and flows that made them, compared to communities of holism, which have preordained endpoint. There can be archetypal ecosystems and novel ones, since wherever living organisms congregate, an ecosystem of any kind exists, regardless if nature had envisaged it or not.

In organization and management studies, the term ecosystem has been utilized, according to Mars et al. (2012), either to describe, "*the connections among organizations that share common or complementary features, and that motivate or facilitate some form of exchange of information and other resources.*", or as reference to social structures consisting of loose and tight

ties that allow or enhance the interactions among various organizations and actors. Moore (1993) was the one introducing the ecosystem term to organization and management studies. In his definition presented in an earlier chapter of this thesis, Moore highlights three main issues. Firstly, he suggests that companies do not belong to single industries, but to business ecosystems that cross a variety of industries. Next, companies co-exist; they attract resources from different sources and they are exposed to changes in the external environment. Finally, they co-evolve together with their partners to confront environmental changes.

The innovation ecosystem concept is usually utilized to describe complex networks of actors, consisting of private industries, financiers, universities, and governmental agencies, that are linked together through the pursuit of joint technological goals and/or mutual economic gains (Mars et al., 2012). Often studies that use the innovation ecosystem concept incline to put more emphasis on interdependence (Järvi, 2013). For example, Adner and Kapoor (2010) state that *“a given innovation often does not stand alone; rather it depends on accompanying changes in the firm’s environment for its own success. These external changes which require innovation on the part of other actors embed the focal firm within an ecosystem of interdependent innovations.”*

Vargo and Lusch (2011) suggest that even though the notion of resource networks can contribute to the understanding of value creation and context, there are occasions, where their consideration overlooks the dynamic and self-adjusting character of systems. Systems are simultaneously functioning and reconfiguring themselves, meaning that every case of resource integration, service provision, and value creation, alters to some level the nature of the system and consequently the context for the next iteration and determination of value creation. Thus, it is important to think about value creation through the lens of service ecosystems.

The definition of service ecosystems provided in chapter one (see page 9) consists of eight main components. (Vargo and Lusch, 2011) Firstly, *spontaneously sensing and responding* means that actors interface with other actors and utilize their senses to determine the correct way and time to respond or act. Information technology development has made that process much more spontaneous. Secondly, *spatial and temporal structure* denotes that actors and resources are arranged over geographic space and temporal dimensions. Thirdly, *loosely coupled* implies that actors connect to others both within and outside organizations mainly via soft contracts versus hard contracts. Fourthly, when talking about *value proposing actors*, it is meant that actors cannot create value for other actors instead they can make offers that have impending value and this happens via value propositions. Fifthly, *use of language, symbols, institutions and technology* signifies that actors need a common language to interact efficaciously. Further, to regulate these interactions and exchanges they depend on social institutions, such as monetary systems and laws. Technology and particularly innovation is the driving force for system's evolution and performance. Sixthly, *co-produce service offerings* means that actors collaboratively produce services offerings. Seventhly, *engaging in mutual service provision* highlights that free riding is not accepted, each actor has to contribute via service exchange, either directly or indirectly (for instance, monetarily or generalized reciprocity). Lastly, *co-creating value* implies that actors create unique value to their situation and context by integrating service offerings with other resources and service offerings. (Vargo and Lusch, 2011)

Järvi (2013) discusses two other competing concepts, which however are defined in an equivalent way as the ecosystem construct. Specifically, Gulati et al. (2012) define the meta-organization construct as "...a multitude of individual organisms that coexist, collaborate, and coevolve via a complex set of symbiotic and reciprocal relationships". Additionally, they state that meta-organizations encompass networks of companies or individuals not

constrained by authority based on employment relationships, but characterized by a system-level goal (Gulati et al., 2012). Finally, Fljedstad et al. (2012) describe the architecture of inter-organizational collaboration as the “use of flexible assembly of firms with specialized capabilities to achieve economies of scale and experience”

To conclude, according to Järvi (2013), ecosystems, compared to other inter-organizational forms, can comprise open relationships and further, even though interdependence and reciprocity is a shared characteristic of both ecosystems and other forms, the notion of coevolution is unique to the ecosystem.

4.3 Ecosystems properties

4.3.1 Key players

Ecosystems, according to Moore (1996) and Gossain and Kandiah (1998), encompass interdependent, interconnected and interacting coevolving actors; namely, customers, agents and channels, sellers of complementary products and services, suppliers and the company itself. Mars et al. (2012) explain that business ecosystems, similarly to the nature ones, enclose a miscellaneous range of actors and organizations. They identify two main roles, the *keystones* and the *engineers*. Keystones are the organizations upon which the ecosystems depend and engineers are the ones that create, shape, and modify the operating conditions of other organizations operate. Iansiti and Levien (2004a; 2004b) describe the roles of actors in the business ecosystem and relate them to the collective properties of actors' ecosystem. Drawing on the analogy of a biological ecosystem, Iansiti and Levien (2004a; 2004b) classify these roles in *keystone*, *dominator* and *niche player* and demonstrate that business networks are seldom homogenous and there are members perform distinct and disproportionate roles (Anggraeni et al., 2007).

Basole and Rouse (2008), in a broad perspective, identify five main types of actors that are involved in a service value network/ ecosystem; consumers,

service providers, tier 1 and 2 enablers, and auxiliary enablers (see figure 19). Firstly, consumers are the point where value is “realized” or “consumed”; the point in a value network from which all activities are initiated (Chase, 1978; Bolton and Lemon, 1999; Zeithaml et al., 2001). Secondly, service providers are considered by Basole and Rouse (2008) as the focal actor in service value networks, as they are the primary contact point for consumers. A service provider can be either an aggregator of multiple products and services, which it provides in a bundled and integrated way to the consumer, or an enabler to other service providers. Finally, enablers help service providers to create, design, initiate, and deploy the service. Tier 1 enablers provide direct goods and services to the service provider. Tier 2 enablers provide goods and services to tier 1 enablers and auxiliary enablers are essential to the entire ecosystem and not industry specific (for example, government agencies, financial institutions and infrastructure providers). Certainly though, the context (social, political, technological and economic) within which all of the actors in the service ecosystem act is equally important (Basole and Rouse, 2008).

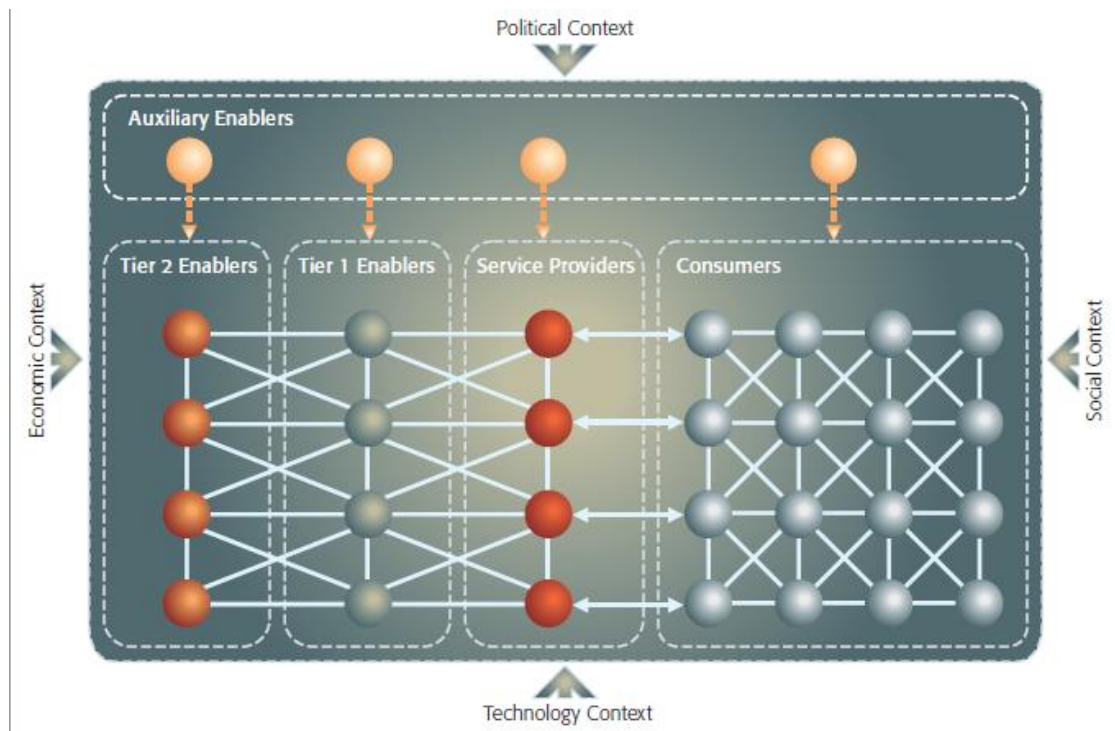


Figure 19 Conceptual model of service value networks (Basole and Rouse, 2008)

Manikas and Hansen (2013) performed a systematic literature review of software ecosystem (SECO) research. In their review, they identified several types of actors that might be part of a SECO. The following table 3 provides a summary of the most common actors that Manikas and Hansen (2013) encountered in the literature. This categorization seems to be one of the most specific, and the one that best fits the ecosystem investigated in this thesis.

Table 3 Key players in a software ecosystem (based on Manikas and Hansen, 2013)

| Actor | Alternative terms used in the literature | Role |
|----------------|---|---|
| Orchestrator | keystone, hub, shaper, management unit, platform owner | a company, department of a company, actor or set of actors, community or independent entity that is responsible for the well-functioning of the SECO |
| Niche player | influencer, component developer/builder/team | actor that contributes to the SECO by typically developing or adding components to the platform, producing functionality that customers require |
| External actor | external developer (team), third party developers/community, external parties, external partner, external entities, participant, external adopter | actor (company, person, entity) that makes use of the possibilities the ecosystem provides and thus providing indirect value to the ecosystem |
| Vendor | independent software vendor (ISV), reseller, value-added reseller (VAR) | the company or business unit that makes profit from selling the products of the SECO to customers, end-users or other vendors/VARs |
| Customer | end user | person, company, entity that either purchases or obtains a complete or partial product of the SECO or a niche player either directly from the SECO/niche player or through a vendor/VAR |

4.3.2 Interactions among players

According to Gummesson (1996), interaction concerns active contact (connectivity) between actors in a relationship. Helander (2004) describes the evolution of interaction as a social exchange process between companies perceived as collective actors. According to Grönroos (2011), interaction is considered to be “a mutual or reciprocal action where two or more parties have an effect upon one another”. More specifically, interactions are linked by flows of resources and information, are an issue of coordinating activities among companies (Håkansson and Snehota, 1995; Mars et al., 2012) and are characterized by four main aspects (Ford et al., 1986). First of all, *capability*, which is related to the resources of the interacting parties and describes what each actor can offer in the relationship, then *mutuality*, which assumes that the player share common goals and interests, and is linked to the features of domination and balance in the relationship. Further, *particularity* refers to uniqueness and direction of the relationship and the fourth aspect, *inconsistency*, refers to the existence of ambiguity in the interaction. Specifically, this aspect somehow describes the dynamics of the interaction and stresses that within the interaction conflict and cooperation might coexist. (Ford et al., 1986)

Mars et al. (2012) argues that interactions differ according to the benefits they create and the damage they cause. They explain that, similarly to biological ecosystems, mutualisms can exist, meaning that both parties benefit from exchanges of goods and services. However, interactions can occasionally benefit one actor without any detectable effect on another (commensalism). According to Mars et al. (2012), competition in business ecosystems can have either good or bad effects, depending on norms, rules, and institutions. These social phenomena existent in organizational ecosystems cannot be found in biological ones.

Actors are embedded in an ecosystem through economic and non-economic arrangements of exchange. Namely, these exchanges function as the glue

that fastens them together to form the nested structures that are business ecosystems. Mars et al. (2012) state that exchanges usually occur between specialists and generalists, and within cultural context, meaning that they are as much social and/or political arrangements as economic processes. Therefore, exchanges in ecosystem context are guided by both economic and non-economic institutions.

4.4 Value creation in service ecosystems

“A state arises, as I conceive, out of the needs of mankind; no one is self-sufficing, but all of us have many wants.... Then, as we have many wants... and many persons are needed to supply them, one takes a helper for one purpose and another for another; and when these parties and helpers are gathered together in one habitation, the body of inhabitants is termed a state. And they exchange with one another, and one gives and another receives under the idea that exchange will be for their good.” (Plato’s The Republic 360 BCE/1930: in Vargo and Lusch, 2011) Plato’s statement successfully captures the idea that value is collaboratively created by reciprocal and voluntary exchange of applied skills and competences (Vargo and Lusch, 2011)

Literature increasingly agrees that value is created collectively among actors (see for instance, Normann and Ramirez, 1993; Basole and Rouse, 2008; Ritala and Hurmelinna-Laukkanen, 2009; Adner and Kapoor, 2010). Each actor contributes to the value creation process by concentrating on its core competence and collaborating with other participants in the ecosystem, such as suppliers, partners, allies, and customers (Normann and Ramirez, 1993). Therefore, the value is created by combining products and services that are delivered by an extensive set of actors, an aspect that highlights the complex nature of value creation process. (Basole and Rouse, 2008; Williamson and De Meyer, 2012).

According to Kothandaraman and Wilson (2001), there are many different organizational structures that enclose a varying number of business relationships and every company in a way belongs to a value network. Value networks can provide the flexibility and speed needed in order to generate value for customers with rapidly changing needs (Hameri and Paatela, 2005). Value networks are not only collaborative, but also customer-aligned, meaning that customer choice is the fundamental force that activates the forming of the value network. Thus, companies have to understand that the ultimate key performance measure is the value they create, either directly or jointly through others, for their customers. (Bovet and Martha, 2000; Pynnönen, 2008; Williamson and De Meyer, 2012)

Basole and Rouse (2008) argue that value in a service ecosystem is created through a complex set of B2B, B2C, and C2C relationships, and influenced by the social, technological, economic and political context in which it is entrenched. These external and often uncontrollable factors can be utilized as resources to increase the potential value of their value propositions by considering the applicability of the firm's offerings to the different contexts (Akaka et al., 2012). Chandler and Vargo (2011) suggest that, in a service-ecosystems view, during the process of collaboratively create value, actors not only exploit, but also contribute to social context through which value is derived.

Service systems depend on others' resources to efficaciously create value in cooperation, driving service-for-service exchange and resource integration. (Vargo et al., 2008) Proposition, acceptance, and evaluation of value are considered to be the link among service systems. Namely, Vargo et al. (2008) describe that service providers, based on their competences and capabilities propose value in the market. Then, after the value is proposed and the service is made accessible in the market, other service systems- prospective customers- in need of such resources decide whether they will accept, reject, or ignore the specific value proposition. Thus, value is determined through

use or integration and application of intangible (and sometimes tangible) resources. Collaborative value creation occurs through “*the integration of existing resources with those available from a variety of service systems that can contribute to system well-being as determined by the system’s environmental context*” (Vargo et al., 2008). Meaning that, service provider’s resources are tailored and integrated with other service systems’ existent resources, and value is derived and determined in context. This process evolves as novel knowledge is created and exchange arises in and among adjacent systems.

Lusch et al. (2010) suggest that the two processes of providing service, relieving- doing a task or a series of tasks for another party- and enabling- making it possible for a party to do a task or series of tasks for itself more efficiently and/or effectively-(Normann, 2001), are symbiotic. They argue that these two processes can provide vast opportunities for enhanced agility and adaptability, when value creation is examined in the context of a systemic value network. Moreover, Lusch et al. (2010) claim that when value creation is combined with the construct of liquification and the idea that the customer belongs to the value network, the possibilities for change increase. To sum up, when the whole value network is realized as a system of mutual value creation through reciprocal, enabling and relieving service provision, all the relationships correspond to opportunities for innovation through supporting the actors in their individual value-creation actions (Lusch et al., 2010).

5. Empirical study

5.1 Data collection

The data collection process includes a seminar, in-depth interviews, one workshop and gathering of publicly available data about the case ecosystem and its business setting. Key managers of the case company and experts in the fields of business process management, value networks, supply chain management and service management participated in the process. The table 4 presents specific information about the data collection. The usage of different data collection methods in a study - data triangulation- establishes the validity of qualitative research. (Saunders et al., 2009). The data collection methods utilized in this thesis, are Group Decision Support System (GDSS) and also Analytic Hierarchy Process (AHP).

According to DeSanctis and Gallupe (1987), Group Decision Support System is *an interactive computer-based system that facilitates the solution of semi-structured or unstructured decision problems by several decision makers who work as a group*. Ellis et al. (1991) state that GDSS support and develop the group decision making process and improve the productivity of decision-making meetings, by accelerating the process or by improving the quality of the made decisions. Analytic Hierarchy Process (AHP) is a multiple criteria decision-making tool, which allows flexibility to the researcher. According to Pynnönen and Hallikas, (2008) this method is suitable for investigating subjects related to value, as these issues are contemplative, and demand deep thought.

Table 4 Data collection

| | Topics | Number of participants | Method | Duration |
|---------------------------|--|------------------------|-----------------------|-------------|
| Seminar | First acquaintance (the company and its business) | 4 | | 2hours |
| Workshop | Value proposition, ecosystem specifications | 3 | GDSS | 2hours |
| Company Interviews | Service solution, value creation process, customer value model | 3 | AHP (Third interview) | 40min/ each |
| Experts Interviews | Company's solution versus alternative, customer value model | 2 | AHP | 30min/ each |

The interviews with the managers of the case company were structured utilizing certain categories of the business model canvas of Osterwalder and Pigneur (2010). Specifically, value propositions, customer relationships, key resources, key activities and key partnerships. Customer segments, channels, revenue streams and cost structure were excluded as they don't serve the scope of this thesis. Osterwalder and Pigneur (2010) describe that a business model explains the rationale of how value is created, delivered and captured from a provider's point of view. Thus, we used this classification in order to best structure our data collection and present the value creation process in a coherent way.

5.2 Information Technology sector as a context

The case will be based on the information technology sector. The IT industry was selected because of the importance that this sector has gained during the recent years, as a key driver for worldwide economic growth, and because it embodies a good opportunity for investigating the emerging concepts of value creation and service ecosystem. Moreover, the information technology industry is considered to be one of the most vigorous industries in a global scale and one of the first realizing the need for shifting the focus of

value creation activities from physical goods to services and information. (Pynnönen et al., 2008)

5.2.1 The case company

The specific case company, eCraft, represents a peculiar example of the information technology industry. In a broad sense, the case company can be characterized as an application service provider (ASP), which is “*any third party organization whose main business is providing software-based services to customers over a wide area network in return for payment*” (Smith and Kumar, 2004). These services can include enterprise (CRM and ERP), horizontal (functionally focused), and vertical (industry-specific) applications (Setsikas and Curie, 2002). However, not all characteristics of ASP apply to eCraft, like the standardized service offerings.

eCraft is a small Finnish company founded in 1999. It occupies ninety employees and its revenue is about ten million euros. The company has its operations mainly in Finland and Sweden. Its core business includes custom ERP application software development, consulting and selling ERP's and other IT services. More specifically, eCraft enables firms globally to integrate IT systems with their particular business practices and develops customized, easy-to-use systemic interfaces (Smart Apps) that empowers accessibility to powerful business systems- mostly Lawson M3 ERP systems. Furthermore, eCraft is part of Microsoft's golden club (Gold Certified Partner), which means that the company can apply almost all Microsoft platforms and products depending on customer's needs. Finally, they provide IT infrastructure services, which include procurement project management, system relocation projects, system efficiency projects, Microsoft cloud services, maintenance and support. (eCraft Oy, 2013a; 2013b; Microsoft case studies, 2010) The company was chosen because of the unique systemic value proposition of its service offering and thus, its significant contribution potential to theory development

6. Findings

This chapter outlines the findings of the study based on the interviews, the workshop and the seminar conducted with the case company managers and experts, complemented with additional material found on the online page of the case company. The section discusses the value creation process of the case company in the context of its service ecosystem. The findings are evaluated and examined through the concepts and themes presented in the theoretical part of the study.

6.1 Value Proposition

A value proposition creates value for a customer through a distinct mix of elements that serve customer's specific requirements, in other words is a bundle of benefits a company offers to its customers. (Ostenwalder and Pigneur, 2010). The case company's value proposition answers to the inflexible nature of traditional business systems (for example, Enterprise Resource Planning (ERP) systems, Customer Relationship Management (CRM)) which mainly preclude customer companies' business development and competitiveness. The core of eCraft's value proposition is composed by three main elements, customization, cost reduction and convenience/usability, resulting in increased efficiency and competitiveness.

The benefits that the company offers to each customer are classified using Anderson and Narus's (1998) taxonomy of value elements, which they define as "*anything that affect the costs and benefits of the offering in customer's business*" and might be *technical, economic, service and social* in nature and differ in their tangibility.

6.1.1 Value elements

Technical: The case company's service solution (Smart App) overcomes the limitations of forms and panels. Business processes become more efficient by the provision of smooth, task-oriented user interfaces, which combine all necessary functions in one view. The case company's solution draws on

principles and components of the existing business system used by the customer. Therefore, there is no risk of incompatible pieces and dubious technology alternatives, the business process development becomes more flexible and efficient as the limitations of the business systems are overtaken through specific tools and additionally, the upgrading of the system becomes easier.

Economic: Cost reduction is an important factor from customer's point of view. The service solution helps reducing the costs by proving substantial time savings to everyday processes, these savings have been examined by taking a generic transactional process under investigation (see figure 20). Thus, experts evaluated the lead-times between tasks (goals) when the case company's solution is not utilized and then, the participants of workshop explained how eCraft's solution can improve the specific process.

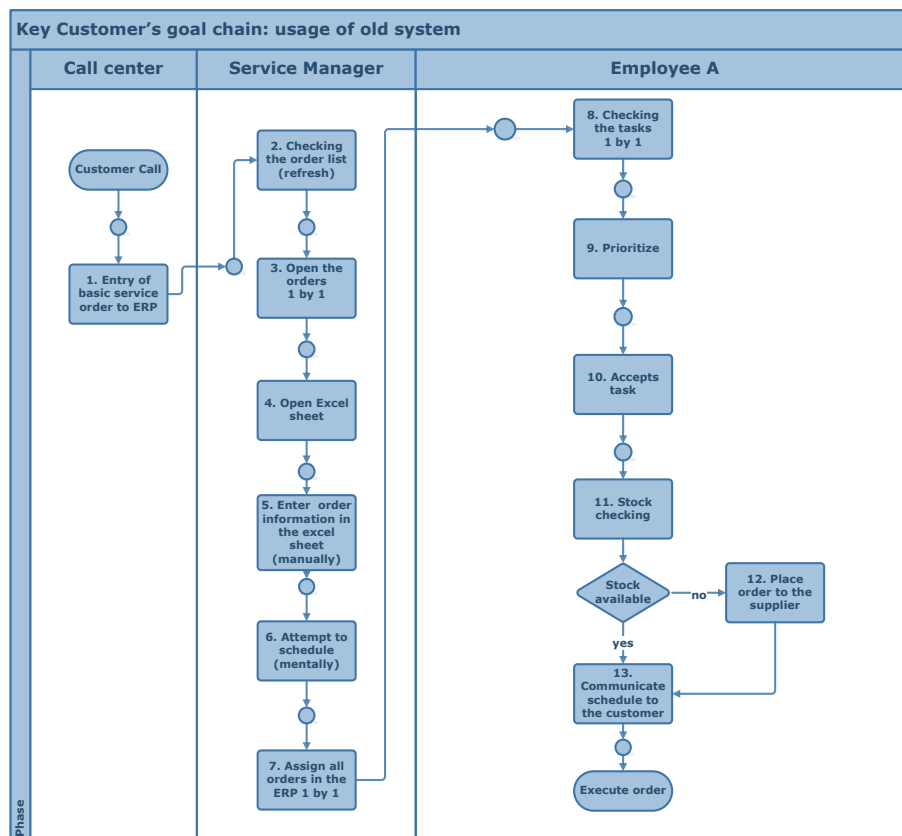


Figure 20 Generic transactional process

The overall time spent, using a basic business system, ranges from 64 minutes to 137 minutes (see appendix 3 for detail measures), which is a sizable amount of time. Then, the participants identified the following improvements (see table 5). The improvements identified indicate that there can be a significant increase in the consistency between tasks, as time spent- approximately 50 percent time saved- and errors decrease and since inconsistency, according to Kalakoski et al. (2011), can cause costs to the customer, the case company's offering can provide considerable economic benefits. Furthermore, the table indicates that the customer can make the most out of their existing systems, hence gain more value out of investments in them. Then, because of the high degree of usability, the training becomes faster and thus costs less.

Table 5 Improvements and time savings in a generic transactional process

| Task | Improvement |
|-------------------------------|---|
| Order entry (1) | No guidance needed, easier and faster, savings in working hours as less people can handle more demanding call centers |
| Order checking (2) | Automated combination of necessary data into visual list, deal with the order with maximum priority faster |
| Order editing (4,5) | Only relevant information displayed automatically, thus, faster, with less errors and less frustration task |
| Scheduling & assignment (6,7) | Provide a visual way of seeing availability, location and tasks on one screen, thus time savings and |

| | |
|----------------------|---|
| Task acceptance (10) | usability Clear acceptance and accurate information about both the task and customer site, thus less errors, better customer service, faster task handling |
| Stock checking (11) | Real-time data displayed |

Service: Customers, according to Fine and Whitney (1996) - in Nordin and Kowalkowski, 2010- increasingly depend on their providers to understand their specific problems as well as identify efficacious solutions. In this case, the customer is offered help in the identification of the problems that obstruct the achievement of its business goals. Further, the customer gets guidance in recognizing the processes that require improvement, in which order and to what extent with regard to the information technology systems. Moreover, the case company provides consultation throughout the implementation of business improvement efforts of the customer by helping it understand what the possibilities are, providing tools and models for continuous development, and offering a mechanism for addressing misalignment between the business requirements, users and the systems.

Social: In this section the benefits for the customer's main stakeholders (clients¹ and employees-users) are considered. In general, eCraft's service solution can have positive impact on customer's business and relationships with its partners. Specifically, when considering customer's clients benefits, transactions become more efficient, because response times and errors are

¹ The use of the term client(s) is made in order to distinguish the case company's customer(s) from its customer(s).

diminished. Furthermore, as stated by Hallikas et al. (2012a) information seems to play a significant role in the customer's actual reaching of work-related goals and in fact, eCraft's solution provides fast and easy access to reliable information and self-service processes. Moreover, communication among customer and client improves as customer can devote more time for understanding its clients' needs and the interactions between them become more transparent. Finally, there is the possibility to increase usability by integrating processes between the customer and its client(s).

Turning now to the benefits for individual users (customer's employees), the main benefits in individual level consist of performance time savings and decreased cognitive load because of improved visual appearance, interactive behavior, assistive capabilities and information (systemic consistency, see Mikkonen, 2011a; Ritala et al., 2011; Hallikas et al., 2011; Kalakoski et al., 2011). Generally, users' efficiency and productivity rises, due to faster pace of work, eliminated errors and opportunities to focus on improving the work style. Employee's job satisfaction also augments because of easy-to-use systems that simplify daily work. In a firm level those benefits can be translated into cost reduction, as productivity increases and working time decreases. Finally, more satisfied employees means improved communication with other business partners and thus positive impact on relationships among them.

6.1.2 Applying a Customer Value Model (CVM)

Customer value model is applied in order to understand what the customers value and their preferences in performance analysis of the two competing systems, the case company's solution and basic business systems. The Customer Value Model (CVM) is implemented by using the Analytic Hierarchy Process (AHP). AHP and pair-wise comparison are considered to outweigh simple rating methods as it helps to ascertain the consistency of responses (Saaty, 1980; Cheng and Li, 2001). The pair-wise comparison has a built-in

feature of choice making. Namely, when favoring one attribute of the pair, the other one is not favored. For instance, in this study within the pair *easiness of implementation vs. assurance*, preferring assurance means that the customer accepts more difficult implementation. This demonstrates the sacrifice side of the value; when favoring one attribute some other attribute has to be given up. In this thesis, AHP method is used because of the connection of the application to the decision making, and its ability to test the attractiveness of alternative services and product offerings with experts. Additionally, the ability to conduct sensitivity analysis provides insights into changing priority weights of customer value attributes. This kind of sensitivity analysis is significant in a what-if scenario analysis grounded on the assumption that the weights of customer value attribute changes in diverse future scenarios.

To formulate and test the CVM in practice, it is assumed that customers purchasing decision making is influenced by the benefits they get, in two main phases, implementation and usage. Further, as stated earlier, it is considered that customers have two main alternatives, the case company's solution and basic business systems. We use the AHP decision model where each quality attribute is pair-wise compared with another to find their relative importance order. The CVM can be opened and analyzed by defining the single attributes of value elements. To create the CVM, Anderson and Narus's (1998) and Ma et al. (2005) categorization of value and quality elements were combined and modified to fit the case of assessing the service solutions. Ma et al. (2005) defined seven elements in analyzing offerings consisting of products and services: features, availability, reliability, assurance, empathy, conformance, and security. Pynnönen et al. (2008) argue that this type of generalized categorization is useful in the initial assessment of the various elements of customers' desired value. Figure 21 presents the AHP model used in comparing the relative importance of the value elements as well as the relative weights of each attribute in the hierarchy.

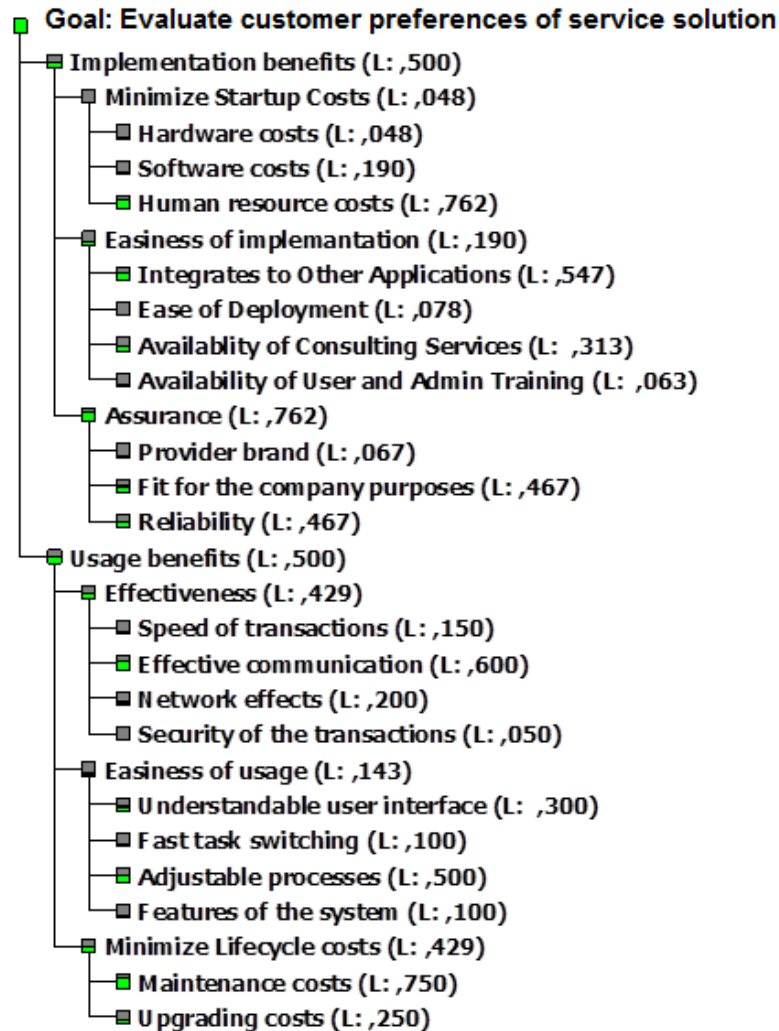


Figure 21 The AHP model of customer value elements

When considering the implementation benefits, the results indicate that assurance is the most important factor influencing customers' preferences (see figure 22) representing 76,2 % of the implementation value. Assurance comprises attributes like reliability, fit with customer's purposes and brand. In general, those attributes are connected to customers' need of safety and risk avoidance. As figure 23 illustrates both systems score quite close regarding assurance, but overall the case solution performs higher (3,60%). The main reasons for that outcome can be the minimized human resource and software costs, due to easy integration with other applications.

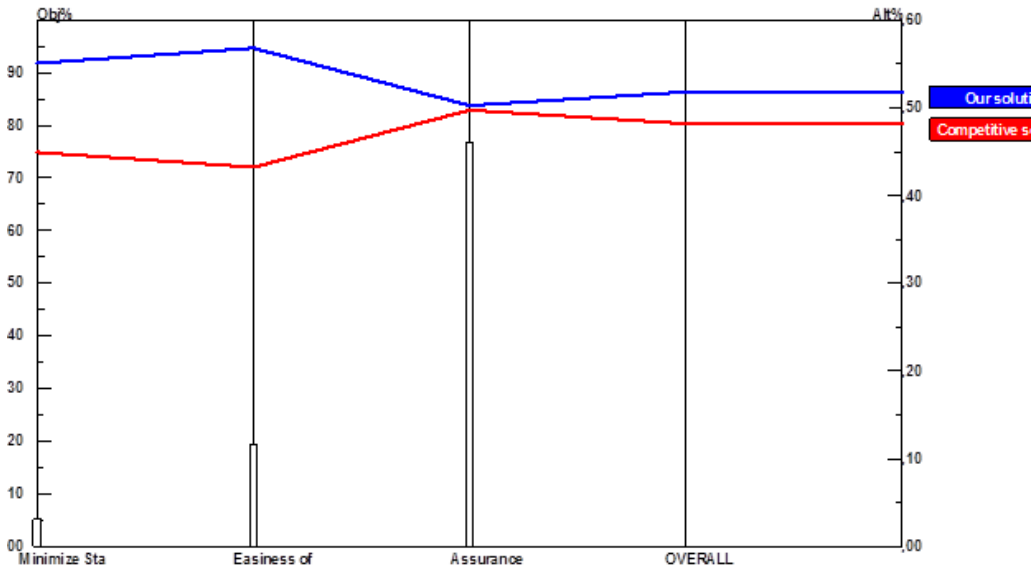


Figure 22 Performance sensitivity implementation benefits

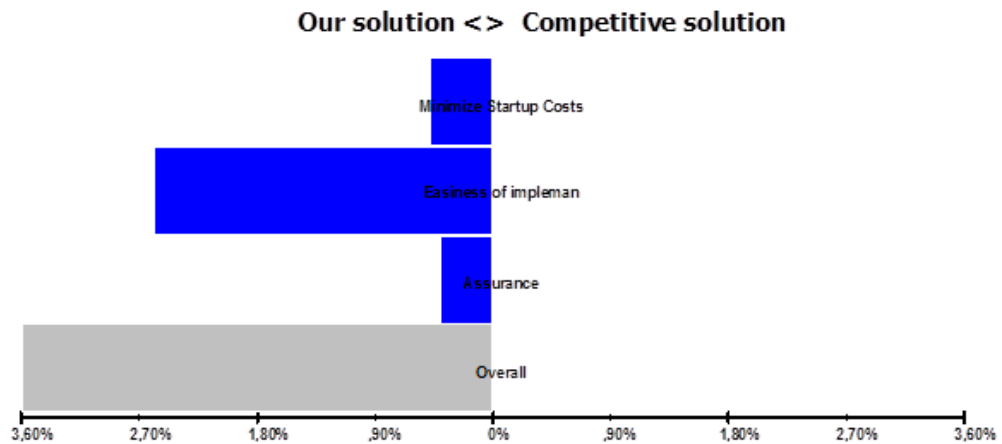


Figure 23 Weighted head to head between case solution and competitive solution- implementation benefits

Turning now to usage benefits, it seems that effectiveness and minimization of lifecycle costs are the most important factors each representing 42,9%. An interesting point here is that the competitive solution overcomes the case solution (see figure 24). This can be explained by the fact that these systems

are well established and more companies are already using them, thus, network effects as well as partly communication can be slightly better satisfied by those. However, as figure 25 depicts, eCraft's service solution performs higher in every other attribute and overall. Adjustable processes, understandable user interfaces and minimized maintenance and upgrade costs can justify those results (see also value proposition chapter)

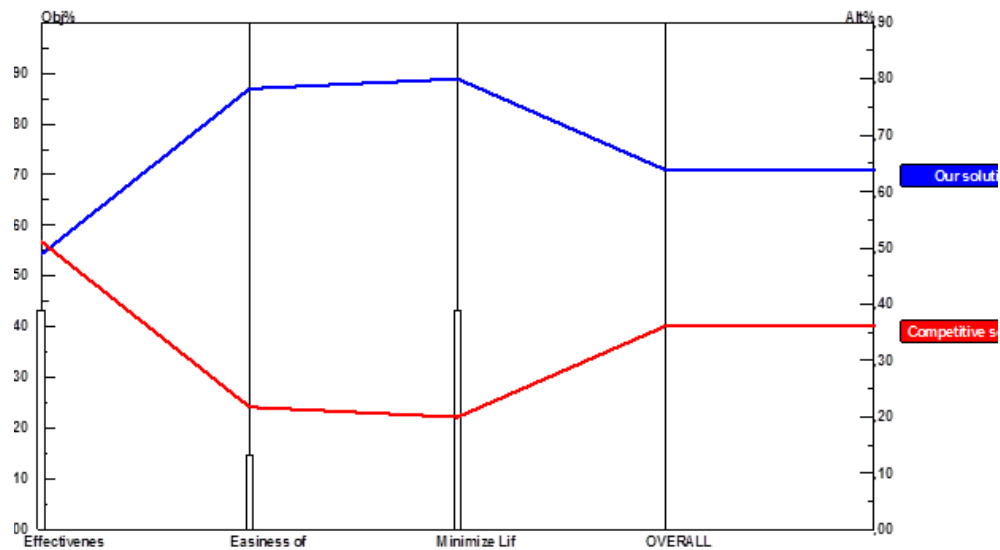


Figure 24 Performance sensitivity usage benefits

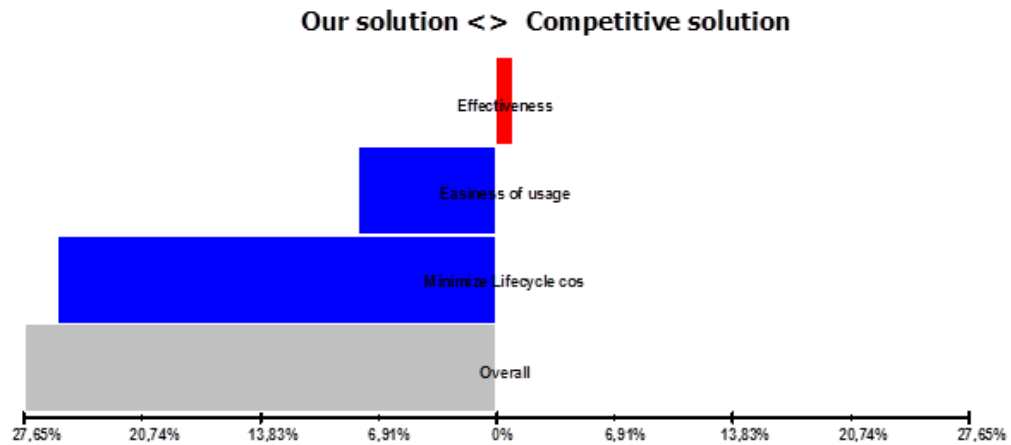


Figure 25 Weighted head to head between case solution and competitive solution- usage benefits

The performance of the case systems against each attribute was analyzed. The result is that case company's solution performs better than the alternative solution in every element except effectiveness. The overall performance of the services is shown in Figure 27. Taking into consideration that implementation and usage benefits are equally important, the case solution significantly performs higher in the usage elements. However, even though it also overtakes the alternative solution, the difference on implementation is not so excessive. As previously described this result can be explained by mostly the assurance element, a factor that can be improved as the case company becomes well-established through the development of its business and acquisition of significant references.

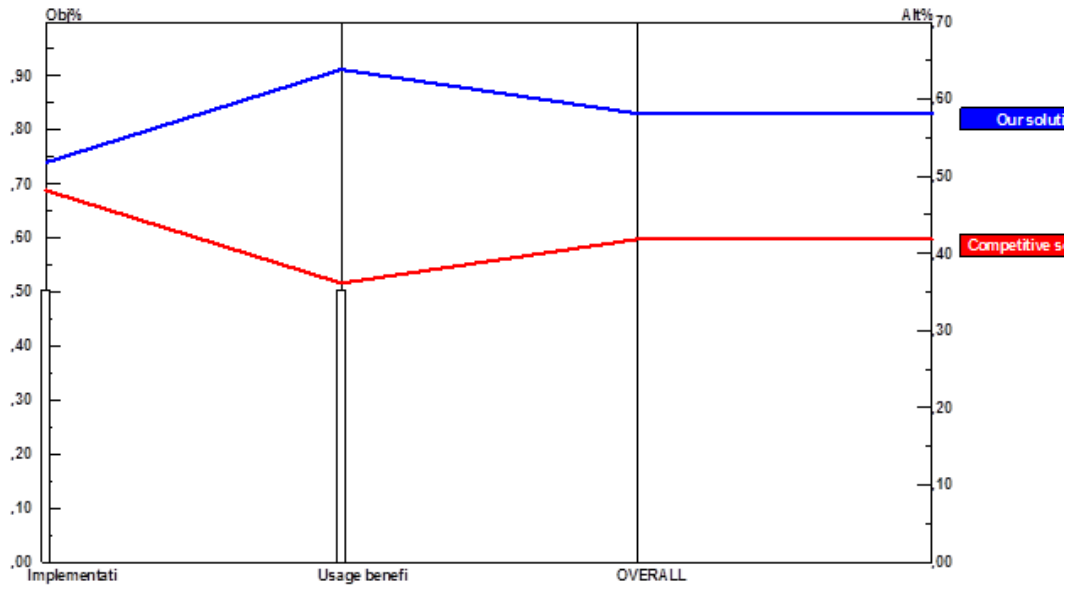


Figure 26 Performance sensitivity implementation and usage benefits

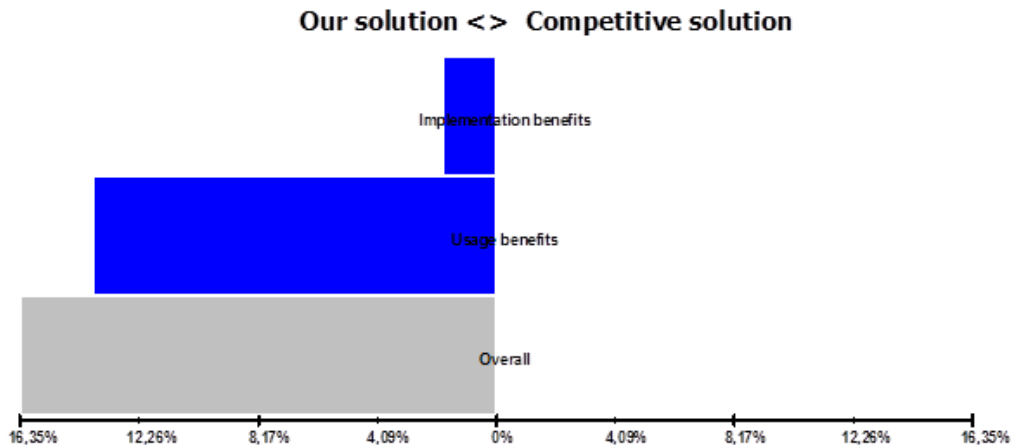


Figure 27 Weighted head to head between case solution and competitive solution.

6.2 Customer Relationships

Relationships with customers are based on human interaction. Customers can communicate with specific provider representatives to get help during the sales process and the implementation process. However, the relationships go beyond traditional customer-supplier relationships to co-create value with the customer. As proposed by Normann and Ramírez (1993) customers can be activated in order to create their own value and thus, the value of an offering can be collaboratively created with the customer and other stakeholders (Ramírez and Wallin, 2000). In fact, the case company emphasizes the importance of customer's role in the value creation process.

The interaction between the case company and its customer is quite intense and varies depending on the phase (sales-development-implementation), hierarchical level (low-medium-high) and also on the involvement of other actors of the ecosystem. In the first phase, where searching, assessing and decision making are involved, the interaction is on the point of creating the proposal of the kind of solution that best suits the customer needs. Even though eCraft does not create the business need for the customers, during that phase they help them understand what possibilities exist outside their inefficient systems. Thus, in this point the customer has to know that there is a need to improve some part of their business processes and their role is to actually know what they try to achieve, to understand why and what they want the system to do.

The intensity of the interactions rises in the development phase. Specifically, there are meetings or workshops in weekly and monthly basis. In these meetings groups of both companies gather. Typically, from customer's side there are people from both higher (decision makers, owners, high level managers) and lower levels (medium-low level managers, actual users of the systems) involved. Both parties are quite engaged in this phase, starting from designing the solution.

“From the start we draw the solution together, they might have been thinking of this and they could have made some drawings themselves, but then we have workshops when we draw the solution together, discuss it and go through it and this is when we lock out the first version of the Smart App, which is like a screenshot how it will look like.” (Company Interviewee B)

Further, customers are continuously testing and verifying the system, providing feedback and new ideas. This phase is built on a flexible way, meaning that the scope of the solution might change according to customer inputs. This fact signifies the importance of customer inputs during the whole service process as, in line with Ambrose and Brandon-Jones (2010), the purpose of the service process is to transform these inputs in a way that is valued by customers. Additionally, the customers are actually encouraged to actively participate from the very beginning through trainings and informational materials. Thus, customers clearly realize their role and its importance.

As stated earlier, there is intense human interaction among the two parties, which enables the information and knowledge to be shared. The case company tries to assure that all necessary information and knowledge is spread throughout the organization and the responsible people have access to that, by organizing weekly and, in some cases, daily meetings among project teams where details and progress of ongoing projects is discussed.

6.3 Key Resources

Understanding customer needs and having wide-ranging market knowledge emerge as important competences for the case company. Therefore, underlining that, along with its technology and engineering skills, it is also vital to understand the requirements of customers to be able to properly satisfy them. The high level of expertise and know how related to the business itself

proves to be another crucial value creating resource for the company. Further, flexibility or adaptability of the company to the swiftly changing customer needs is recognized as an important competitive advantage, since the managers observe that competitors lack in adaptability and are not agile enough to adjust to fast changing customer requirements.

“...but the limitations that we see in their approaches is that they (competitors) are still doing it from the point of view of the ERP system and its limitations, as we look it from the point of the business and its users. So we don't worry about the different parameters and modules in the system we start from figuring out what do the people use the system need” (Company Interviewee A)

In fact, when providers are able to adapt the solution's content and the collaborative creation process to the customers' heterogeneous value expectations, they create effective solutions that satisfy customer needs (Hakanen and Jaakkola, 2012). The case company as small niche provider is able to offer the customer with just the right solution it needs and adapt to ambiguous demands. The case company particularly highlighted the importance of skills and capabilities of the workforce, because of the high level of their expertise.

6.4 Key Activities and partnerships

Case company's main activities include problem solving, which demands close relationships and tailored solutions to customers. In fact, the case company engages in a significant number of relationships with different actors in its ecosystem (see figure 28) in order to be able to create value. In those relationships, the participants are involved in both tangible and intangible exchanges. More specifically, the results indicate that most of the relationships aim to extend participants' own capabilities by relying on other companies to provide particular resources or perform certain activities. Most of the partnerships are motivated by needs to acquire knowledge, licenses or access to customers. Managers identify five main partners apart from the customer, platform providers, delivery partners, development partners, sales partners and technology partners.

Platform providers can be considered as the ecosystem orchestrators since they provide the technological platform upon which most of the ecosystem partners draw. As characteristically stated by interviewee A to highlight the importance of these partners, *"without them there wouldn't be any business to build this (the solution) on"*. As figure 28 illustrates, this role mostly receives revenue from its partners for providing the platform and technological tools. In the intangible side, however, the streams are mostly towards its partners. Some of the most important intangibles that it provides are customer contacts and information about future trends regarding the system. On the other side, it receives more satisfied customers, since from customer's perspective its offering improves. Platform providers basically provide a standardized offering and mostly focus on sales magnitude, thus they do not have the competency required to closely work with the customer, whereas niche companies like the specific case, work much closer with the customer to ensure continuous improvement and trimming.

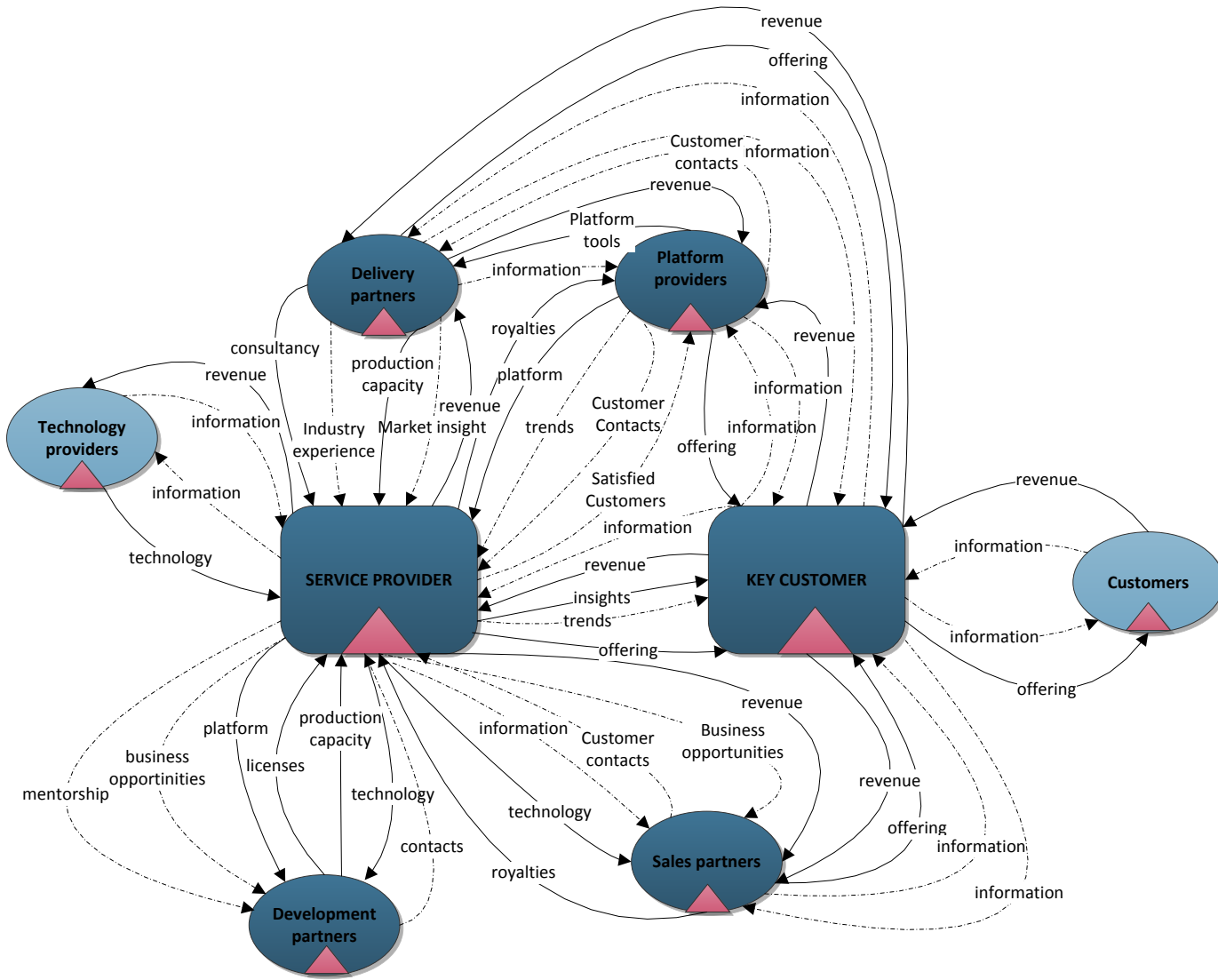


Figure 28 The service ecosystem

In addition, delivery partners are also central partners in the value creation process, as they bring to the ecosystem valuable knowledge. These partners are usually specialized ERP consultancy firms, companies that actually did the implementation of a specific system to the customer. Thus, they are actors that can provide knowledge about precise customer cases. In that sense they bring in market insight as well as industry insight, due to their close collaboration with platforms providers. Further, the collaboration with these partners is quite close and it can be that they actively participate in some projects, by providing workforce. It could be presumed that the relationship between delivery partners and the case company is to some degree cooperative (simultaneous collaboration and competition), since they can also provide additional solutions. However, they see it more as an add on service to the actual implementation, meaning that they do it from the point of view of the ERP system, thus, the collaborative side of the relationship stems from the case company's business and individual users orientation.

Generally, development partners build applications and deliver them to their customers using case company's tools and platform with exchange of money. They also get technical as well as business related advice and guidance that can open up new business opportunities, which they would not have without the collaboration. On the other side, they offer valuable contacts to a wide range of other providers. Further, they can increase case company's production capacity, since there might be certain elements of the solution that are outsourced to these partners to be developed.

Managers categorized sales partners in small specialized consultancy firms and larger companies. However, the nature of the relationship does not significantly differ, thus we consider them as one type of actor. The most important element of that relationship is that sales partners make a wide range of customers accessible to the case provider, whereas the case provider enhances their customer experience. Namely, it fills the gaps of sales partners' services through its specialized service solutions and the

technical knowledge it provides. In this relationship, there are some mutual money exchanges, depending on the degree of the case company's involvement in the sales. Finally, technology providers are considered as passive supplier partners that supply core technologies (for example Microsoft). Passive in this context means that they are not involved in any way in development of the service solution or with the customer. Specifically, these partners provide various tools, like basic databases or components for building reports in exchange for money.

7. Discussion and conclusions

The purpose of this thesis was to develop a comprehensive view of value creation processes in a service ecosystem context and an understanding on the roles of the stakeholders involved in these processes, focusing on the information technology industry. The topic of the thesis serves both academic and managerial interests. The novelty of the two central concepts of this thesis, systemic customer value and service ecosystem, as well as the gap in the literature of empirical research on value creation in an ecosystem-level, opened an interesting research topic for the purposes of this particular thesis.

The introductory chapter of the thesis covered the background and methodological aspects of the study. This chapter also presented the theoretical framework of the study. The theory chapters examined the topic of the thesis from the theoretical viewpoint setting the stage for the empirical study starting in chapter 5 and continuing with the findings in chapter 6. Chapter 6 examined and analyzed the case company's value creation process in the context of its service ecosystem. The final chapter concludes the study by summarizing the key findings of the analysis. Additionally, the theoretical and managerial contribution is discussed. Finally, the limitations of the study along with suggestions for future research in the area of value creation in service ecosystems are presented.

7.1 Key findings

The study aimed to answer the research questions presented in chapter 1.3. Namely, the main research question is, *how is value created in a service ecosystem context?*, and the sub-questions that support the core enquiry are (1) *Where in the ecosystem does value creation take place?*, (2) *Who are the stakeholders involved?*, and (3) *What are the stakeholder benefits from collaborative value creation in service ecosystem context?*

To begin with, concerning *the focal question*, the research revealed that customer value is created by a complex combination of interactions among different actors of the ecosystem. In accordance to theory (Mikkonen et al., 2008), it has been shown that resources and capabilities of one actor are not enough to successfully meet customer's diverge needs. As the customer value model revealed, customers' value depends on many elements, some of which are more valuable than other and different firms can more effectively deliver different elements depending on their competences. Thus, the findings of this thesis proves the systemic nature of customer value (see Ritala et al., 2011), since it shows that value is not created by a single offering directed to the customer, but by an integration of services from different parts of the ecosystem as well as the active participation of customer in this process.

In fact, as literature presented (see Hallikas et al., 2012a) the customer is closely integrated in the service provision by offering ex-ante and ex-post feedback on gains and as presented in the findings section, in a service ecosystem context providers increasingly emphasize on the importance of customer's role in the value creation process, by encouraging intense interaction with it in every stage of the process (sales-development-implementation). Therefore, it is proven that service provider and customer are co-producing the service solution, and thus co-creating value. The close relationship with customer also enables customization, in form of tailored solutions, which is also shown to be an important element of a service offering, because of customers' extremely heterogeneous needs.

The theoretical framework of this thesis assumed that exchanges do not only consist of transactions of goods and services among firms but also of knowledge transfer and sharing of intangible benefits (Nonaka and Takeuchi, 1995; Allee, 2000; 2008; Vargo et al., 2008). The analysis of findings reveals that intangibles in form of knowledge, skills or information are the most important resources for value creation in a service ecosystem and therefore, companies increasingly try to gain access to those through their relationships. Finally, as stated in the finding section, the purpose of the partnerships among actors in the ecosystem is extension participants' own capabilities by relying on other companies to provide particular resources or perform certain activities.

Turning now to the *two first sub-questions*, in order to answer these questions it is important to take a look on the intensity of the exchanges among the actors of the ecosystem (see figure 28). The analysis and the mapping of the ecosystem revealed that value is created among the actors that in the figure are highlighted with dark blue. Meaning that, the most important actors involved in this process are, the service provider, the key customer, the platform provider, the delivery partner, the sales partner and the development partner. However, it can be deduced that the relationships between the service provider, key customer, the platform provider and the delivery partner are the ones in which value creation actually takes places, since as the findings showed they are the ones that contribute the most through their exchanges and deliverables. Thus, in a generic view, it is shown that value is created mostly in the relationships of orchestrators, niche players, vendors and customers, which are the main focus of all the activities.

Finally, regarding *the benefits of collaborative activity*, benefits can vary among stakeholders and relationships, depending on their nature and motive. However, the core benefits suggested by both theory and findings are related to access to wide range of resources, that it could be costly to otherwise to acquire, hence, in that sense, cost reduction, adaptability and as Lusch et al.

(2010) suggested when the whole value network is realized as a system of mutual value creation through reciprocal, enabling and relieving service provision, all the relationships correspond to opportunities for innovation through supporting the actors in their individual value-creation actions.

7.2 Theoretical and Managerial contribution

As noted earlier in the literature review, research on business ecosystems is being held mostly in a conceptual level with only a few studies providing empirical evidence. Further, it is pointed out that there is still need of business ecosystems to be investigated in terms of service-based, network-with-network relationships. This thesis contributed into the literature by examining business ecosystems in terms of service-based relationships and also answered the calls for research on solutions originating from service industries. Most importantly though, it provided empirical evidence on the systemic nature of value creation at ecosystem level as the research on these constructs is still in its early phases.

From a managerial point of view, understanding how systemic value is created and the roles of different actors in the ecosystem, lead the way for more efficacious value network orchestration, which ensures the creation good systemic value experience to end customer. The analyzing of value creation with company's service solutions allows the tracking down of functions that generate the most value in meeting various customer requirements. A company that understands the systemic nature of value is better able to focus on refining the core functions of its offering, thus gaining competitive advantage and value-based differentiation over its competitors.

7.3 Limitations and future research

One main limitation of this study is related to its research method, as single case studies do not allow generalization of the findings. Thus, in order to establish generalization, multiple case study research should be conducted as according to Saunders et al. (2009) and Yin (2003), multiple cases meet

the need of the researcher to establish whether the findings of one case occur in other cases and consequently enable the identification of patterns. Future research could investigate systemic value creation in ecosystem level as a multiple case study in order to generalize the results.

Furthermore, as the data of the study was gathered mostly from provider's side; thus, combining the provider's side interviews with interviews with other core actors of the ecosystem could offer richer and more valid data about their relationships, interactions and value-creating activities. In addition, future research could investigate systemic value creation in workshops with both firm experts and key customers, using lead user research method, which according to von Hippel (1986) emphasizes on examining the product and service needs of lead users. More specifically, lead users frequently not only experience emerging needs, but they might be also able to develop prototype products or services to satisfy these needs. The result of such an approach is higher quality information on emergent market needs and consequently, (von Hippel, 1986; Urban and von Hippel, 1988) better product and service concepts.

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APPENDICES

Appendix 1: Definitions of customer value

| Authors | Definitions |
|-------------------------------------|--|
| Zeithaml (1988) | "Value is the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given." |
| Monroe (1990) | "Buyers' perceptions of value represent a tradeoff between the quality or benefits they perceive in the product relative to the sacrifice they perceive by paying the price." |
| Heard (1993–94) | Customer value is what customers get versus what they pay. |
| Anderson, Dipak, and Pradeep (1993) | "Value in business markets [is] the perceived worth in monetary units of the set of economic, technical, service and social benefits received by a customer firm in exchange for the price paid for a product, taking into consideration the available suppliers' offerings and prices." |
| Gale (2004) | "Customer value is market perceived quality adjusted for the relative price of your product." |
| Butz and Goodstein (1996) | "By customer value, we mean the emotional bond established between a customer and a producer after the customer has used a salient product or service produced by that supplier and found the product to provide an added value." |
| Woodruff (1997) | "Customer value is a customer's perceived reference for and evaluation of those product attributes, attribute performances, and consequences arising from use that facilitate (or block) achieving the customer's goals and purposes in use situations." |

| | |
|-----------------|--|
| Holbrook (2005) | "Customer value is an (1) interactive, (2) relativistic [(a) comparative, (b) personal, and (c) situational], (3) preference, and (4) experience..." |
| Woodall (2003) | "Value for the customer is any demand-side, personal perception of advantage arising out of a customer's association with an organization's offering, and can occur as reduction in sacrifice; presence of benefit (perceived as either attributes or outcomes); the resultant of any weighed combination of sacrifice and benefit (determined and expressed either rationally or intuitively); or an aggregation, over time, of any or all of these." |

Appendix 2 Structure of the interviews

Value proposition

Why does eCraft exist? What are your main goals?

What do you promise to your customers? (Competitive advantage)

Customer relationships

What do you offer to your customers? What does the customer get? (Service package)

Do you know why do they choose you?

How much customer interactions do you have/ what kind of/ with whom?
(How do you interact with the customer?)

What is the role of the customer in the service process? Does the customer understands his/hers role in the service process?

How do you collect or get data? And how the data is handled/ shared inside the company?

Key resources

What are the most important resources in your company?

Key activities and partnerships

How is your service offering being built? (Partners involved)?

Describe the exchanges of both tangibles and intangibles in each relationship. (What are the core value-creating activities for this role? What specific value outputs (tangible and intangible) does it generate and provide to other roles and participants?)

How well are financial and non-financial assets being used to create your value output? (High-medium-low per asset)

Appendix 3 Process evaluation by experts

| Task description | Minimum time | Maximum time |
|--|---------------------|---------------------|
| Placing the order | | |
| 1.Entry of basic service order to ERP | 10 | 25 |
| confirming the orderlines | 2 | 5 |
| 2. Checking the order list (refresh) | 5 | 15 |
| 3. Open the orders 1 by 1 | 2 | 5 |
| 4. Open Excel sheet | integrated below | |
| 5. Enter order information in the excel sheet | 2 | 3 |
| 6. Attempt to schedule (mentally) | 5 | 15 |
| 7. Assign all orders in the ERP 1 by 1 | integrated above | |
| 8. Checking the tasks 1 by 1 | 5 | 10 |
| 9. Prioritize | 2 | 4 |
| 10. Accepts task | 3 | 6 |
| 11. Stock checking | 10 | 15 |
| Stock available, No | 3 | 6 |
| 12. Place order to the supplier | 5 | 10 |
| Stock available, Yes | 3 | 6 |
| 13. Communicate schedule to the customer | 7 | 12 |
| Execute order | 64 | 137 |