Developing a holistic understanding of service delivery and value (co-) creation in order to improve value (co-)creation processes and value propositions of service providers.

Date: 16-6-2015

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ABSTRACT

The goal of this research is to present a deeper understanding of value (co-) creation in service settings. We complement to the existing literature by presenting a newly-developed holistic understanding of value (co-) creation, based on an integration of the three existing models on value creation of Zeithaml, Parasuraman & Berry (1990), Grönroos (2011) and Lovelock & Gummesson (2004). This integration has resulted into a threefold of subsequent processes that are able to explain value (co-) creation in a holistic manner: (1) The service interaction process; (2) the co-creation process and; (3) the value-in-use facilitation process. In turn, a practical instrument was developed in order to give the holistic understanding practical applicability as well. The instrument consists of both quantitative as well as qualitative measurements resulting out of the mixed methods approach of this study. The measurements allow firms to assess value attribute importance and the gap between the customer's perception and expectation through the three distinguished processes. This enables service providers to improve their (knowledge on) customer value creation and, subsequently, to improve their value propositions by doing so.

Key words: Service quality – co-creation – value-in-use – customer value – joint value creation – service encounter – IHIP

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1 Introduction

1.1 Introduction and problem statement

Since the 1980's, service delivery, service quality and value creation have been relevant topics in marketing literature. Hence, a number of theories have been developed to shed light on this subject. Zeithaml (1990), Lovelock & Gummesson (2004) and Grönroos (2011) aimed to delve deeper into how value can be created through service delivery by creating models which aimed to conceptualize this phenomenon. In doing so, Zeithaml et al. (1990) developed the SERVQUAL model, analyzing the gap between the perceptions of service delivery and the expectations of service delivery in order to improve service quality and therewith enabling further value creation. Grönroos (2011) provided a renewed view on the service-dominant logic from Vargo & Lusch (2008) called the "service-logic" and thereby giving a deeper understanding of value (co-) creation and the firm's and customer's role in doing so. In addition, Lovelock & Gummesson (2004) scrutinzed the IHIP framework. With the IHIP framework, one initially tried to explain the difference between services and goods and their implications when delivering services through for characteristics: Intangibility, Heterogeneity, Inseparability and Perishability. Lovelock & Gummesson (2004, p. 20-21), however, show that services *cannot* be distinguished to be different from goods through these four characteristics as there are "sufficient exceptions to discredit the claim of universal generalizability". It can be argued that these are the current views on services marketing that lie at the basis for explaining how value can be created and evaluated in a service setting. Nowadays, we live in a world in which the wide availability of communications technology is forcing companies to think differently in value creation by becoming more responsive to customer experiences and co-creation of value becomes more of a necessity (Prahalad & Ramaswamy, 2002). Hence, one of the purposes of this research is to use this existing knowledge about service delivery and value creation processes in order create an understanding of value proposition effectiveness through an overarching understanding of value creation. That is, value propositions as a "description of the experiences a target user will realize upon purchase and use of a product" (Chesbrough & Rosenbloom, 2002). Anderson, Narus & Van Rossum (2006) thereby state that in order to let a customer value proposition function more effectively, it should be based in the two or three elements which deliver the greatest value to the customer as well as it should be communicated in such a way that it is understandable to the customer (Edvardsson & Klaus, 2014). The models of Zeithaml (1990), Lovelock & Gummesson (2004) and Grönroos (2011) can thereby act as a fundament for understanding how greater value can be delivered to the customer through services, providing a basis which enable us to create more effective value propositions. (Edvardsson et al. 2014). Thereby, delivering superior value will help in getting a competitive advantage (Anderson, Narus & Van Rossum, 2006; Woodruff, 1997).

However, despite the three mentioned models contribute in this understanding of value creation, it can be argued that each of the separate models fall short in providing a full understanding of value delivery and value (co-) creation in the service setting. It can be argued that a holistic understanding, based on all of the existing theories, is currently lacking. The purpose of this research is, hence, to fill in

this gap by presenting an integration of the three theories of Zeithaml et al. (1990), Lovelock & Gummesson (2004) and Grönroos (2011) by making them complementary to each other and therewith creating a holistic understanding of service delivery and value (co-)creation processes in the present time. This holistic integration of existing models resulted into a threefold of connected processes that explain the value creation process a whole: (1) *the service interaction process*, (2) *the value co-creation process* and (3) *the value-in-use facilitation process*.

Subsequently, we aim to provide a research instrument that is based on this holistic understanding (and these three processes), and which is able to provide solutions to practical problems regarding value delivery through services and improving value proposition effectiveness. Hence, our goal is also to create a research instrument to bring the holistic understanding in practice. In order do so, the instrument was tested on the case of Indicata BV, an IT Service Provider. The instrument was utilized in this company in order get an advice on how they could improve their customer value through optimization of the value delivery & value (co-) creation processes as well as how their value proposition could be improved based on these results. This provided us the opportunity to test the reliability of the developed instrument as well as the applicability of our holistic understanding in practice. Hence, we provide an example of how the holistic understanding can be used to gather insight on improving value at the firm level, giving this research both theoretical and practical relevance.

1.2 Research Question

In order to give an answer regarding the stated problem, the following research question has been set up:

How can customer value be created and delivered through a holistic understanding of service delivery & value (co-)creation processes in service settings and how can this help in improving customer value and value propositions of service providers?

In order answer the main research question; the following sub-questions have been set up:

- *What is customer value in the context of the service setting?*
- *How can the existing theory on service delivery and value (co-)creation be combined in such a complementary way so that it creates a holistic understanding?*
- *Which dimensions and/or processes of service delivery and value creation can be distinguished based on this holistic understanding?*
- *How can this holistic understanding be shaped into a practical research instrument and be used to create a practical understanding of value creation at the firm level?*
- *How can the usage of this practical instrument help the focal firm in understanding how they can improve their customer value and optimize their value proposition by doing so?*

2 Theoretical Framework

2.1 Customer Value explained

According to Woodruff (1997) *customer value* or *customer-perceived value* or *perceived value (*among many other similar concepts) is a concept that is used interchangeably throughout the literature. Broekhuizen (2006), for example, states that there are as much as eighteen concepts which are all used for explaining this same value which consumers derive from buying and using the product (Woodall, 2003 in Broekhuizen, 2006). Customer value can be further defined as "a customer's perceived preference for and evaluation of those product attributes, attribute performances, and consequences arising from use that facilitate (or block) in achieving the customer's goals and purposes in use situations." (Woodruff, in Parasuraman, 1997, p. 154). Customer value can, simply put, be seen as "a trade-off between (customer-perceived) quality and (customer-perceived) price" (Desarbo, Jedidi & Sinha, 2001, p. 846; Lapierre; 2000; Slater, 1996). Some, however, state that it implies much more than a trade-off between product quality and price (Lapierre, 2000). The goal and use of assessing customer value is to get an "understanding what buyers value within a given offering, creating value for them, and then managing it over time" (Desarbo et al., 2001, p. 845). Desarbo et al. (2001) thereby state that assessing this is a key element of every *market-oriented* firm's strategy. Slater & Narver (1994) state a business can be typified as market-oriented "when its culture is systematically and entirely committed to the continuous creation of customer value". Determining what the customer values in a service helps a firm formulate a clear statement of its value proposition (Desarbo et al., 2001). It can be argued that an understanding of customer value and value creation is necessary in order to be able to build a value proposition that is attractive to a customer. A great number of authors thereby seem to agree on customer value as the basis for competitive advantage (Woodruff, 1997).

2.2 Value propositions in a service provider setting.

The "Customer value proposition" concept has become one of the most widely used concepts among business markets in the recent years (Anderson, 2006). Chesbrough & Rosenbloom (2002) describe value propositions as the "description of the experiences a target user will realize upon purchase and use of a product.". A large group of authors, such as Anderson et al. (2006), Osterwalder, Pigneur & Tucci (2005), Al-Debei & Avison (2010), Chesbrough & Rosenbloom (2002), Linder & Cantrell (2000), and others, state that the value proposition can be seen as a building block or an element of a company's business model. When going more in depth on how a value proposition should be constructed and used, Anderson et al. (2006) assessed the concept of customer value even further. Anderson et al. (2006) state that even if an offering actually provides superior value it is key that the supplier demonstrates and documents this claim effectively. If a company isn't able to do this, the value proposition will likely "be dismissed as marketing puffery" (Anderson et al, 2006). In order to increase value proposition effectiveness, Anderson et al. (2006) came up with three types of the customer value proposition (CVP). *First*, the "All Benefits" type of CVP is distinguished. This type of CVP can be described as "the list of all the benefits they believe

that their offering might deliver to target customer" (Anderson et al., 2006). The common thought is the more benefits are given in an offering, the better the CVP is. *Second*, Anderson et al. (2006) describe the "favorable points of difference" (FPOD) type of CVP's and is considered as preferable to an all benefits proposition. For this type of CVP, knowledge of the next best alternative offering is needed in addition to the knowledge about a company's own market offering (Anderson et al, 2006). This view explicitly recognizes that there is also an alternative available for the customer. Subsequently, Anderson et al. (2006) distinguish the *'Resonating Focus'* type of CVP. The resonating focus seen as the 'Golden standard' of CVP's according to Anderson et al (2006) as well as Rintamäki et al. (2007). This approach to a CVP "acknowledges that the managers who make purchase decisions have major, ever-increasing levels of responsibility and often are pressed for time" (Anderson et al, 2006, p. 94). Thereby, Anderson et al. (2006) state that managers preferably want to do business with those companies "that fully grasp critical issues in their business" and with a CVP that is simple but also powerfully captivating. Anderson et al. (2006) state that this can be done by making the proposition superior on those few elements that matter the most to target customers and to document and demonstrate this superior performance. In addition, Edvardsson & Klaus (2014) suggest that *experience* strategies and *value propositions* connect through *service systems*. Service systems can be described as "configurations of resources and actors, designed and managed to support a firms experience strategy strategically by fostering value proposition" and is stated to be connected with profit and revenue through customer satisfaction and service quality (Edvardsson & Klaus, 2014, p.11). Edvardsson & Klaus (2014) state that service systems enable value propositions, based on creation of both *customer service experiences* as well as the *value perceptions*. In addition, Ng, Parry, Smith & Briscoe (2012) relate *value-in-use* with value propositions, which can be seen as similar to the view of Chesborough & Rosenbloom (2002). Value-in-use is hereby being described as *the value that a customer receives from the service upon using it*. Macdonald, Wilson, Martinez & Toossi (2011, p. 673) define value-in-use as "a customer's outcome, purpose or objective that is achieved through service". Ng et al. (2012) acknowledge a shift in value propositions from a manufactured offering to "an integrated product and service offering that delivers value-in-use" (Ng et al., 2012, p.4). Macdonald et al. (2011) also acknowledges this by stating that providers are currently challenged to assess the perceived value that 'integrated solutions' deliver. It is stated that these integrated solutions, which are interactively designed to solve complex individual problems, offer higher value to the customer in comparison to the value that sum of the separate underlying components would bring to the customer (MacDonald et al., 2011).

2.3 How delivering services is different from delivering goods: The IHIP Framework

It can be stressed that value delivery process differs from firm to firm. Hence, a distinction is often made on the basis of what is delivered in the offering of a firm: Goods or services. (Grönroos, 1984; Parasuraman et al., 1985, Zeithaml et al. 1985, 1988; Gummesson, 1988). Authors like Parasuraman, Zeithaml & Berry (1985), Zeithaml, Parasuraman & Berry (1985) Berry (1975, 1980, 1983), Anderson, Fornell & Rust (1997), Gadrey (2000), Lovelock & Gummesson (2004), Vargo & Lusch (2004), Sampson (2007) and others, acknowledge that there is a difference in delivering services and goods. Four

characteristics that should explain the differences between services and good, leading to the implications of service delivery, can be distinguished: *intangibility, heterogeneity*, *inseparability* and *perishability*. The *intangibility* of services makes it hard to assess and evaluate quality of the service. According to Bateson (1979) it is "the critical distinction goods-services distinction from which all other differences emerge" (Zeithaml et al., 1985, p. 33). Because services are "immaterial" performances, rather than "things", they cannot be seen, sensed or be tested in the same manner in which goods can be sensed or tested (Zeithaml et al, 1985: Lovelock, 1991; Gadrey, 2000). Next to intangibility, the *heterogeneous* character of services also causes implications in assessing and evaluating the quality of the service delivery. Especially labor intensive services differ from customer to customer and can differ from day to day. One of the factors that help in explaining this heterogeneity in labor intensive services is the consistency of the employees in their task (Parasuraman et al., 1985). Third, it is proposed that services are *inseparable in the production and consumption*. Whereas goods are produced first and sold afterwards, services are sold first and produced afterwards. (Zeithaml et al., 1985; Parasuraman et al., 1985). It can be argued that this leads to a difference in how a service is delivered (delivered over time) and how a product is delivered (instant exchange). The last characteristic, *perishability*, stems from the problem that services cannot be stored for later sales or use and therefore have an implication relating to the supply and demand of services. If the demand exceeds the supply, the demand cannot be met by taking it out of inventories and "cannot be held in stock" (Mudie & Pirrie, 2006; Gadrey, 2000, p. 370). These four combined characteristics are often named as the "*IHIP"* scheme (see Lovelock & Gummesson, 2004; Vargo & Lusch, 2004; Edvardsson, Gustafsson & Roos, 2005).

2.4 Existing theories on value (co-)creation.

The SERVQUAL model of Zeithaml et al: Assessing the gap between service expectation and perception.

Understanding service quality will help in creating a model which "describes how the quality of services is perceived by customers" (Grönroos, 1984). Firms are constantly looking for goods and services which fulfill the needs of the high quality demanding market (Parasuraman, Zeithaml & Berry, 1985). Subsequently, the delivery of higher service quality can be deemed as a strategy which is "increasingly being offered as a key to service providers' efforts to position themselves more effectively in the marketplace" (Cronin & Taylor, 1992). Hence, it can be stressed that service quality is a driver for value creation. Thereby it is important to keep in mind that service quality is perceived and reflected through the process of interaction with the customer. This interaction between customer and firm is what Grönroos (2011) calls the *service encounter.* Under the notion that the quality-price trade-off is the basis of customer value, increasing service quality will inevitably lead to higher customer value throughout the process. The interest in the construct of service quality and the question of how to measure it, is thus understandably high. (Cronin & Taylor, 1992).

The SERVQUAL model of Zeithaml et al (1990) was based on Oliver's (1980) disconfirmation model, which proposed that "satisfaction is a function of the disconfirmation of performance from expectation" (Lee, Lee & Yoo, 2000, p. 217). This view on perceived service quality is also named as the

disconfirmation paradigm (Brady & Cronin, 2001). Spreng & Mackoy (1996, p.202) provide a similar definition as they emphasizes the idea that consumers "make a comparison between the performance of a product or a service and some standard". After the fundamental articles of Parasuraman et al. (1985, 1988), Zeithaml, Parasuraman & Berry (1990) the authors initially ought to create a better understanding of service quality. Therefore, a service-quality model based on this understanding was developed, which was called the "Gaps Model" (see Appendix A) (Zeithaml & Bittner, 2010). In the second phase of their research they started to shift the focus of their research to the customer-side of their service-quality model. Based on the conclusions on their research on the customer-side of service quality, Parasuraman, Zeithaml & Berry (1988, 1990) developed a methodology which they called SERVQUAL. Zeithaml et al. (1990) concluded that the existing service quality literature was not sufficient for a good understanding of how customers evaluate the quality of a service and how assessing service quality can increase value.

Assessing the gap between expectation and perception

One of the main goals of the SERVQUAL model is to measure perceived service quality through the differences between the expectation and the *perception* of the customer. This is measured through "gap five" of the service quality model (Parasuraman et al. 1985: Zeithaml & Bittner, 2010). The gap between the expectation and perception of the customer is generally measured through a fivefold of dimensions (See appendix B). Based on our research goals, which are to explain the value creation process and find possibilities for improvement in these processes, we, hence, focus on Gap 5 of the SERVQUAL model. This is because we are mainly interested in finding opportunities for improvement based on the differences between expectation and performance along the service encounter. According to Parasuraman, Zeithaml & Berry (1994, p. 201), researchers generally agree that expectations serve as reference points in a customers' assessment of service performance. Grönroos (2011) also agrees on this view of Zeithaml (1990) and acknowledges that there exists a difference in the value as expected by the customer and the value which is perceived by the customer. Hence, it is stressed that assessing the gap between perception and expectation is important for firms in order to know how to improve value along the value creation process. We argue that the gap five-analysis is definitely the strong characteristic of the SERVQUAL model as it provides a good insight for improving attributes that contribute to service quality or value delivery. Its importance brings us to include this gap five-assessment in our holistic understanding of value creation in a service setting.

Grönroos' service logic & value (co-)creation in the service setting

In the theory of Grönroos (2011), the underpinning logic of value (co-) creation is analyzed. Thereby the purpose of his theory is "to analyze the value creation in the context of a service perspective on business and marketing (service logic) and, in specific, to analyze the value co-creation aspect of value creation and the roles of the customer and the firm, respectively. (Grönroos, 2011). Subsequently, Grönroos (2011) observes that the 10 foundational premises of the *service-dominant logic* (See appendix C) do not fully support an understanding of the value creation process and the co-creation of value in such a way that it is meaningful for theoretical decision making in marketing and business practice. According to Grönroos (2011, p. 282), value creation "is a process through which the user becomes

better-off in some respect (see Grönroos, 2008) or which increases the customer's wellbeing (see Vargo & Lusch, 2008). Gronroos (2011) therefore defines value for customers as: "Value for customers means that after they have been assisted by a self-service process (cooking a meal or withdrawing cash from an ATM) or full-service process (eating out at a restaurant or withdrawing cash over the counter in a bank) they are or feel better off than before." (Grönroos, 2011, p.282)

A deeper understanding of the value (co-)creation process

Value can be derived from the physical use of a good or service, the mental use, or even the possession of the good or service on itself (Grönroos, 2011). The best way of understanding the value for customers, according to Grönroos, is through the "value-in-use" concept, which is the value that "emerges from usage or possession of resources, or even from mental states" (Grönroos, 2011, p. 282). Grönroos (2011) thereby states that the customer's creation of value-in-use is the dominant definition of value creation. When looking for a deeper understanding on the value creation process, it becomes clear that the service-dominant logic does contradict the dominant position of value-in-use in Grönroos' (2011) understanding of the value creation process. Grönroos (2011) states that, theoretically speaking, both logics cannot be mixed, as this would not make any sense when trying to create an understanding of the value creation process. Hence, if one uses "the logic's notion of value creation, one cannot accept the value-in-use as a value creation concept" (Grönroos, 2011). Grönroos (2011) states that value for customers is either created through the usage of the resources by the customer – *value in use* – or by both firm and customer in an *all-encompassing value process*, but never both. This becomes clear through the earlier mentioned difference between potential and real value. The service-dominant logic focusses on *the potential value*, resulting out of the production of the firm, whereas the *real value* is generated out of the usage of the resources *by the customer*. Next to the difference between potential and real value, Grönroos (2011) looks into the goods vs service perspective of value creation and the tangibility and intangibility of services. This is where the service-dominant logic becomes problematic according to Grönroos (2011). According to fundamental premises, all kinds of resources, including goods, are claimed to be transmitted "as a service" (see Vargo & Lusch, 2004.) For instance, getting a coffee out of the vending machine to enjoy a coffee break (Grönroos, 2011). Even though Grönroos (2011) agrees on this fundamental premise of the service-dominant logic, he states that it is concurrently what makes the service-dominant logic sound misleading. When agreeing on the premise that all resources can be delivered as a service, the logic cannot be "service-dominant", as there is nothing where service are dominant over. Therefore Grönroos (2011) states that *'service logic'* would be a better fitting formulation as there are no goods-centric aspects in the service-dominant logic. Subsequently, Grönroos (2011), like Lovelock & Gummesson (2004), disagrees with the IHIP framework, stating that the tangibility and intangibility of services is a problematic distinction. He states that goods sometimes are intangible for people, whereas service activities may something well be considered as tangible – such as buying fast food in at McDonalds. Grönroos (2011, p. 284) therefore proposes to use a distinction between "goods as outputs of products and services or service activities as interactive processes that lead to an outcome". The way in which goods can also be transmitted "as a service", as stated earlier,

does however make a difference in the way the value creation process takes place in a service setting. This difference lies in that when a good is transmitted "as a service", it is a self-service process (Grönroos, 2011). A self-service process allows only the user of a resource to create the value from the service. Hence, goods which are provided without being embedded in a service process automatically trigger a self-service process. However, when there is interaction with the customer while providing the resources, it allows the firm to provide a user with more than only resources: Based on the encounter, the company is also able to provide additional assistance with the usage of this resource in order to create additional value. Grönroos (2011) as well as Vargo & Lusch (2004) state that, in order for a firm to provide a service (and thus value) for customer, it does also need a service back from the customer in the shape of input of information that is needed for the value creation process. This is what is called *reciprocal value creation.* It describes the ongoing process of value creation, in which the supplier and customer are in a constant reciprocal process of obtaining reciprocal input and thereby creating value for both parties (Grönroos, 2011; Prahalad & Ramaswamy, 2004). Hence, Grönroos (2011) states that the goal of *service systems (see Edvardsson & Klaus, 2004)* is to provide value for both parties involved, and not for service systems on itself. For a service provider, this value often is a monetary value. For the customer it can be argued that this value is to become "better off" in *some* way, either financial or physical. Grönroos (2011) states, hence, that *reciprocal value creation* is *the basis of all business*. Because there exists an interaction process between the supplier and the user in these kinds of cases, a self-service process becomes a full-service process, which brings us to the topic of *co-creation of value*, and the role of the firm and the customer in doing so.

The firm and customer as co-creators of value through interaction processes.

As stated before, the interaction between supplier and user is what provides a *platform* for providing additional value and allowing suppliers to engage in value creation beyond merely providing resources. Due to interaction between the firm and its customer, the firm has the opportunity to help with the integration of the provided resources in such a way that it brings the most value to the customer. According to Grönroos (2011), this is also exactly the role of the firm regarding the (co)creation of value: firms facilitate customer's value creation in order to create value-in-use for the customer. Hence, Grönroos (2011) formulates the basic role of a firm in its customer's value creation as a *"value facilitator"*.

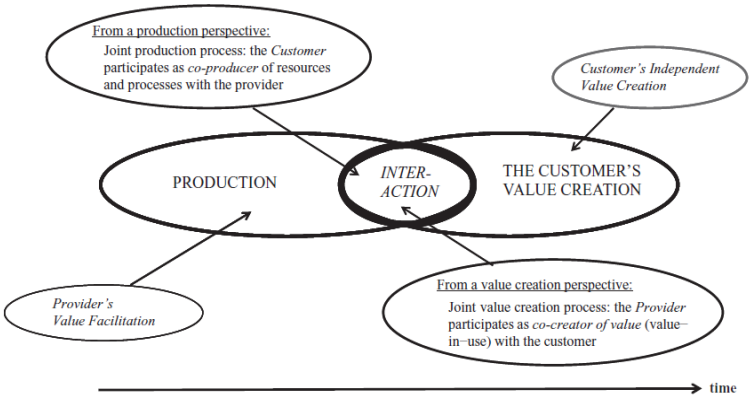


Figure 4:
The value-in-use creation model.
Source: Grönroos (2011)

In figure 4 one can see that the interaction between the production and the customer is connected through an interaction platform. Resources used and integrated by a user that are provided by a producer. The value creation process does not work in just one direction. The supplier can also assist the customer by supporting him in the creation of value through usage of the resource - reciprocal value creation (Grönroos, 2011). Through the service encounters between supplier and user, both parties can have an influence on each other. The user can influence how the resources are produced (through i.e. co-design and co-creation of products), and the firm can influence how their provided resources are utilized in such a way that it generates as much value as possible for their customer. Value co-creation, hence, works in both ways and can therefore also be typified as "j*oint value creation*" (Grönroos, 2011). Customers can be involved in value co-creation in various ways, such as through assisting in the design and development of the service system of the firm, achieved through feedback from complaints, suggestions, or contributions that are delivered through user interaction platforms (Edvardsson et al, 2014). Co-creation may thereby be compared with the notion of customization. There is however a difference between co-creation and customization on the basis of the degree of involvement of the customer. Generally spoken, customization requires less involvement of the customer than in co creation (Kristensonn, Matthing & Johansson, 2008). Co-creation generally requires a more active collaboration from the customer, starting as early as the beginning of the innovation process (Kristensonn et al., 2008). Subsequently, it is stressed that it is important that the staff of the supplier is trained in acting upon this co-creation process. Regarding increasing the quality of the encounters, Zeithaml et al.'s (1990) service quality model can act as a good basis to do so as Grönroos (2011, p. 290) thereby states that "the quality of the interactions between the parties is fundamental for value co-creation". Zeithaml et al. (1990) provide this understanding of service quality and subsequently the service encounters in which a firm can engage itself with its customers' practices.

Lovelock & Gummesson's critiques on the IHIP framework

Lovelock & Gummesson (2004) criticize the validity of IHIP framework and challenge the adequacy of this framework. In turn, they assume that the IHIP characteristics are not correct in generalizing how services are uniquely different from goods. When looking at the first described characteristic of the IHIP framework – intangibility - Lovelock & Gummesson (2004) state that, for first time users, goods may be just as hard – or as easy - to evaluate as services. Lovelock & Gummesson (2004) state that products can consist of either tangible or intangible nucleus and that they should be arrayed on a tangibility spectrum, based on if the product is dominantly consisting of tangible or intangible elements. This is also where the problem of intangibility stems from, concerning the distinction between services and goods: Goods may well be intangible to people as well as services can be very tangible to people. In more detail, "many services involve tangible performance activities that users experience during delivery" (Lovelock & Gummesson, 2004, p. 27). This problematic view on the tangibility characteristic brings Lovelock & Gummesson (2004) to the conclusion that intangibility is *not* a universally applicable characteristic of all services. Regarding *heterogeneity*, Lovelock & Gummesson (2004) state that they prefer to use the term

'variability' or 'inconsistency' instead. This is based on the fact that services do not have clear and consistent standards to which they can be evaluated and that, hence, the service delivery differs among employees as well as day by day (see IHIP framework, ch. 3.2). Lovelock & Gummesson (2004) however state that this is less of a problem nowadays. They state that because today's service processes are highly standardized, many services are actually very consistent and can have clear evaluation standards. For example, when buying an airline ticket: One knows when the aircraft leaves, one knows which seat one gets, at what price and sometimes even from which gate or terminal their flight departs. Regarding the *inseparability* of services, Lovelock & Gummesson (2004) provide an important insight. Lovelock & Gummeson (2004) state that customer aren't always desiring this role of 'partial employee', as Lovelock & Gummesson (2004) call it. Sometimes this lack of involvement (separability) even is intentional by the customer. IT-system maintenance, for example, is preferably done around office hours of the client, so that the customer doesn't lose any time in doing its core-business. Based on these arguments it is also stressed that services are not generalizable unique from goods based on separability. Finally, there is the problem with *perishability* characteristic of services, which is two-fold. The first problem, that services can't be stocked in an inventory, is refuted by Lovelock & Gummesson (2004). They argue that although one can agree upon that service cannot be stocked, it can also be seen as something positive: No stock also means no costs associated with handling this inventory. Subsequently, it is stated that certain service types *can* be inventoried, such as the news or music, which can be recorded for later use by transforming it to a physical good, such as a DVD. This is what makes these types of services storable and, hence, non-perishable. In conclusion, Lovelock & Gummeson (2004) state that the IHIP characteristics are not unique characteristics on which services are truly different from goods and are not generalizable to all services. Lovelock & Gummesson (2004, p. 31) claim this based on that there are "sufficient exceptions to discredit the claim of universal generalizability" (see Appendix D).

2.5 Towards a holistic understanding on service delivery and value (co-) creation: integrating existing understandings.

As Lovelock & Gummesson (2004, p. 22) state, new theory or understandings can develop from new interpretations and "innovative combinations of extant theory". In this research, we aim to do the latter. Now the separate underlying understandings have been thoroughly discussed in the previous chapters and the processes of value delivery, service quality and value (co-)creation are explained, we will integrate this knowledge into one holistic understanding.

To give a basis to this understanding, we start our integration from the point of view from one of the models to see how the other understandings complement or differ from this, in other words; a founding understanding to build our holistic perspective on. As such a holistic understanding does not exist yet, it can be argued that we can provide an addition to the literature by doing so. As stated earlier, the Service Quality model of Zeithaml et al. (1990) can be argued to be quite an innovative model for its time. It was one of the first widespread models that assessed the importance of measuring the gap between expectation and perception of service delivery in order to measure the degree of customer satisfaction. For over two decades, the service quality model has been used by firms to formulate strategies to deliver

high quality services and to provide a foundation for a competitive strategy through services (Bitner, Zeithaml & Gremler, 2010). Subsequently, Zeithaml et al. (1990) provided a practical quantitative tool which allowed companies to do so, enabling them to collect fundamental knowledge on how a firm could improve its service delivery based on the gaps that are measured through the questionnaire. As we ultimately want to use our understanding to improve customer value delivery and therewith the value proposition as the outcome of this understanding, it provides a first argument on the basis of which it can stressed that the Service Quality model from Zeithaml et al. (1990) can act as a founding understanding for our holistic understanding. Secondly, it can be stressed that service encounters are at the center of value creation. Grönroos (2011) as well as Zeithaml et al. (1990) position the service encounters with customers, the interaction platform, as a centric element in creating value. It provides a platform between the firm and customers, enabling value (co-)creation. This case can also be seen in figure 3, where it can be seen that the interaction platform resides between the value facilitation of the firm (on the left) and the customers independent "value-in-use" creation (on the right). Based on these arguments we argue that the Service quality or gaps model from Zeithaml et al. (1990) is a good basis to reflect and complement the other models on. However, despite that the Service Quality model will provide a good basis for our holistic perspective, this does not mean that it does succeed in explaining the whole processes of value delivery and value creation on its own. We even stress that the service quality model falls short in doing so and needs complementary insights from the other understandings to enable its full usefulness in the grand scheme of value creation. The service quality model does not create an understanding value creation, but rather gives an understanding of the service encounters as an element of the bigger value creation process (Macdonald et al. 2011). This does not mean that service encounters are not important to understand, in contrary. Grönroos (2011) mentions that these encounters are important to understand as it gives both parties the possibilities to influence each other processes and is the fundament for co-creation of value by stating: "If there are no direct interactions, no value co-creation is possible" (Grönroos, 2011, p.290). However, it can be stressed that the service quality model of Zeithaml et al. (1990) on itself does not reach any further then just explaining the service encounter and how to increase the quality of these encounters. This same argument is stressed by Macdonald et al. (2011). The authors criticize the service quality literature stream in that it "ignores customer processes which may contribute to value co-creation" such as the usage processes which may occur subsequent to the delivery process and thereby not focusing on the outcomes of service encounters (See Buttle, 1999; Macdonald, 2011). Based on this we stress that its usefulness on its own is limited, but is far greater when linked to other understandings, such as those of Grönroos (2011), Lovelock & Gummesson (2006) and the additional insights from MacDonald et al. (2011). Hence, we argue that the service quality model can be seen as complementary to the value creation understanding of Grönroos (2011) and vice versa. When looking at the understanding of Grönroos (2011), it can be argued that it provides a broader view to the understanding of value creation and service delivery. This is due to its purpose to "analyze value creation in the context of a service perspective" and "to analyze the value creation aspect of value creation and the roles of the customer and the firm, respectively" (Grönroos, 2011, p. 280). Where Zeithaml et al. (1990) mainly focus on the service encounters and the quality of these encounters on their own, Grönroos (2011) places these service encounters in a bigger

understanding by distinguishing them as a platform of interaction between customer and firm that is necessary for what Grönroos (2011) states to be the basis of all business: *reciprocal value creation*.

When falling back to the usefulness of the Service Quality model in the understanding of this reciprocal value creation, Grönroos (2011) states that the quality of the interactions between the parties - firm and customer – is fundamental for value co-creation. However, he does not thoroughly explain in his article how this quality can be assessed, improved or managed. Grönroos (2011) states that "the opportunities provided by the interaction platform can be taken care of well or less well". However, he does not go into any more depth in understanding how a firm can work towards taking care of these opportunities in a good manner. It can be argued that this is where the thorough explanation of the Service Quality model of Zeithaml et al. (1990) is complementary to Grönroos' (2011) understanding, as it provides extra depth in the interaction between firm and customer and value (co-)creation in a very useful way. It can, hence, be stressed that Grönroos' (2011) understanding can add strength to our holistic understanding.

Next to placing the service encounter in the bigger scheme of value creation, Grönroos (2011) thoroughly explains the different perspectives regarding the value creation process, and more specifically, how the value co-creation process takes place and what the role of the firm vis-à-vis the customer is in this process. He states that, fundamentally, the customer is the one that creates the value and that the firm can only take the role as a value facilitator. Hence, it can be concluded that companies therefore cannot "dictate how value is created" (Prahalad & Ramaswamy, 2002, p. 4). MacDonald (2011) , Vargo & Lusch (2004) and Vandermerwe (1996), stress a similar view by stating that value is created in the customer sphere and that, hence, the customer is always a co-creator. During co-creation, the customer can co-create value-in-use, which is contradicting to the view that value is only embedded in the production or in "tangible goods at the factory gate" (MacDonald, 2011). Subsequently, Grönroos (2011) makes a key statement in saying that firms *not* always can or have to be a co-creator of value. He bases this on two arguments: (1) that the firm fundamentally is not the creator of value as "value is accumulated throughout the customer's value creation process" and that value "is always determined by the customer" (Grönroos, 2011, p.294-295) and (2) that it depends on whether the firm is delivering goods 'as a service' - which is a self-service process and thus leaves the firm no option to influence the value upon usage of the provided resources – or if it engages in a *full service process*. Only the latter does give the firm the opportunity to influence the usage of the provided resources and, subsequently, can make a firm a co-creator of value-in-use for the customer. The basis for this co-creation collaboration between customer and firm are the experiences that a customer has gained when using a company's product or service. (Vargo & Lusch, 2004; Kristensson et al. 2008).

As the difference in delivering goods as a service is thus evidently an important difference in the creation of value, it can be stressed that it is important to know how goods are different from services and their delivery. This where how the perspective of Lovelock & Gummesson (2004) is complementary on the understanding of Grönroos (2011) and contributes to our holistic perspective on service delivery and value creation. Lovelock & Gummesson (2004) specifically contribute on the understanding of service delivery - which until now was mainly covered by the service quality model of Zeithaml. (1990) - but also contribute to the understanding of value co-creation of Grönroos (2011). Lovelock & Gummesson (2004)

scrutinize the IHIP framework. This framework was initially set in place to provide the generalizable characteristics that would explain how all services, and there delivery, are uniquely different from goods. The assessment of Lovelock & Gummesson (2006) regarding the heterogeneity or "variability" characteristic sheds a new light on the usefulness of understanding service quality. Based on the old IHIP framework, the notion exists that services are inconsistent. However, it can be argued that due to the fact that some services are highly automated nowadays, this inconsistency is limited nowadays. It can also be argued that consistency of a service is linked to service quality. It is stressed that higher service quality would imply higher consistency and vice versa. This insight from Lovelock & Gummesson (2006) sheds another perspective on service quality as discussed in Zeithaml et al. (1990) based on the (in)consistent characteristic of services and its relation the quality of the service that is delivered. In turn, Johnston (1995) provides the evidence regarding this relation and states that consistency is indeed a determinant for service quality. Subsequently, consistency can, more or less, be measured through the reliability dimension of Zeithaml et al.'s (1990) SERVQUAL measurement as it measures the reliability and consistency of performance of service providers. When combining this knowledge, it can be argued that the (in)consistency of services, although it can be decreased by standardizing and automating services influences the service quality (Lovelock & Gummesson, 2004; Johnston, 1995). The assessment of this (in)consistency can be done with SERVQUAL and, hence, it enables companies to assess the service consistency and to manage it over time. Secondly, in Lovelock & Gummesons (2004) review of the IHIP schema, the understanding of Grönroos (2011) regarding value co-creation provides another important perspective: Customers don't always want to be involved in the co-creation process. This is based on Lovelock & Gummesson's (2004) claim that some services *are* actually separable. They state that customers sometimes even *purposely* separate consumption from the production and relate to the phenomenon of outsourcing. In the case of outsourcing the customer does not always want to be involved in the service delivery process by, for instance, deliberately scheduling maintenance at night when hardly anyone is around. Hence, it can be stated that although Grönroos (2011) states that although co-creation can be highly valuable for both firm and customer, firms have to keep in mind that customers do *not* always want to be involved in the production of the resources and are not always willing to engage in value creation as a co-creator. Subsequently, it can be stressed that the existence of an interaction platform will not inevitably lead to a successful value co-creation process on itself. In addition, it can therefore be argued that customers might also prefer customization above co-creation, as customization generally requires less involvement by the customer (Kristensonn et al. 2008).

In addition, based on Vargo & Lusch's (2004) premises of the service-dominant logic (see Appendix C), it can be argued that when the customer does not want to be involved in co-creation of value at all, the premise of the service dominant logic of Vargo & Lusch (2004) holds as the firm can then only offer value propositions is such cases. However, when there is a service encounter between firm and customer, there is the opportunity for the firm to create value beyond merely offering value propositions. The firm is then able to engage in the co-creation of value as a co-creator of value. Grönroos (2011, p. 293) acknowledges this, stating that the concerning premise of the service-dominant logic should be revised based on the fact that "the firm is not restricted to offering value propositions only, but has an opportunity to directly and actively influence its customers value creation as well".

Based on the presented holistic understanding, resulting out of the three integrated existing understandings on value delivery and value creation, four concluding and summarizing premises can be made regarding the task and role of the firm in this value delivery and value creation process:

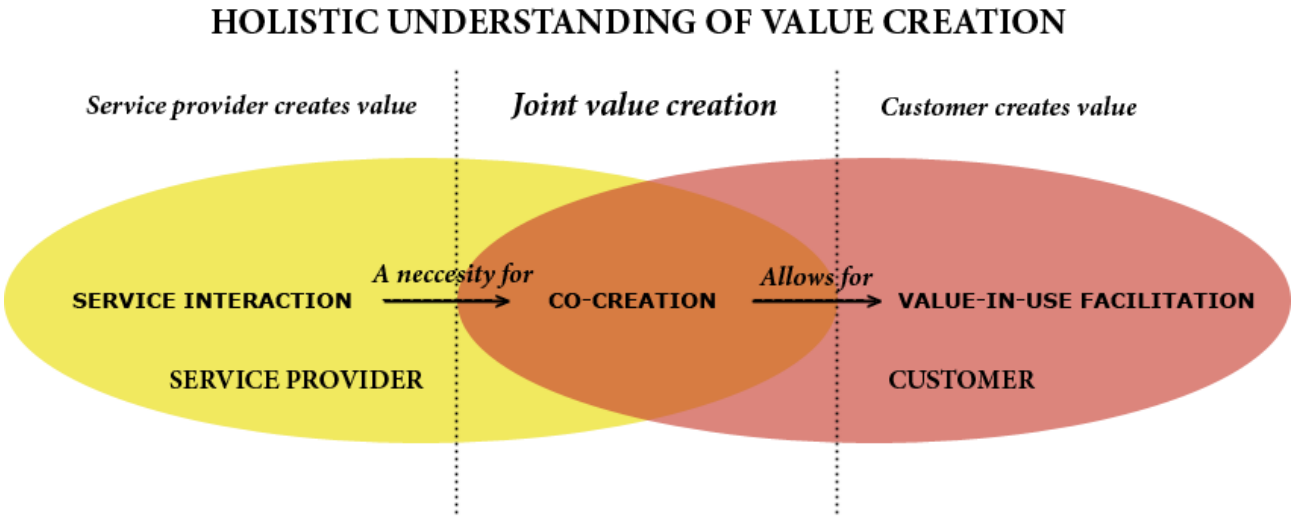
(1) *Reciprocal value creation (or joint value creation)* is the basis of all business (Grönroos, 2011). Thereby, greater *value-in-use* for the customer should be the desired outcome when improving the value delivery and value creation process. In exchange, the company should receive financial gains by doing so.

(2) Firms can improve the creation of value-in-use by influencing and facilitating the customer's usage of the provided resources through the *value co-creation process*. This will enable firms to help customers in creating value beyond merely offering value propositions. However, the customer will always be the fundamental creator of value and the firm will just be a value facilitator (Grönroos, 2011). Thereby, both parties need to be in interaction with each other to be able to create joint value. This leads to the premise that;

(3) Value co-creation is only possible when there is a *service encounter,* which serves as the *interaction platform* between firm and customer. Assessing and improving the quality of the service encounter increases the opportunity for firms to generate more value for the customer through the value-co-creation process, thereby enhancing the delivered value. To do so, it is important to utilize the *service quality model* of Zeithaml et al. (1990) in improving the quality of these service encounters. When this service interaction is not present, or if customers do not want to be involved (see Lovelock & Gummesson, 2004), for any reason whatsoever, companies can only offer value propositions to their customers and cannot engage in value co-creation with the customer.

(4) All firms should keep in mind that the proposed characteristics of the IHIP schema (*Intangibility, Heterogeneity, Inseparability, and Perishability*) *do not* inevitably bring implications for the delivery process of these services vis-à-vis goods. Despite that the IHIP scheme is generally accepted throughout the literature, Lovelock & Gummesson (2004) provide the refutation of why this is not the case.

An illustration of the conceptual framework of our holistic understanding is presented below:



3 Methodology

3.1 Research Design

To generate practical relevance out of the presented holistic understanding and to answer our sub-questions, we ought to transform it into a practical instrument for assessing and improving the value creation process of a firm. To do this, we wanted to collaborate with a service provider. Indicata BV agreed to do so and became the focal firm in our study. Indicata BV is an IT Service provider in the Netherlands of which the core business is to deliver cloud-computing solutions to its customers. In order to test our holistic understanding in practice a *mixed methods* research design was used, consisting of both quantitative and qualitative research. The research design of this study can further be typified as a "*quantitative mixed"* research design, indicating that qualitative research will be conducted despite quantitative research is dominant this research (Johnson, Onwuegbuzie, & Turner, 2007, Bryman & Bell, 2011). The purpose of 'sequential' mixed methods is to use qualitative results to assist in explaining and interpreting the findings of the quantitative study (Creswell, 2003). The choice for this particular research design was based on a couple of strengths of the mixed-methods. A first strength of using a mixed-methods approach is that the results of the quantitative research can be combined with the results of the qualitative research. This is what Morgan (1998) calls "complementary results". Subsequently, the qualitative will provide us the possibility to delve even deeper into the subject. It will enable us to look for a confirmation of the quantitative data. Next to this, it will provide us a deeper insight in why the customer values the different attributes and processes of the value creation as well as the value creation process as a whole. Deeper insights about a subject can be gained more easily gained with qualitative research as this is often richer and more explanatory in nature than quantitative research. (Mack et al, 2005). A mixed-method approach is, hence, ideal when focusing on research questions that call for real-life contextual understandings, such as customer environments (Johnson, Onwuegbuzie, & Turner, 2007). Using multiple data collection methods also enables *triangulation* as two or more sources of data are combined in order to study the same phenomena, giving it a better and more complete understanding of the phenomena (Denzin, 1970; Johnson & Onwegbuzie, 2004; Bryman & Bell, 2011). Bryman & Bell (2011) state a similar argument for using mixed-methods research as they state that it is the use of a mixed method approach enables a more "rounded and complete picture to be drawn".

3.2 Operationalization

The quantitative research instrument based on the holistic understanding.

Although it can be argued that the holistic understanding, as explained in chapter 3.5, provides a good insight in in value delivery and value creation process as a whole, we stress that it would be ideal to convert this holistic understanding into a practical research instrument which could ultimately be used to help companies in giving an holistic understanding of their value creating practices. We stress that such a practical instrument would give firms the opportunity to put the underlying theory in use. Subsequently, this increases the practical relevance of this research.

As explained in the theoretical framework of this research, the SERVQUAL model from Zeithaml et al. (1990) can serve as one of the founding models of our holistic model. In addition to this, we argue that the existing instrument of SERVQUAL can provide us a good basis for the creation of our holistic quantitative instrument. The format that is used in the SERVQUAL measurement provides us a good basis for the creation of a research instrument that measures the gap between expectation and perception. Along with the presented arguments in our holistic understanding. Subsequently, we follow an earlier proposed an operationalization as suggested by Macdonald et al. (2011, p. 31), stating in their recommendation that "a regular customer satisfaction tracker (such as SERVQUAL) could be extended to include not just satisfaction with the provider's service but also with the firm's own usage processes, as well as value-in-use perceptions". This extension fits to our idea of the creation of an instrument for measuring our holistic understanding. However, instead of the firm's own usage processes, we will focus on the value co-creation process. However, we do include an assessment of the process of value-in-use creation upon usage of provided resources by the customer into account, as recommended by Macdonald et al. (2011).

Based on our proposed holistic understanding and our concluding premises, we distinguish three main processes on which our operationalization will be based:

(1) **The service interaction process:** Measures the quality of the service interaction and the service delivery and the value improvements that could be made through this process. These questions are selected out of the existing SERVQUAL instrument. 8 of the original 22 SERVQUAL statements have been removed or combined with other statements, as we argue that there was overlap among these items with the other items in the research tool. Thereby, we tried to keep the survey as short as possible.

(2) **The value co-creation process**: Concerns how well the firm is engaging in the co-creation of value for customers and how this could be improved in order to increase value. These questions are designed based on the combined insights in our presented holistic understanding and the existing literature, as we didn't find any existing qualitative questions that did fit well.

(3) **The value-in-use facilitation process**: Concerns how well the firm facilitates and/or supports customers in creating value-in-use out of the purchased service and how the customers evaluate this value upon usage. These questions are newly developed as well.

One must keep in mind that one of the main goals of this instrument is for firms to assess how they can these three value creating processes from a firm's perspective and to increase customer value through these improvements. Hence, all questions are therefore measured through a SERVQUAL-like format (using a Likert scale ranging from 1 to 7), measuring a set of attributes through a list of both expectation items and perception items (Zeithaml et al. 1990). This will be done in order to measure both the importance of the different separate attributes of these processes as well as the gap between expectation and perception among these attributes. A significant gap between the expectation and perception score thereby indicates that there is a possibility for improvement concerning that attribute

and/or process. Below, an overview of the operationalization of the quantitative instrument is given. The relating questions that are developed and used for this instrument can be found Appendix E.

Table 1: An overview of the operationalization of the holistic model.

Goal of measurement	Based on insights of:	Measured Process	Variable	Item pairs Expec. item + Percep. item
Assessing if and how the quality of the service delivery could be improved through the service encounter/interaction platform.	Zeithaml et al. (1990), Parasuraman (1985,1988), Johnston (1995).	Service interaction process	Service quality	TAN1 + TAN4 TAN2 + TAN5 TAN3 + TAN6 REL1 + REL4 REL2 + REL5 REL3 + REL6 RESP1 + RESP4 RESP2 + RESP5 RESP3 + RESP6 ASSU1 + ASSU3 ASSU2 + ASSU4 EMP1 + EMP4 EMP2 + EMP5 EMP3 +EMP6
Assessing if customers are engaged in co-creation and how the quality of the co-creation process could be improved.	Grönroos (2011), Vargo & Lusch (2004), Macdonald (2011), Lovelock & Gummesson (2004), Edvardsson et al. (2014), Kristensson et al. (2008), Prahalad & Ramaswamy (2004)	Value co-creation process	Co-creation engagement & performance	COCR1 + COCR9 COCR2 + COCR10 COCR3 + COCR11 COCR4 + COCR12 COCR5 + COCR13 COCR6 + COCR14 COCR7 + COCR15 COCR8 + COCR16
Assessment of the degree of value-in-use received by the customer, and if, and how the, the firm could improve value-in-use facilitation.	Grönroos (2011), Macdonald et al. (2011). Vargo & Lusch (2004).	Value-in-use facilitation process	Facilitation of value-in-use.	VIU1 + VIU7 VIU2 + VIU8 VIU3 + VIU9 VIU4 + VIU10 VIU5 + VIU11 VIU6 + VIU12

Qualitative Research: Semi-structured interviews

For the second half of our mixed-methods approach, we conduct qualitative research. In doing so, we have chosen to conduct qualitative research through semi-structured interviews. It is stated that interviews "are optimal for collecting data on individuals' personal histories, perspectives, and experiences, particularly when sensitive topics are being explored" (Mack, Woodsong, Guest & Namey, 2005, p.2). The questions that are used in the interview are based on the insights from our holistic understanding. We argue that there was no existing set of questions available yet that would fit to get a deeper understanding on the holistic understanding as we presented it. Hence, we designed a new set of questions that corresponds with our holistic understanding of service delivery and value creation and

provides us the deeper insight that we desire for understanding the processes better. The interview including the set of fitting questions can be found in Appendix F.

3.3 Sampling

Quantitative research sample

The sampling of this research was done through *purposive sampling* as the sample was preselected through a set of criteria that was relevant to the research question (Mack et al, 2005). The sample of this research included only those employees of customer companies that had direct experience with the services of the focal company and the use of those services in their organization. As we were mainly interested in the current state of service delivery, we made a sample of companies that was representable at the time of the research. Out of the entire population we chose a sample of all the actual client companies of Indicata. Thereby a client company was 'actual' when it had been invoiced in the year of 2014. Because we take our sample based on if companies are invoiced or not in the last year, the sample cannot be characterized as a random-sample (Bryman & Bell, 2011). This is as we can only research the companies which are customers of Indicata as they are the only ones to have experience with their services. We were aiming to get around 50 respondents. The total sample was consisting of 300 employees of customer companies. Hence, we need a response rate of around 17% in order to get to the wanted number of respondents.

Central Limit Theorem

Based on the Central Limit Theorem (CLT) it can be stated that when one has a population with mean μ and standard deviation σ and take sufficiently large random samples from the population, then the distribution of the sample means (SDSM) will be approximately normally distributed. The Central Limit Theorem proves that regardless the distribution of the population, a sample will be approximately normally distributed if the sample is large enough. Many researchers accept the rule of thumb that N has to be larger than 30 in order to make sure that the SDSM is normal, enabling to conduct reliable parametric statistical tests (Pett 1997; Sekaran, 2003; Salkind, 2004; Fisher, 2007; Dayarathna, 2009: Crowe & Feinberg, 2014). It can, hence, be stated that means of samples larger than 30 will usually be very close to the mean of much larger samples (Saunders, Lewis & Thornhill, 2007).

Qualitative research sample

Next to the sample for the quantitative research, we made another sample of 10 customers for the qualitative research. We selected a number of customers based on what type of customer group they fit into on the basis of the services that they had purchased from the focal company. After a discussion with various engineers and salespersons from the focal company, we managed to separate the customers into four groups:

1) **PaaS-Customers/Hosting Customers**: Platform-as-a-Service (PaaS) is a cloud computing service model, enabling companies to run their operating systems on their PC's straight from the cloud provider's infrastructure.
2) **On-Premise Customers:** On-Premise clients purchase a whole IT infrastructure which is placed on location of the client and is managed by the IT Company which delivers the IT Infrastructure.
3) **System management Customers:** These customers already have an IT infrastructure at location, but want to outsource the management and maintenance of their IT infrastructure to the IT Company.
4) **Customers with hybrid- or different services:** Customers that use a mix of the types as stated above or other less-demanded services such as Desktop-as-a-Service (DaaS) or Software-as-a-Service (SaaS).

Among these groups we tried to create a sample in which each of the four customer groups were evenly represented based on the total pool of customers from the focal company. By this way we also ensured that the data was gathered from all types of customers.

3.4 Data collection

The units of analysis of this research were *client companies*. These were the entities about which we wanted to know something about in our research. As companies aren't observable, the units of observation should be distinguished as *employees of client companies*. These are the persons from which the data was collected to get knowledge about our units of analysis. For this research we chose to distribute the quantitative questionnaire through an online survey. Cabanoglu, Ward and Moreo (2001) state that online surveys, in comparison with postal questionnaires, achieve higher response rates and a faster response time (Bryman & Bell, 2011). Bryman & Bell (2011) state additional pros, such as the low(er) costs, more attractive formats, unrestricted compass and better data accuracy. The sales-staff of Indicata BV thereby assisted in creating awareness among their contacts within the sample, asking them if they had already filled in the survey and motivating them to do so if they had not. Afterwards, reminder e-mails were sent to those who didn't participate yet, asking once again to participate in our research.

We planned to do the qualitative data collection after the quantitative data was collected. We argued that this would be better as the results out of the quantitative data collection might offer us a better direction about what we were exactly dealing with. Next to that, planning the interviews after the quantitative data collection was almost finished enabled us to make some changes to the interview questions still. Before commencing the interview, we asked the respondents for permission to audiotape the interview, which is often done with qualitative research (Mack et al., 2005). We did this to ensure that all data was captured and could be typed out and looked into at a later moment in time. The typed-out transcripts could then directly be imported into Atlas.TI for the coding of the data.

3.5 Data analysis

Quantitative data analysis methods

The quantitative analysis was mainly done in SPSS. This allowed us to do statistical tests on the sample and our practical model. In addition, we could check the validity of the created research instrument. This was done through calculation of the Cronbach's Alpha of the scales through which we measure. Secondly, we used statistical tests to look for statistical differences among the perception and the expectation of the customer along the three measured processes. This enabled us to spot differences among the expectation and perception of customers relating the three described processes of value creation. The parametric test that is often used in SERVQUAL-like studies to test such significances of differences between perception and expectation sample means, is the Paired sample t-Test.

Paired sample t-Test

A paired sample t-Test is a parametric statistical test and is used to test whether there is a significant difference between two values that are paired in some way (Elliot & Woodward, 2007). Thereby both measurements are made based on the same unit in a sample. The goal of this kind of test is, hence, to see if the differences between the averages of both measurements are significant. In our case, we measure the difference between the average perception score and the average perception score along the three tested processes. Before using the t-Test, one must first be able to assume that the sample is normally distributed. This is where the earlier Central Limit Theory comes in to play, concluding that samples that are larger than 30 observations generally fulfill the assumption of normality, even when the population from which the sample is taken from is not (Sekaran, 2003; Saunders, 2007; Dayarathna, 2009). However, we will also run additional tests to see if the sample is truly normally distributed.

Methods for testing the reliability of the developed quantitative research instrument

As far as we knew there were no existing quantitative instruments that tried to measure the same three processes in an holistic overview such as presented in the current study. Therefore we had to develop our own new scales for a quantitative measurement of the value (co-) creation process and the value-in-use facilitation process. These scales can be seen in appendix E, were the quantitative research tool is presented. These scales needed to be used to gather data first, in order to test their validity and reliability.

Cronbach's Alpha analysis for internal consistency

In order to be able to tell something about the reliability of a newly designed scale, it is necessary to conduct reliability tests in order to make sure that the developed scales have a good internal consistency. When a scale is internally consistent it tells us that the items in the scale are all measuring the same concept and/or how well all items in a scale are related to each other. It is important that a scale has a good internal consistency in order to make sure that one gets valid results about the process that we

intend to measure and are not largely influence by other factors which don't. The Cronbach Alpha (α) is used to measure the internal consistency of the scale and thus can tell us if all the items in the scale are measuring the same concept. As a general interpretation of Cronbach's Alpha, the internal consistency of a scale is considered to be acceptable when 0.6 < α < 0,7; good when 0.7 < α < 0.9 and excellent when α > 0.9. In order for the newly developed scale to be successful to measure the processes which we ought to measure, we hence need a Cronbach's Alpha of at least 0.6. However, in this research we aim for a more than 'good enough' reliability, to make sure that the scale is reliable before other business will use the instrument in their firm and draw (critical) conclusions out of the results. Hence, we aim for an Cronbach's Alpha of around 0.8 on all three scales.

Qualitative data analysis methods

The qualitative data analysis and coding process was conducted along the guidelines of Miles & Huberman (1994) as it provides a nice and structured procedure for analyzing qualitative data. Next to the procedures and theory of Miles & Huberman (1994), additional insights from Corbin & Strauss (1994) and Saldana (2012) were used. In order for our qualitative data to be focused and useful for such purposes, we used a 'tight' way of analyzing our qualitative data in a sense that we can use it better for a more "confirmatory" purpose. That is, looking for a confirmation of earlier results through triangulation and/or seeking to test or further explicate an existing conceptualization (Miles & Huberman, 1994). Next to this, we chose follow an interpretative approach to qualitative data analysis, as our intention is to get a deeper phenomenological understanding about what drives value among customers. This is different from the two other approaches of qualitative data analysis (social anthropology and collaborative research) as when using the interpretive approach one is often looking for multi-interpretative essences rather than one aims to confirm lawful relationships (Miles & Huberman, 1994). In order to make it easier to compare and to condense the qualitative data, we try to categorize and reduce that data. The coding of the data enables us to do so. We do this so we can see more clearly what is happening in the data and to be able to draw justified conclusions more easily (Miles & Huberman, 1994). The coding process itself was done in Atlas.TI. According to Miles & Huberman (1994) coding process generally consists of three phases, often referred to as the open-, axial and selective coding phase. In the first round one will start to look and mark every sentence of parts of sentences in the transcripts of the interviews that seem relevant for what is wanted to know. These "codes" (marked sentences, quasi-sentences or even words) are then placed these under preliminary categories. This is what is called open-coding. The purpose of this open-coding phase is to get a general feel on what is in the data. After this open-coding phase, one will end up with a large set of categories which have to be narrowed down in order to create a better focus. In the second phase, one tries to categorize and reduce the number of categories by re-looking at the data and the first set of codes that was made. After this phase, the first ''trends" in the data can be discovered. Once the number of categories are reduces and groups into bigger and broader categories, one will proceed to the final step, which is to group similar categories into broad and overarching themes of categories. These will enable you to display what is in the data in a focused and clear way, providing the possibility to compare and triangulate it to earlier results and draw conclusions based on this.

4 Results

4.1 Quantitative research results

In this chapter, the results regarding the qualitative data collection, which forms the dominant part of our results will be presented. First, the research instrument that was developed will be tested. Cronbach's Alpha will be used to calculate the internal consistency of the quantitative instrument. Based on these reliability tests one is able to conclude if an instrument valid or not. After the instrument is tested, there will be continued with the results regarding which processes and attributes are seen as most important by the customer base of the focal company. Finally, parametrical tests will be conducted in order to search for the significant gaps between the perception and expectation of customers along the three processes. These results will enable us to get an insight on which attributes should be improved to enhance the process and how this can be done effectively.

The survey that we used to collect data was open for responses during a period of three weeks. Out of the 300 customers that were invited to the survey, 51 did participate. This, hence, resulted into a response rate of 17%. For the purpose of this research this is an acceptable amount. Out of all responses, 4 surveys were not filled in in its entirety. As only complete surveys can be used for statistical analysis, the data of only 47 respondents can be used for the gaps analysis of our service interaction and value (co-)creation processes. An analysis has also been made regarding the adequacy of this sample. In the coming chapter the results regarding the reliability of the newly developed research instrument will also be shown.

Adequacy of the sample

Although the Central Limit Theorem states that samples above n=30 usually are normally distributed (see ch. 4.3.2.), we once more want to test the normality of the data through a descriptive statistics test for normality to make sure that this indeed is the case. Based on the conducted Shapiro-Wilk and Kolmogorov-Smirnov tests for normality, of which the results can be found in appendix H, we can assume that the data is indeed normally distributed as all p-values from both tests are significant. As we now know that the data is normally distributed, it is sure that t-tests can be used to analyze any gaps between the expectation scores and the perception scores of customers. For this results to be reliable, we do not only need a representative and normally distributed sample, but we also need to make sure that the sample that is used is adequate. This is what is also called *sample adequacy*. To test if a sample is adequate, one can use a Kaiser-Meyer-Olkin test. As stated by Kaiser (1974) a sample is of acceptable adequacy when it has a KMO-score of at least 0.5.

Based on two Kaiser-Meyer-Olkin Measures of Sampling Adequacy for both the expectation questionnaire and the perception instrument, it can be concluded that the sample indeed seems to be adequate. This is based on the KMO values of .798 and .804 that we found (See Appendix G). Hence, we can safely

conclude that the sample on which we draw our conclusions regarding the reliability of our research instrument and the analyses of the firms performance along the processes, are adequate.

Reliability of the newly-developed research instrument

One of the main goals of this research was to make the earlier presented holistic understanding applicable in practice. We chose to do this through the creation of a research instrument that would enable firms to measure the three underlying processes of the holistic understanding of service delivery & value (co-) creation on their importance and, subsequently, the firm's performance along these processes. As this is the first time that our quantitative instrument is utilized, we first need to test how well the scales were developed in terms of reliability and internal consistency. The data of the 51 respondents of the quantitative data collection allows us to conduct Cronbach's Alpha tests, which tells us something about how reliable these developed scales are. As can be seen in the results of the Cronbach's tests in Appendix G, we did find Cronbach's alpha's of *.948* and *.975* for the expectation and the perception scale respectively. Based on these numbers it can be said that both the expectation as well as the perception questionnaires do have excellent internal consistency according to Cronbach's theory on internal consistency.

Both the perception and the expectation section of the questionnaire comprise of the same three underlying scales, representing and measuring the three individual processes: A Service interaction scale, which was developed out of the original SERVQUAL scale of Zeithaml et al. (1990) and a Co-creation scale and Value-in-use facilitation scale, which two were newly developed.

Regarding the service interaction scale, we see that our shortened version of the original SERVQUAL questionnaire (14 items instead of the original 22-item scale) performs around the same as the original SERVQUAL questionnaire. The Cronbach's Alpha (α) analysis of the service interaction process scale show numbers of α*.910* and α*.945* for the expectation and the perception scale of the service interaction process respectively. As shown in the article of Parasuraman, Berry & Zeithaml (1991, p. 423) the original (refined) SERVQUAL scale achieves Cronbach Alpha's around this α *0.9* mark as well, which is comparable to our results. The reduction of the original set of items that were used in the original SERVQUAL questionnaire, hence, did not have a considerable effect on the internal reliability of the scale in a positive way nor a negative way.

As the co-creation and value-in-use facilitation scales are newly developed, we are not able to benchmark the internal reliability against existing scales. However, the Cronbach's Alpha scores that we found for these scales are as followed: For the co-creation process scale α's of *.871* and *.947* were found for the expectation and perception scale respectively. For the value-in-use process scale we did find α's of *.792* and *.901* respectively. The internal validity of our developed questionnaire in its entirety, as well as the internal validity on the individual scale-level, can thus be argued to be acceptable at least and,

hence, are appropriate for the purpose and goal of this research. In appendix G, all reliability tests are shown in an overview.

Assessing process and attribute importance

Now both the instrument and the sample have been tested for their internal consistency and adequacy respectively, we can start analyzing the results that the developed instrument has provided us. In this paragraph we are mainly interested in which attributes of the three distinguished processes are seen as most important/valuable by the customers, as well as which process is generally seen as most important in the creation of value. Afterwards we will start with our gaps analysis along the three different processes. This will be done in the next chapter. Analyzing the gaps along the processes will give us a clear insight in how these three processes of the holistic model could be improved. This is very helpful regarding one of the core aims of this research, which is to increase customer value by improving the value processes and to communicate this value in an improved value proposition.

Attribute importance along the service interaction process

Based on our sample of 51 customers we were able to calculate expectation score means along all the expectation attributes of the three processes (See appendix E for all questionnaire items). The expectations were measured through a 1-7 Likert scale. Subsequently, a higher score on an attribute does indicate a higher importance/value of that attribute inside a process. By calculating the sum and the mean of the attribute expectation scores, an overview of the attributes inside each of the processes could be made, as can be seen in the coming pages.

Table 4: Service interaction attribute importance – Average of Expectation Scores

Attribute	∑ of Expectation Score	Expectation Score Mean (N=51)	Attribute	∑ of Expectation Score	Expectation Score Mean (N=51)
REL2	335	**6,57**	REL3	318	**6,24**
TAN1	334	**6,55**	EMP2	318	**6,24**
REL1	331	**6,49**	EMP1	313	**6,14**
ASSU2	326	**6,39**	TAN3	306	**6,00**
ASSU1	325	**6,37**	RESP3	293	**5,75**
EMP3	325	**6,37**	RESP2	292	**5,73**
RESP1	320	**6,27**	TAN2	276	**5,41**
				Process Average	**6,18**

The results of the expectation scores of the service interaction process are presented in table 4. At first sight, there do not seem to be large differences in the importance of the underlying attributes. The majority attributes roughly share a same degree of importance. However, when looking closer at the results in the table, it is interesting to see that the more "softer" dimensions of the interaction process (such as reliability (REL) and assurance (ASSU) and empathy (EMP)) do seem to be given more importance by the respondents than the "harder" and more measurable/concrete dimensions (such as responsiveness (RESP) & tangibility (TAN). We argue that this can also be seen in table 4. When looking

at table four it can be seen that the attributes concerning the responsiveness and tangibles dimension are largely in the second half of the most important service interaction attributes list. However, we see one exception: TAN1. Based on this result we argue that however the tangibles dimension is seen as less important in general, the respondents indicate it is highly important that the goods that are provided by firms in support of the delivered service , are nonetheless of high quality.

Table 5: Dimension Expectation Means – Service interaction process

Att. No	REL	TAN	ASSU	EMP	RESP
1	6,57	6,55	6,39	6,37	6,27
2	6,49	6,00	6,37	6,24	5,75
3	6,24	5,41	-	6,14	5,73
Average	**6,43**	**5,99**	**6,38**	**6,25**	**5,92**

When computing the averages of the attribute expectation means, as is done in table 5, we can see that the softer dimensions (REL, ASSU & EMP) indeed show slightly higher averages regarding their expectation score.

Attribute importance along the co-creation process.

Table 6: Co-creation process attribute importance - Average of Expectation Scores

Attribute	∑ of Expectation Score	Expectation Score Mean (N=49)	Attribute	∑ of Expectation Score	Expectation Score Mean (N=49)
COCR3	322	**6,57**	COCR7	300	**6,12**
COCR4	310	**6,33**	COCR8	289	**5,90**
COCR5	301	**6,14**	COCR1	286	**5,84**
COCR2	301	**6,14**	COCR6	269	**5,49**
				Process Average	**6,07**

When looking at the expectation scores of attributes regarding the co-creation process (table 6), we can see that COCR3 (taking critique from customers seriously) can generally be seen as the most important attribute of the co-creation process, followed by the willingness of firms to improve/alter their services based on the feedback they get from customers (COCR4). Even though there a difference in expectation scores is indeed shown, the intervals between the different attribute expectation scores are rather small. The expectation scores of the bottom three attributes, however, are considerable lower than the expectation score of attribute COCR3. We argue that the high importance of COCR3 can be explained through our holistic understanding, in which it is argued that feedback from customers is one of the bases to reciprocal value creation, which, in turn, can be seen as "the basis of all business" (Grönroos, 2011). When looking at the right side of the table, customers seem to find the engagement in co-creation of new services (COCR6) somewhat less important than other co-creation attributes. We argue that this might be because customers are generally short on time and therefore are not eager to engage in such co-creation sessions. For this, however, additional evidence is needed in order to be able to conclude this in a valid and reliable way.

Attribute importance along the value-in-use process.

The table below presents the results regarding the value-in-use facilitation process of the focal firm. This process relates to how well a firm is facilitating its customers in the use of the service after their purchase. This does also include if service provider is proactively thinking about opportunities for optimization of the service usage in customers' businesses.

Table 7: Value-in-use Facilitation Process Importance – Average Expectation Scores

Attribute	∑ of Expectation Score	Expectation Score Mean (N=49)	Attribute	∑ of Expectation Score	Expectation Score Mean (N=49)
VIU2	305	**6,22**	VIU3	281	**5,73**
VIU1	302	**6,16**	VIU5	266	**5,43**
VIU4	301	**6,14**	VIU6	239	**4,88**
				Process Average	**5,76**

Regarding the Value-in-use facilitation process, the results seems indicate that customers find the active support of the service by the service provider (VIU2) and pro-active thinking with the customer (VIU1) and the optimization (VIU4) of the customers' business after purchase are rather equally important according to the respondents. We can, however, see that the differences between the top three attributes and the other attributes are considerably larger. This indicates a slight difference in importance among the top three and the bottom three attributes. We see that customers, in a lesser degree, the respondents expect from the service provider that they enable them to do certain tasks of which they were not able before. The results, however, seem to indicate that the respondents indicate that it is more important that a service provider should act and behave like a partner of the customers company, instead of just being a supplier. The results show that the respondents seek pro-active support in the use of their services and seem to find the after-sales period to be of great importance. We argue that, regarding the delivery of an integrated solution as Macdonald et al. (2011) and Ng et al. (2012) propose, the advice and pro-active support indeed seem to play an important role in the delivery of the service.

Now we have clarity on which processes and which sorts of attributes are important along and inside the three distinguished processes, it is important to find which attributes are most effective to improve in order to generate as much added value as possible. This can be done by making a benchmark through what the customers expect to get along the three processes, and what the customers perceived to have gotten from the focal company. This can be done through a gap 5 analysis, as we explained earlier in chapter 3.4.1.

4.2 Value (co-)creation performance along the three processes: Gap analysis

Because we designed our quantitative instrument in such a way that it measures both expectation and perception, it is possible to conduct a gap analysis. This will provide us an indication on what the biggest shortcomings of the focal company are regarding the three processes of value (co-)creation. This provides us a solid basis in order to get to know which attributes should be improved in to enhance

customer value in general. However, an absolute difference in numbers is not enough to conclude that a firm actually fails to meet the expectation of the customer. In order to be able to do so, we need to test if the mean differences among the attributes are also statistically significant. To do this, we conduct a paired t-Test, as is explained in the data analysis chapter. The results of these tests can be seen in the tables that are presented in the coming pages.

When looking at the tables it is necessary to know that a positive significant gap (GAP Score > 0 and $p < .05$) indicates that the expectations of the customers exceed the perceptions of the customer. Hence, when the gap is significant and above zero, this indicates that the firm fails to meet the expectations of the customer. In turn, this indicates room for improvement in the concerning attribute. In contrary, A negative significant gap (GAP score < 0 and $p < 0.05$) tells us that the firm is able to perform better than expected by the customers. Insignificant gaps (both positive and negative) indicate that there is no statistically proven difference between the perception scores and the expectation scores. Hence, if a gap is insignificant, we have to conclude that the performance of the firm is – more or less - on par with the expectations of the customer. In the most ideal situation, all gaps should thus be zero or negative, as this would indicate that the company does fully meet the expectation of the customer. However, it can be stressed that such a (perfect) situation rarely exists. This is because, in general, it can be argued that expectation of the customer will often be higher than what is actually perceived. This also stress by Zeithaml et al. (1990). However, this does also mean at, in most of the times, there are opportunities for firms to close the gaps between the value that is expected and the value that is perceived. The results of the paired t-Tests that are conducted among all three processes can be seen in the last two columns of table 8, 9 and 10 for the service interaction process, the co-creation process and the value-in-use facilitation process respectively. The p-value that is derived from the t-Test provides us important information about whether or not there exists a significant difference between the expectation of a customer and the perception of a customer.

Table 8: Gap analysis of the Service Interaction Process through paired t-Test. (N=47)

Attribute	Question	1	2	3	4	5	6	7	Mean	GAP	t-Test	p
TAN1	Excellent IT companies provide high quality equipment.	0	0	0	0	6	11	34	6,55	0,70	4,657	**.000***
TAN4	Indicata BV provides high quality equipment	0	0	1	3	9	23	11	5,85			
TAN2	Employees at excellent IT companies will be neat-appearing.	0	0	2	7	14	24	4	5,41	-0,61	-3,233	**.002***
TAN5	The employees of Indicata BV are neat-appearing.	0	0	1	1	7	25	13	6,02			
TAN3	At an excellent IT company, the goods and facilities associated with the service delivery are appealing and modern.	0	0	1	3	9	20	18	6,00	0,11	,265	.792
TAN6	The goods and facilities associated with the service delivery of Indicata BV are appealing and modern.	0	0	1	2	5	32	7	5,89			
REL1	When excellent IT companies promise to do something by a certain time, they will do so.	0	0	0	2	2	16	31	6,49	1,17	4,760	**.000***
REL4	When Indicata BV promises to do something by a certain time, they will do so.	2	2	1	3	13	18	8	5,32			
REL2	When a customer has a problem, excellent IT companies will show sincere interest in solving it.	0	0	0	1	3	13	34	6,57	0,78	3,557	**.001***
REL5	When a customer has a problem, Indicata BV shows sincere interest in solving it.	1	1	3	1	4	23	14	5,79			
REL3	Excellent IT companies will perform the service right the first time.	0	0	0	1	6	24	20	6,24	1,07	2,371	**.000***
REL6	Indicata BV performs its services right the first time.	2	1	1	4	19	15	5	5,17			
RESP1	Employees of excellent IT companies will tell customers exactly when services will be performed.	0	0	0	2	5	21	23	6,27	1,08	4,899	**.000***
RESP4	Employees of Indicata BV tell customers exactly when services will be performed.	1	1	3	6	14	16	6	5,19			
RESP2	Excellent IT companies provide a quick delivery of their service.	0	0	2	4	10	25	10	5,73	0,47	1,841	.072
RESP5	Indicata BV provides a quick delivery of their service.	1	1	3	5	14	16	7	5,26			
RESP3	Employees of excellent IT companies will never be too busy to respond to customers' requests.	0	0	2	4	9	26	10	5,75	0,75	2,910	**.006***
RESP6	Employees Indicata BV never are too busy to respond to customers' requests.	1	2	5	5	14	15	5	5,00			
ASSU1	The behavior of employees of excellent IT companies will instill confidence in customers	0	0	0	0	6	20	25	6,37	0,84	3,332	**.002***
ASSU3	The behavior of the employees of Indicata BV instills confidence in customers.	1	2	2	4	7	19	12	5,53			
ASSU2	Employees of excellent IT companies will have the knowledge to answer customers' questions.	0	0	0	0	5	21	25	6,39	0,71	4,222	**.000***
ASSU4	The employees of Indicata BV have the right knowledge to answer customers' questions.	0	1	1	4	9	23	9	5,68			
EMP1	Excellent IT companies will have operating hours convenient to all their customers.	0	0	0	3	7	21	20	6,14	0,67	2,911	**.006***
EMP4	Indicata BV its operating hours are convenient to their customers.	0	1	1	7	14	14	10	5,47			
EMP2	Excellent IT companies will have employees that show personal interest in solving the problem the customer.	0	0	0	3	4	22	22	6,24	0,54	2,361	**.022***
EMP5	Indicata BV has employees that show personal interest in solving the problem the customer.	1	1	2	2	8	20	13	5,70			
EMP3	The employees of excellent companies will understand the specific needs of their customers.	0	0	0	2	1	24	24	6,37	0,88	3,740	**.001***
EMP6	The employees of Indicata BV understand the specific needs of their customers.	3	0	0	3	12	20	9	5,49			
									Process Expectation Score Average	**6.18**	**GAP**	
									Process Perception Score Average	**5.53**	**0,65**	

Table 9: Gap analysis of the co-creation process through paired t-Test (N=47)

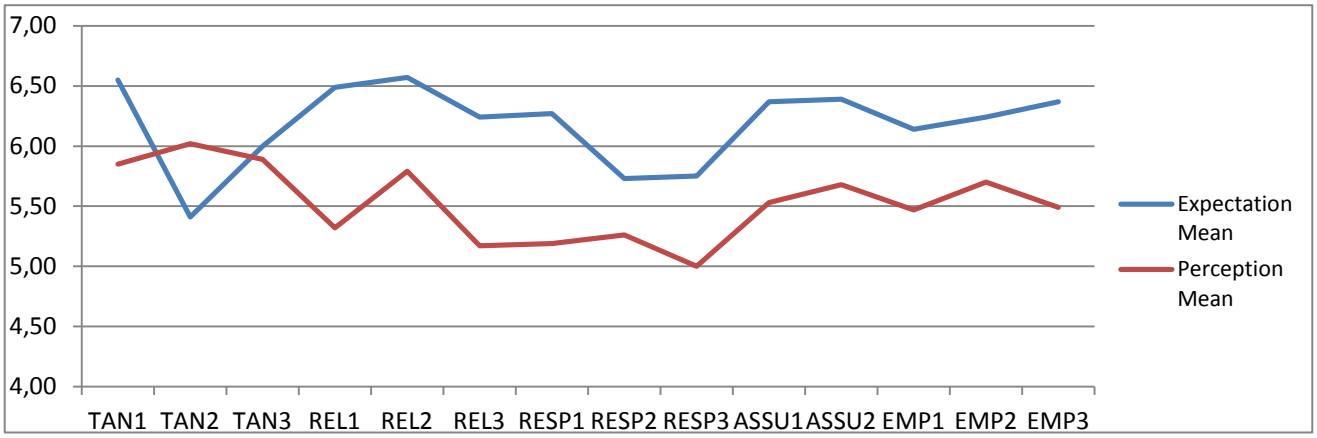
Attribute	Question	1	2	3	4	5	6	7	Mean	Gap	t-Test	p
COCR1	Excellent IT companies ask for input from customers for the development and creation of new services/products for their clients.	0	0	0	6	13	13	17	5,84	0,95	3,786	**.000***
COCR9	Indicata BV asks for input from customers for the development and creation of new services/products for their clients.	3	2	2	10	12	9	9	4,89			
COCR2	Excellent IT companies offer highly customized services based on the customer's feedback.	0	0	1	3	5	19	21	6,14	0,82	3,851	**.000***
COCR10	Indicata BV offers highly customized services based on the feedback from their customers.	2	0	1	8	11	17	8	5,32			
COCR3	Excellent IT companies take the critique that customers may have seriously.	0	0	0	1	1	16	31	6,57	1,06	4,355	**.000***
COCR11	Indicata BV takes the critique that customers might have seriously.	3	1	1	3	6	22	11	5,51			
COCR4	Excellent IT companies are willing to improve their services based on feedback.	0	0	0	1	5	20	23	6,33	0,95	4,139	**.000***
COCR12	Indicata BV is interested and well willing to listen to the feedback of their customers.	2	1	1	6	11	15	11	5,38			
COCR5	Services from excellent IT companies enable customers to spend more time on their core-business.	0	1	1	3	3	18	23	6,14	0,59	2,413	**.020***
COCR13	Services from Indicata BV enable customers to spend more time on their core-business.	1	1	1	4	8	25	7	5,55			
COCR6	Excellent IT companies offer services which are designed together with the customer.	1	1	1	5	13	18	10	5,49	0,62	2,423	**.019***
COCR14	Indicata BV offers services which are designed and created together with the customer.	1	1	4	10	16	11	4	4,87			
COCR7	Excellent IT companies invest in a good relationship with their customers to understand their needs.	0	0	0	5	3	22	19	6,12	0,38	1,533	.132
COCR15	Indicata BV puts time and effort into maintaining a good relationship with their customers.	1	0	1	6	7	17	15	5,74			
COCR8	Employees of excellent IT companies invite customers to think about a solution that fits to their problem together.	0	1	0	4	11	15	18	5,90	0,22	0,672	.505
COCR16	The employees of Indicata BV think about the best fitting solution through collaboration with their customers.	2	0	1	5	4	23	12	5,68			
									Process Expectation Score Average	**6,07**	**GAP**	
									Process Perception Score Average	**5,37**	**0,70**	

Table 10: Gap analysis of the value-in-use process through paired t-test (N=47).

Attribute	Answer Options	1	2	3	4	5	6	7	Mean	GAP	t-Test	p
VIU1	Excellent IT companies proactively think about how their services would be valuable upon use in customers' businesses.	0	0	0	2	6	23	18	6,16	0,88	3,958	**.000***
VIU7	Indicata BV proactively thinks about how their services would be valuable upon use in customers' businesses.	2	2	0	5	12	20	6	5,28			
VIU2	Excellent IT companies actively support their customer in the usage of their service after purchasing.	0	0	0	1	7	21	20	6,22	0,62	2,931	**.005***
VIU8	Indicata BV actively supports their customers in the usage of the service after purchase.	0	1	2	5	11	16	12	5,60			
VIU3	Services from excellent IT companies enable customers to perform a task of which they weren't able to before.	0	1	1	4	10	21	12	5,73	0,60	2,996	**.004***
VIU9	Services from Indicata BV enable customers to perform a task of which they weren't able to before	1	0	3	8	16	14	5	5,13			
VIU4	Excellent IT companies facilitate customers in getting the most out of their purchased service.	0	0	0	1	7	25	16	6,14	0,84	4,333	**.000***
VIU10	Indicata BV facilitates customers in getting the most out of their purchased service.	1	0	2	6	17	14	7	5,30			
VIU5	Purchasing services from excellent IT companies allows customers to gain more revenue with their businesses.	1	1	1	8	12	14	12	5,43	0,75	3,58	**.001***
VIU11	Indicata BV its services help customers in generating more revenue with their business.	2	1	4	14	13	8	5	4,68			
VIU6	Services from excellent IT companies should be delivered without much involvement needed from customer.	2	4	2	9	11	15	6	4,88	-0,14	-1,132	.264
VIU12	Services from Indicata BV are delivered without much involvement needed from the customer.	1	2	3	9	11	16	5	5,02			
									Process Expectation Score Average	**5,67**	**GAP**	
									Process Perception Score Average	**5,17**	**0,60**	

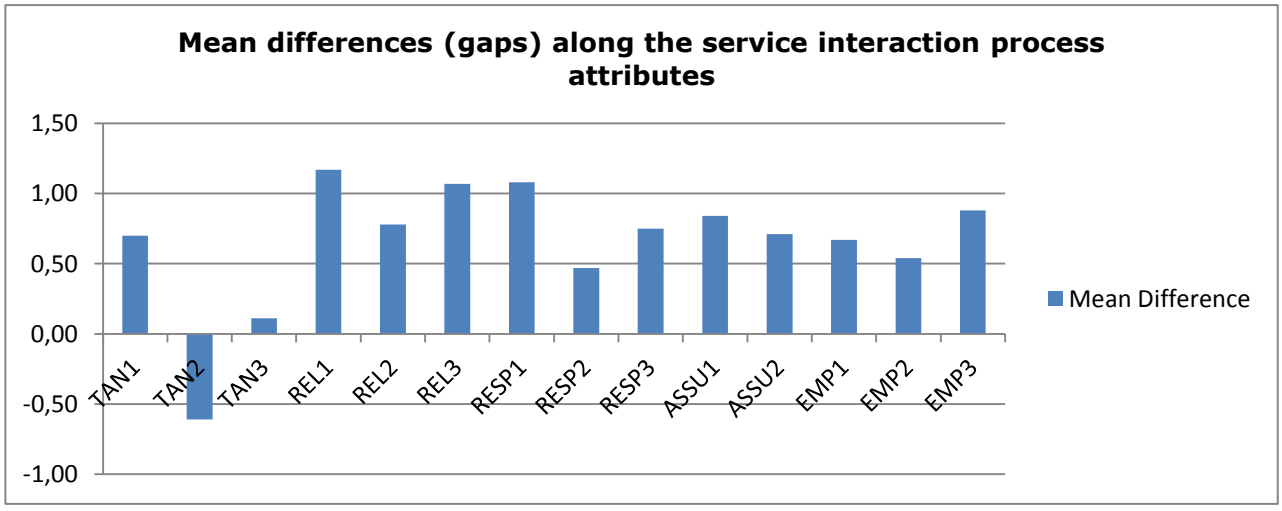
Gap analysis of the service-interaction process

As we also measured the perceptions and the expectations on each separate attribute, it is interesting to see on which attributes the firm falls short, meets, or outperforms the expectation of the customer regarding the service interaction process. When looking at graph 1 and 2, we see that there are some interesting results regarding the tangibles attributes. When looking at the absolute numbers, there can be seen that the firm outperforms the expectation on attribute TAN2. This tells us that the employees of Indicata BV appear neater than expected. Next to this, when looking at TAN3 (the expectations concerning how appealing and modern the goods an facilities associated with the service delivery are) we see that the expectations are more or less on par with the perceptions.



Graph 2: Mean differences along the dimensions of the service interaction process

Based on graph 2 and 3, it clearly can be seen that the expectations surpass the perceptions along all attributes of the other four dimensions. This tells us that there is room for improvement on all of these attributes.

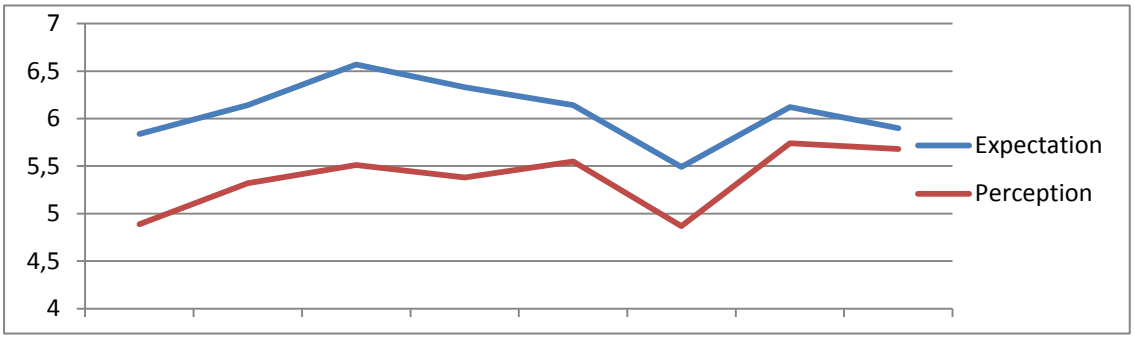


Graph 3: Gap scores along all attributes of the service interaction process

That is, of course, under the condition that the calculated differences in expectation and perception means are also statistically proven to be different. This can be done with the earlier explained t-Test, of which the results are presented in the last two columns of table 8. The t-Tests show that there is only one significant negative gap along the service interaction process: TAN2. This result tells us that the focal firm's employees appear neater than expected. Hence, we argue that the firm does not have to make any improvements on this aspect as they perform above the expected level concerning this attribute of the service interaction process. In addition to this found two insignificant gaps along the other attributes ($p>.05$): TAN3 and RESP2. The insignificant p-value on TAN3 ($p=.792$) tells us that the modernity of the goods and facilities associated with the firm's service delivery are on par with the expectation. Although the gap is insignificant, the results show a slight positive gap (*0.11*). However we cannot statistically conclude a difference and, hence, have to conclude that the firm is performing on par here. The same goes for attribute RESP2: Quick delivery of the service. The results show an absolute positive gap. The p-value of *.072* forces us to conclude that there is no real statistical difference and that the firm's performance concerning their performance on meeting expectations of the customer. We do, however, find positive significant gaps for all other attributes of the service interaction process. As can be seen in the graphs, there is some variance between the sizes of the gaps. Attributes REL1, REL3 and RESP1 show the biggest gaps between expectation and significance with a difference in means larger than 1 whole point on the scale of 7.

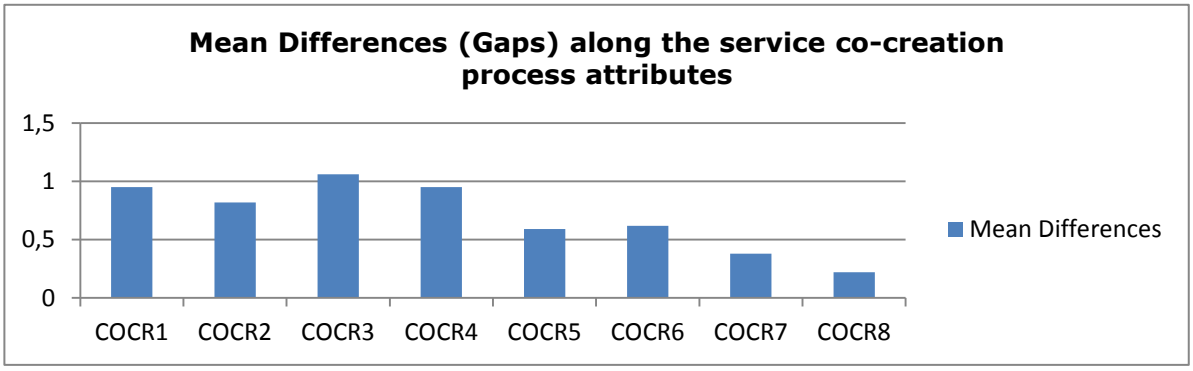
Gap analysis of the value-co-creation process

The second process that was tested with our developed tool was the value-co-creation process. When looking at the graph that is presented below, we can see that the focal firm could not live up to the expectation of the customer along all of the co-creation attributes.



Graph 4: Mean differences along the attributes of the value co-creation process.

However, when looking at the results in table 9, we can see that there are two insignificant gaps among all eight attributes: COCR7; 'investing in a good relationship with the client' and COCR8; 'thinking about the best fitting solution together with the customer'. When interpreting the p-values of .132 and .505 respectively, this tells us that there are no significant differences between the mean scores of the expectation scores and the perceptions scores of this attribute.

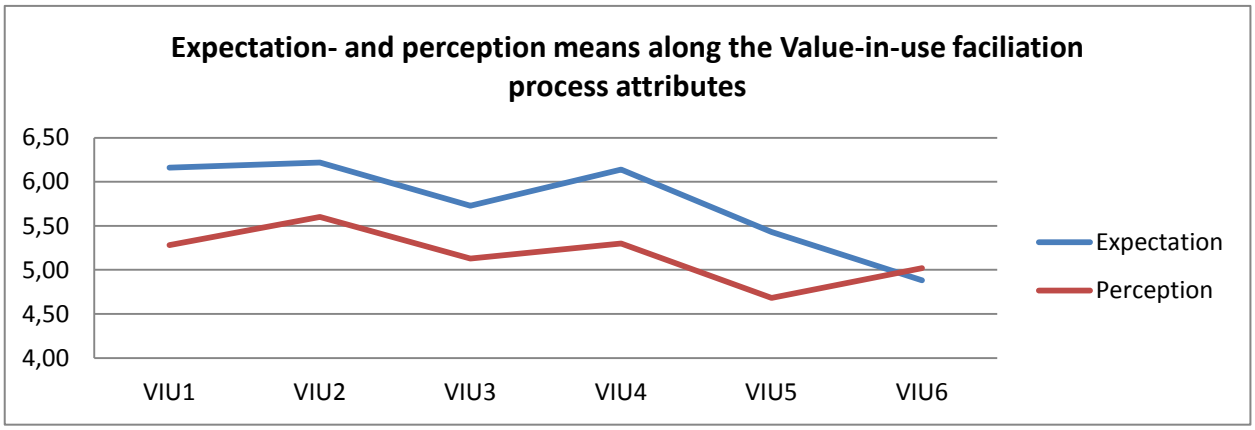


Graph 5: Gap scores along all attributes of the service interaction process.

When looking at Graph 5, it can be seen that both COCR7 and COCR8 show only slight gaps. This provides us an explanation of why the t-Test could not prove a significant difference. Although the absolute numbers show a small gap, we have to accept that there is no significant difference. On all of the other attributes, however, we did find significant gaps. Thereby the biggest gap was found concerning how well the firm is performing regarding taking critique from customers seriously. A gap of 1.06 shows that there is a serious discrepancy between what the customer expects from the firm and what the customers perceives. Based on the results, we argue that the way in which Indicata BV handles the critique of their customers should thus be drastically improved. Other major gaps were identified; *asking for input from the customers concerning the development and creation of new services* and *the willingness to improve services based on customers' feedback.*

Gap analysis of the value-in-use facilitation process.

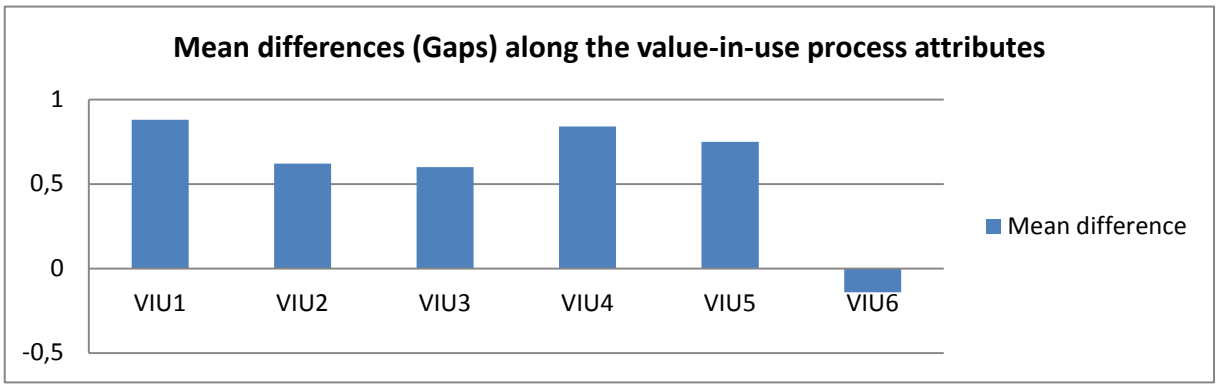
Finally, we conducted a gap analysis for the value-in-use facilitation process. This was based on the results that are presented in table 10. Like with the previous gap analysis, we start off with a graphic overview that provides a first insight in the differences between expectations and the perceptions of the customers.



Graph 6: Expectation and perception means of all attributes of the Value-In-Use facilitation process.

As seen in the graph above, Indicata BV does only seem to be performing slightly beyond the expectation of the customers regarding attribute VIU6. This is an indication that Indicata BV is doing better than expected regarding *the delivery of services without many input asked from the client*. However, this gap is only slight and, hence, may well be insignificant. The gaps at VIU1; *actively thinking about how*

their services would come handy in the business of the customer and VIU4; *facilitating customers in using there purchased services optimally*, seem to be the biggest.



Graph 7: Mean differences along the value-in-use process.

When looking at graph 7, it can be seen that the largest gaps exist along attribute VIU1 and VIU4. *Next to this, there seems to be gaps along all attributes other than VIU6, which, in turn, do also seem to* be of significant size. In order to test this significance, we ran paired t-Tests for mean differences. The results of this test are presented in table 10. Based on the results in table 10, we can clearly see that there indeed exist significant gaps along all value-in-use facilitation attributes except VIU6. When looking closer at VIU6, we find a p-value of .264. Hence, we should conclude that the gap is indeed not significant - as we suspected before. Generally, we can state that the expectations do exceed the perceptions of the customers along the value-in-use facilitation process. This can be said based on significant gaps on 5 out of 6 attributes, as seen in table 10.

4.3 Attributes for most effective value optimization.

To get to know which attributes should be improved to get the most effective improvements, it is important to weight the overall attribute importance with the difference in means of that attribute. In order to do so, we compute what we called the "Value Improvement Score" (VIS). Through this score we want to be able to give a weighted interpretation of the gaps based on the importance of the underlying attribute. The VIS is calculated by multiplying the *gap* (mean difference between the attribute's average expectation and perception score) with the attribute's *expectation score mean*. Thereby the higher the VIS score, the greater potential for improvement this attribute seems to have.

We argue that it is necessary to weight the gap scores in order to know which value elements can truly serve as the most effective drivers for value improvement. We argue that an attribute can have a higher importance in general, but can have little opportunity for added value when the firm already seems to meet the expectation. In turn, we argue that this would leave little room for (effective) improvement of this attribute and, hence, is not effective for additional value creation. This can also be seen the other way around: There might be an attribute with a relatively large sized gap between expectation and perception, but how efficient is it to improve this when the overall importance of this attribute is low according to the customer? We stress that the gap size should therefore be adjusted – or weighted – by the importance of

the attribute, before it can be interpreted in its full sense. We argue that the efficiency of attribute improvements – in order to improve value – is depending on a trade-off of attribute importance and the gap size. On the coming page, an overview is provided of all VIS scores for all three of the processes. Thereby the VIS's are presented along with the matching attribute pairs on which the gap-score is based. In this overview one can clearly see which attributes have the most potential for improvement of value through process optimization.

When looking at the service interaction process, we clearly see three item pairs that stand out for improvement:

REL1 – REL4 *(VIS 7.59); Fulfilling promises on time when promised to the customer.*
RESP1 – RESP4 *(VIS 6.77); Telling customers exactly when certain services will be performed.*
REL3 – REL6 *(VIS 6.68); Performing services right at the first time.*

Based on the gaps of these attributes – weighted by their importance – we can state that these attributes would be the most effective opportunities for improving the service interaction process, and thereby value. There can also be seen that there is one negative VIS value. This is because the company is already performing above expectations. Hence, it does not show as a feasible driver for process- and value improvement. In our view, it can be argued that there might well be diminishing value gains from improving attributes on which the firm is already outperforming the expectation – does a customer feel that he or she gets additional value from improving an attribute if an attribute is already meeting the expectation in comparison to attributes that are not yet at the expected level? We argue that customers will probably experience a slighter increase in customer value when improving attributes that already meet the expectations. We argue that it does make little sense to improve attributes which are already fulfilling the expectation.

Regarding the value co-creation process one can see that the improvements should mainly be in the first four item pairs of the process:

COCR3 – COCR11 *(VIS 6.96); Taking critique from customers seriously.*
COCR4 – COCR12 *(VIS 6.01); Improving services based on feedback from customers.*
COCR1 – COCR9 *(VIS 5.55); Asking for input from customers for new services/product development.*
COCR2 – COCR10 *(VIS 5.04); Offering highly customized services.*

However, even though these four attributes are the most efficient to make improvements on, it can be seen that the VIS of the last three attribute pairs are lower than the top three attribute pairs of the service interaction process. Apart from the first attribute pair of the co-creation process (COCR3 – COCR11; VIS 6.96), these attribute pairs of the co-creation process seem sub-optimal regarding value improvement. This can be said based on their VIS's being lower than those of the top three attribute pairs of the service interaction process. When looking at the third and final process (the value-in-use facilitation process) we find two clear attributes that are most effective for the improvement of this process:

VIU1 – VIU7 (*VIS 5.42*); proactively thinking about how services could be valuable for the customer.
VIU4 – VIU10: (*VIS 5.16*); Facilitating customers in using their purchased services optimally.

Concluding: To get an overall view of which attributes are most effective for value improvement, it is helpful to rank all of the attribute pairs throughout all of the three processes. The overall ranking these attributes, based on the calculated value improvement scores, can be seen in appendix J. It presents a numerical conclusion about which attributes provide the best possible bases for value improvement based on the results of the quantitative research. The latter was one of the main goals of this chapter. It can thus be concluded, that the higher the attribute is on the list, the more potential it has for value improvement based on the weighting of the expectation of the customer with the gap that exist between this expectation and the perception of the customer along the attributes and processes. If the focal company wants to improve value effectively it should, hence, start with at the top part of the list. It can thereby be argued that it is wise to start with improving those top attributes of which the focal company feels that these are relatively easy improve, cost-wise and/or effort-wise.

4.4 Qualitative research results

In this chapter, the results of the qualitative data analysis are shown. The main aim of this chapter is to present the main findings of the qualitative research as well as to triangulate them with the quantitative results. Next to this, newly found value elements will be presented based on what the interviewees have brought up in the interviews. In order to keep a good structure in the presentation of these results, we try to maintain the structure that we used in the quantitative results chapter as much as possible. Since the qualitative results are largely used to triangulate the quantitative data, we argued that it is wise to do so. In *Appendix K*, the roles/background of the interviewees are shown as well as in what kind of sector the organization operates in and what the time and duration of the interview was. This is table is mainly used provide a context for the different interviewees that are brought up in the results. As the names of the companies as well as the persons that are interviewed are not of any relevance, we have chosen to refer to them as "interviewee 1, 2, 3.." etc. This also enables to maintain the confidentiality of the interviewees, as promised during the data collection.

To enhance the display of the results, we included tables 11, 12 and 13. These provide summarized overviews of the qualitative findings per process. It can be argued, however, that the attributes (later called "value elements") which we derived through the coding process, could not always clearly be placed along one category or process only. We found that our derived value categories (and their underlying value elements) sometimes related to multiple processes, depending on how one interpreted them. Hence, we allocated the categories under a certain process according to under which process a similar element was placed in the questionnaire. We did this in order to maintain a similar structure as is used in the quantitative results section. This, in turn, is done so that we can triangulate the results more easily.

Comparable/similar items pairs that were used in the quantitative research are shown in the tables along with the coded value elements that were derived out of the qualitative data analysis. This show possible overlap between the elements that were already measured through the questionnaire and the

value elements that were derived during the coding process. We did also find new value elements that were not measured in the questionnaire. These value elements were placed under one of the three processes based on what we argued to be best fitting. Next to this, we did also find some value elements that are not directly relating to one of the processes, but rather to the attractiveness of the offering in general. Therefore, these will be presented in a separate paragraph in which we describe these more general service elements, such as the price of the offering or value elements based on future opportunities.

Qualitative results regarding the service interaction process

A first general but very promising result is that there is a fair amount of overlap to be seen between the attributes of which we thought to be valuable (and have been measured in the questionnaire) and those that we derived out of the qualitative data during the coding process. A large part of the attributes that had been tested through the questionnaire were also mentioned by the interviewees. This tells us that we already covered a large part of element of which we thought of to be important in our questionnaire. This similarity provides a nice indication that our total set of value elements is reaching exhaustiveness. In contrary, a large discrepancy between the service elements that were derived out of the coding process and the service elements that were already tested through the questionnaire, would have indicated that our questionnaire might not have been able to successfully measure the value creation process through an exhaustive set of attributes. Tables 11,12 and 13 also show how often a certain category is mentioned. This provides a first indication on which elements might be of greater importance. It is, however, important to mention that a greater numbers of codes inside a category do not necessarily mean that these categories are also much more important. It does however give a good reason to look more closely to these categories.

One of the major (and often recurring) value categories concerning the service interaction was the *"Expertise & Knowledge"* of the company. The majority of the interviewees mention that it is very important for a firm to fulfill such needs, as one often does not have the required knowledge for the performing such task themselves. Regarding this category, three sub-categories could be derived. First of all it was mentioned by the largest part of the interviewees that one desires a firm that has the ability to understand the full complexity of the problem (E3). This, in turn, would be necessary in order to be provided with the best solution to their problem. In order to do so, the employees of the company should possess the right knowledge to assess this problem adequately (E2). Subsequently, the staff of a service provider is thus is expected to be specialized and skilled (E1) in solving the issues by providing the best solution for the problem, which should be based on well-thought off advice regarding the problem of the client. Even though these value elements are mentioned to be separate elements which are valuable to the customer, it is important to note that all three elements underneath the "expertise & knowledge" category are heavily intertwined. We found that a company: E1) first needs to have specialized staff that possesses E2) the right knowledge for the job before it E3) is able to understand the full complexity of the customer's problem. Hence, in order for the service provider to create value out of element E2 and E3, it first needs to make sure that it has employed adequately skilled and specialized staff (fulfill on E1). This expertise should be have been proven in the past. According to interviewee 6, this can for instance be proven through certificates or references from other companies. In addition to this, the majority of the interviewees

mention that is very important for them that a firm specializes its engineers. Interviewee 2 states, for instance, that he expects a broad scale of knowledge and expertise, as he does not believe that one single person can have the expertise to solve all problems on the whole spectrum of IT. In extension, Interviewee 7 mentions that she preferably deals with multiple "state-of-the-art" specialists. Even though the majority of the interviewees state to prefer personal attention (CR3), they understand that one person cannot know all about everything. When comparing the qualitative findings with those of the questionnaire by looking at the relating quantitative results (and in specific ASSU2; having the proper knowledge to solve problems), we indeed see similarities in importance based on the expectation score of 6,39 on a scale of 7. However, we argue that attribute ASSU2 does only capture a part of the value creation through "expertise & knowledge" as is explained through the examples of the interviewees. Hence, it can thus be argued that the two other elements that are found through the coding process complement the existing quantitative results through better integrated and more holistic explanation. The gap that was found on attribute ASSU2 was also recognizable during the interviews. Some of the interviewees, like interviewees 2, 6 and 9, mention that they now-and-then have the feeling that the focal firm lacks knowledge or expertise. However, because the qualitative data results provided us a greater understanding of value creation through expertise & knowledge, we did end up a better insight on how a firm can decrease such gaps.

The second category that was derived out of the qualitative data analysis was *Reliability & Trust*. Along this category, we derived three underlying value elements: *Mutual Trust/Confidence, Fulfilling promises & reliability of service provider.* Based on the high expectation scores that were given to similar attributes in the questionnaire, we argue that this was as expected. First of all, a considerable amount of interviewees mention to find it very important that the service provider *fulfills it promises.* This is fully reflected in the results of the questionnaire, where REL1 (promising to do something by a certain time) is seen as the most important attribute out of all three processes. We were not able to find confirming information regarding *Mutual Trust/Confidence and Reliability of the service provider* other than they indeed are seen as valuable, as was already proven in the questionnaire through attribute ASSU1. Next to this, the questionnaire already showed that reliability dimension came out to be of the highest importance. However, when integrating the three derived value elements in a holistic view, we argue that fulfilling promises is seen as a driver for mutual trust / confidence as well as the reliability of a provider. We argue that the nature of this relation exists in such a way that fulfilling promises shows the customer that you are a reliable and to be trusted party.

A third promising value category, *assurance*, emerged out of an overlapping, yet integrating, set of codes relating to the two categories that were presented previously. In general, all interviewees mention assurance in the sense that they want to feel assured, in some shape or form, when hiring an external party. However, " feeling assured" can be argued to be broad and vague on its own. We argue it rather consist of a large intertwined sub-set of influencing value elements. Hence, we argue that should preferably be measured beyond the measurement of assurance as proposed by Zeithaml et al. (1990). During the qualitative data analysis, however, we found threefold of motives/perspectives for assurance,

on which we could make a distinction inside the category. The three distinguished motives/perspectives that we found during the qualitative analysis are:

1) *Cost-based assurance*: Assurance based on interviewees in knowing what costs one should be expecting to run into in the future. Thereby interviewee 5 and 8 seem to be in favor, for example, for fixed-cost billing (for instance in service packages) instead of billing on an hourly basis.

2) *Knowledge-based assurance*: Assurance based on interviewees knowing that they will remain up to date with their IT system and will make the correct IT-investment decisions in order to adept to the future. This is received through the 'state-of-the-art' knowledge that the external party possesses and their field of expertise and is transmitted to the customer. It can be argued that this form of assurance is highly related to value driver E2; *possessing the right knowledge*. Thereby, the majority of the interviewees mention that it is highly recommendable for an external IT party to work with a "pool" of external engineers. This is so that they are not dependable on just one external engineer but have certainty that there is always someone that can solve their problems adequately and has knowledge about the client organization. And at last;

3) *HR-based assurance*: Assurance based on customers knowing that they no longer are dependable on internal IT staff. Internal IT employees would leave a gap in the organization when leaving the organization and would (temporarily) lead to inefficiency or which would bring the duty of keeping your own staff up-to-date with the latest information on IT.

Although "assurance from the external party" seems like much overlapping category on first hand, we insisted to include it as a separate category as it gives a very useful insight on what drives value through assurance. Even though the questionnaire already indicated that the assurance dimension was important, it did not provide us further knowledge on what drives this importance and rather provided us with an absolute number. After conducting qualitative analysis, we seem to have increased our insight on which elements come in to play when trying to explain how value is generated through assurance. When triangulating the results, we stress that the qualitative data can confirm the importance of the assurance dimension (which comes as a strong second after the reliability dimension), even though some interviewees seem to present other, more precise, explanations and examples on how assurance drives value. Hence, we argue that the qualitative results did not only provide us with a confirmation of the quantitative results, but that it also provided us with a more complete understanding on the role of assurance in the service interaction process.

The fourth category, *communication*, consisted of two value elements that were mentioned to be drivers of value. The first element inside this mentioned category was labeled as *reachability*. Ultimately, customers expect from service providers that they are available day and night, 24/7. However, reachability also seems to be connected with having a personal relation (CR3). Multiple interviewees (Interviewee 2,3,5

& 8) mention that they prefer to have a designated account manager(s) or engineer(s) for their company, as they then immediately know who to call when they are experiencing any problems. Secondly, these interviewees mention that they find it important that the communication is adequate. By this they often mean that they want to get good and quick feedback on questions. The majority of the interviewees thereby mention that the adequacy of the communication with Indicata BV is fine overall, however, some interviewees, like interviewee 1, 8 and 10, mention that they think that this is somehow determined by the fact that they are in close *proximity* of Indicata BV and therefore experience above standard levels of communication. Interviewee 9 and 10 thereby do seem to indicate that communicating over distance (for instance through calling) is not as adequate as short-distance, face-to-face, communication. Some customers mention a similar premise, stating that they find face-to-face contact highly valuable. However, in order to have face-to-face contact often, the proximity of the service provider is a highly influencing factor. If a one is around the corner, it would be more easily and adequate to just have a quick face-to-face chat, both communication-wise and time-wise.

Subsequently, a large number of interviewees (interviewees 2,3,4,7,8 and 9) clearly mention that they derived a lot of value out of the relationship that they have with their service provider. Thereby, the majority of the interviewees mention that it is highly valued that there exists a relationship that goes beyond a mere customer-supplier relationship. Instead, customers want to be involved in a *partnership*. Indicata BV already seems to be able to fulfill in those needs for a part the customers. The majority of these interviewees already mention Indicata BV as their "IT-partner" or "partner in business" already and mention that they find this highly valuable. In addition, a number of bases are provided on which a partnership they see a partnership differently from a 'normal' customer-supplier relationship. Based on the insights of the interviewees, the differences of being involved in a partnership, as well as the additional value that is generated by doing so, seem to be able to be explained through:

1) That 'normal' customer-supplier relationships only seem to be adequate regarding self-service processes. These are services like delivering standard, generic, hardware like desktops and servers, which do not need to be embedded over time (Grönroos, 2011). This is what, in their own words, the customers often do refer to as providing the "iron" of the IT service. Subsequently, they state that it is easy to switch to another service provider for such kind of services. When a service provider provides a service to customer as a "full-service process", implying an integrated service offering that needs to be embedded in a customers' company over time, switching to another "partner" is seen as much more difficult. It can be argued that the value is thereby delivered through a co-creation process instead of through an instant delivery of the service; which is often value-in-exchange (Grönroos, 2011). Hence, since IT services often need to be embedded over time, a long-term partnership is highly valuable.

2) When looking into the data to find out how the additional value is shaped through this partnership, we find that customers mention that this is related to a large group of underlying value elements regarding all three processes, such as: (Proactively) thinking along with the customer (PR1), (proactive) strategic advise delivery/vision building with the customer (PR2), being able to rely on

a "partner" (RT3), mutual Trust/Confidence (RT1) and the exchange of information & experiences (CCR3). The latter, for example, is mentioned as a result of a good partnership. Interviewee 8 reflected on his own situation regarding this, stating that he probably would have not shared certain types of information if didn't feel like he was involved in a partnership with Indicata BV. Hence, this seems to be an indication that a partnership does not only create value on its own, it also does seem to enhance the co-creation process increasing and improving the amount of valuable information that is shared.

Following on the value of a partnership, the largest part of the interviewees argue that there are two other main value elements concerning their relationship with the service provider. First of all, a numbers of interviewees, especially interviewee 4, 7, 8 and 9, mention that want to feel that a service provider puts effort in maintaining the relation with the customer. Based on the qualitative data, we argue that that Indicata BV is performing well here. The general sentiment regarding the interviewees' relationship with their service provider is very positive. This can also be triangulated with the quantitative results.

The results of the quantitative analysis show that there indeed is no significant gap on the relating attribute (COCR7). This does also indicate that the perception does meet the expectation of the interviewees. Subsequently, interviewee 8 mentions that maintaining a good and personal relationship does also lead to loyal customers and better customer retention. Maintaining a good relationship does not have to take much effort. Interviewees 8 and 9 thereby mention that it's in the small things that lead to a good relation, such as a bouquet of flowers when a customer has something to celebrate or a small gift from the company during Christmas. Sometimes it can even be as simple as drinking a cup of coffee together. This also leads us to the third mentioned element of value regarding the relationship with the customer: *Personal attention*. The majority of the interviewees indicate that, although it also has its cons, they enjoy collaborating with a somewhat smaller service provider. They mention that it gives them a feeling that their relationship with the provider is quite personal, and that they are not "just another fish in the sea". Interviewees 5, 6 7, 9 and 9 all mention that Indicata BV seems to perform quite well at this. This, in turn, is explainable through the relative small size of the service provider. The quantitative results thereby seem to indicate the same based on the relative small gap that is found attribute EMP2; showing personal interest in solving the problem of the customer. This is one of the attributes on which Indicata BV performs the best regarding the service interaction process. It can thereby be argued that employing a smaller group of employees can more easily lead to a more personal relation with the customer, as they will quite often deal with a same (small) group of persons. For a service provider it may also be less hard to designate the same 3 engineers to a specific when you have 10 engineers compared to having hundreds. However, customers mention to benefit from dealing with a same group of engineers over time through increased reachability, better communication, a better and more personal relation with the service provider and the feeling of assurance through designation of a steady group of engineers that know the situation at company of the client.

Table 11: Qualitative analysis matrix of the Service Interaction Process				
Category	**Sub-Categories**	**Related Items**	**Times Coded**	**Illustrative Quote (s)**
Expertise & Knowledge	E1: Deployment of skilled & specialized staff	-	7	- "I can't imagine that a single engineer is skilled in Outlook, skilled in Word, skilled in Microsoft as a whole, specialized Citrix in its full spectrum, of SafeNet in its full spectrum, or Switches of all kinds… I don't believe that that is possible. However, we do expect a service provider to provide us with solutions to all of these subjects somehow …." - "I can't imagine that one person can have expertise of all matters."
	E2: Possessing the right knowledge	ASSU2	15	- "I expect them to have the proper knowledge about what is going on here." - "One reason for us to choose to Indicata BV was that we already had worked with Indicata BV for quite some time, so Indicata BV had the knowledge, secured knowledge, which is important for us because we operate based on a business continuity perspective.
	E3: Ability to understand complexity of problem	-	14	- "I expected that they knew what was going on in our company, and what the complexity of the problem was."
Reliability & Trust	RT1: Mutual Trust/Confidence	ASSU1	12	- "For me, there is only one way to do business. And that is having trust in the party with whom I do business. That is of key importance to me."
	RT2: Fulfilling promises	REL1	11	- "A great advantage of Indicata BV is that they just fulfill their promises, that is very valuable to us. That when agree on something to happen… it is very important to us."
	RT3: Reliability of service provider	REL1 to 3	12	- "We need to be able to rely on our ICT Partner that if there is something going on… This morning by chance… that a company is able to switch instantly and that there will be immediate assistance" - "We just need to be able to rely on each other"
Assurance	A1: Assurance from hiring external party, divided in: - Cost-based assurance - Knowledge-based assurance - HR-based assurance	Several	24	- "Are we doing the right things? Are we doing the good backups? Are we going our maintenance on our systems well? Then we started working with a partner…… it is just important for us to have experienced specialists." - "We actually want to have more certainty about what costs we will be facing each year" - "That we don't have to worry about educating or training someone... or losing someone. Because that is what can happen… when you solve IT-problems with internal employees."
Communication	C1: Reachability	EMP1, RESP3	5	- "For example, an advantage is that we now know a lot of people from Indicata BV and, if necessary, I can contact them day and night" - "At the moment, we don't have a designated account manager of Indicata BV which we can contact.. I think that is a point of improvement."
	C2: Adequacy of communication	-	15	- "**Researcher:** So you mentioned that you think that the way of communicating with Indicata BV is a big advantage? **Customer:** Yes, that's right, that is because we are so close to each other. But next to that I think that Indicata BV communicates well to external parties in general".

Customer-Supplier Relationship & Customer Retention	CR1: Partnership	-	18	- "Very important. Yeah, at our company… if we do business we always want to speak of a partnership. That is very important for us." - "It gives us the feeling that we are working together, and that there does not merely exist a customer-supplier relationship" - "I ask for a partner, and a partner thinks along with me"
	CR2: Relationship Management /Customer Retention	COCR7	11	- "Client retention… I think that that is very important. But that of course does cost money. So you have to invest in that." - "Because when you don't have a good relation, you would not share all that kind of information quickly as a customer." - "It's essential. The contact from the account manager is very important in that concern.. even if it's just hopping by to bring a Christmas stollen or drink a cup of coffee.. or eat a sandwich together"
	CR3: Personal Attention / Personal Relation	EMP2	28	- "The personal responsibility that the employees have.. and that you know who you can contact if there is something going on and that you know they will look into it. That is very important. You're not a number." - "What really pleases us is that we have our own designated engineer" - "We didn't choose for the competitor, mainly because we didn't feel like they were personal in their approach."
Adequacy of service delivery & Solving of problems	AD1: Proper handling/solving of issues	-	32	- " If we call, we don't want to be asked if "the problem does also occur by other users". If we call you there is a real problem going on, and then you have upscale it to second-line support. "
	AD2: Willingness to help customer	REL2	8	- "We got the feeling that they are trying to do the best that they can to make the solution fit to our situation." - "All the people are willing to help, of that I'm convinced."
	AD3: Speed of service delivery & solving issues	RESP2	31	- "We need to be able to rely on our ICT Partner that if there is something going on… that a company is able to switch instantly and that there will be immediate assistance" - "When shit really hits the fan, than you want to be helped very quickly. In fact, you want to sense that they are immediately ready to help you.. but of course we understand that that that is not always possible." - "A bad thing is that Indicata BV is suffering from their own success… because of how busy they are.. sometimes I have to wait 3 weeks until my request is fulfilled."
	AD4: Preparation in relation to service delivery	REL3	10	- "Afterwards we had to conclude that they missed something.. like the licensing.. which had financial consequences. And those consequences.. when they were better prepared.. the problems would have been foreseeable."
	AD5: Ticket system / helpdesk functionality	-	10	- "Lack of feedback on the status of the ticket … that is a big problem I think. They do have a ticket system, but I think that is not used as well as possible yet." - "Administrative, like with the documentation and feedback on the ticket status, that has been inaccurate for a while… however, since a while I think that is going quite well now."

The final category that was found, consists of value elements concerning the *adequacy of the service delivery and solving problems*. Thereby the speed in which the questions were solved and speed in which the service was delivered, was mentioned the most. Other elements that were discovered regarding this topic were *the willingness to help customers*, *the preparation relating to the service delivery* and the *functionality of the helpdesk*. When triangulating these results to the quantitative results, it can once more be seen that the majority of the interviewees came up with relatively similar elements as measured in the questionnaire.

Another interesting result that was found during the qualitative data analysis was that some interviewees had already recognized an improvement of the service interaction process themselves. Interviewee 6 and 10 mention, for instance, that they had felt that the service interaction process had been improved in the last months through improvement of the helpdesk functionality. Where the helpdesk used to function below expectations, they now seem to agree that the helpdesk is performing better. However, the majority of the interviewees clearly mention that there are still improvements to be made through, for instance, a better provision of updates on what the current status is regarding a request from the customer (feedback) as well as when solutions to their problem are delivered (RESP1). Interviewee 2 and 6 mention that this could for instance be solved by some kind of "track-and-trace" system of customer requests or just by informing the customer about the status of the problem more frequently. Even though the majority of the interviewees acknowledge that improvements should be made on element AD1, AD3, AD4 and AD5, this seems not to be the case regarding the willingness to help customers. The majority of the interviewees mention that all employees are doing the best that they can and are sincerely willing to provide a good solution to the customer. Interviewee 9 even states that showing this willingness was what made them choose for the focal service provider even though they were planning to sign a deal with the competitor in a few days. This shows that the willingness of your employees is highly valuable to customers. This is also reflected in REL2, showing sincere interest in solving the problem, which came out as the most important attribute of the whole service interaction process. It can also be seen clearly that the gap of REL2 is smaller than the existing gaps on attribute REL3 and REL1. This indicates that the firm indeed performs better on attribute REL2 compared to the other two attributes. This is also reflected in the VIS-scores list, where REL2 is close to the middle of the list while REL1 and REL3 are on the top of the list. Regarding *the speed of solving issues & service delivery* (AD3), the majority of the interviewees mention this process to be improvable. They mention that there is room for improvement in the speed of solving issues. Interviewee 2, 4, 6, 7 and 8 explain that they feel like Indicata BV is very busy and argue that Indicata BV might even be suffering under its own success. Even though they are happy that the firm is successful, it is mention that they should not suffer from it through the speed in which issues are solved. It is stated by interviewees 2, 4 and 8 mention that they sometimes have to wait too long before their problem can be solved because of the full schedules of the engineers. Next to this, it leaves customers very little time to plan evaluation sessions (VIU2), even though this is seen as very valuable, as will be shown later.

In summary, we found a 6-fold of categories along the service interaction process containing 17 underlying value elements, as presented in table 15 and the previous paragraph. Thereby, one of the main findings is that there exists great overlap between the value elements that were mentioned during the interviews and the attributes that were tested in the questionnaire. We argue that this is a good indication of that the set of elements that we gathered is exhaustive. It also became clear that, although we maintained a structure based on the three distinguished processes, value creation should be seen as an holistic process in which the different processes are heavily intertwined and cannot be fully separated into loose processes. However, by presenting and triangulating the qualitative data with the quantitative results, it became clearer what underlying value elements do exists and what relations exist among the different value elements. It can be argued that this extra insight is very useful for effectively improving value through all three processes. We argue that the majority of the results of the quantitative research could be confirmed after triangulation with the qualitative data. It can be argued that attributes that are relating to the assurance, reliability and empathy dimension of the service interaction process, which concern the "softer processes of doing business" are indeed seen as the most important. Besides the speed of solving issues and service delivery, we did not found much evidence regarding the importance of the responsiveness dimension. It can be argued that we could not clearly confirm its importance, but could not disconfirm the quantitative results either. What is interesting to see, however, is that not a single value element regarding the tangibles dimension was derived from the qualitative data analysis. We argue that this is sound evidence to believe that value elements regarding the tangibles dimension can be seen to be of lesser importance in general, like the quantitative data suggested.

Other promising results were found regarding the engagement in a partnership and the personal attention that goes along with this. These elements are seen as highly valuable by the majority of the interviewees. Gap-wise it is thereby very promising to see that Indicata BV performs well on these elements in comparison with the other elements of the service interaction process and the three processes in general. This can be seen through the insignificant gap in COCR7; investing in a good relationship with the customer, as well as the relatively small gap in attribute EMP2; showing personal interest. This indicates that maintaining a personal, partnership-based, relationship with customer can be argued to be (or might become) a core competence of Indicata BV.

Qualitative results regarding the value co-creation process.

Concerning the second process that was distinguished from the holistic understanding, *the value co-creation process*, a number of value elements categories emerged through the coding process of the qualitative data. These can be seen in table 16, which is a similar matrix as used in the previous paragraph. One of the topics that we questioned the customers about, based on our holistic understanding of value creation, was the *co-design of services*. During the interview, it was recognizable interviewees referred to the co-design process in two different ways. For example, interviewees 7 and 9 were mainly referring to co-design in the sense that they were invited to think with Indicata BV about new solutions to their problem, like is measured through attribute COCR1 of the questionnaire. Others, like interviewee 1, 5 and 6, referred to co-design as collaborative design of new services. These interpreted co-design in the

sense of creating new innovative products/services together in a way that these are designed in through collaboration between two parties, like is measured in COCR6. The majority of the interviewees indicate that these kind of co-design 'events' didn't take place that often until so far, in neither of both forms. Even though a couple of examples were given where Indicata BV and its customers have been involved in co-design, like interviewee 7 and 9. Interviewee 9, however, mentioned that this mainly was based on the initiative of the customer instead of Indicata BV' initiative. Even though this is the case, the majority of the interviewees do clearly see extra value in these co-design collaborations. Some interviewees, like interviewee 3, however mention that this is under the condition that the goals of such co-design sessions are already outlined in some degree. This is so that one can use the time during these sessions as effective as possible. As mentioned by the majority of the interviewees, the reason behind this is that customers are often limited in their time. Therefore, they clearly want to see that there is some kind of return in some shape or form. Hence, unstructured brainstorm sessions, for example, won't be seen as very interesting or value adding. However, almost all customers mention co-design to be a valuable process when structured and prepared properly. Interviewee 9 even mentioned that the creation of new and innovative solutions is necessary to survive in their harsh and fast-changing markets.

When looking at the results of the co-creation process in the questionnaire, however, we find that COCR6 is rated as the least important attribute of the process. Based on what we know now, we argue that this can be partially explained by the fact that the attribute in the questionnaire might have been asked in such a broad way, that customers don't see direct value in it. In turn, it might be explained through fact that a customer is not eager to give up his time when the purpose (and the relevance) of co-design sessions are not clearly presented. Hence, based on the qualitative results, we argue that the importance of COCR6 and COCR1 might be understated in the quantitative results. Based on this limited amount of time that customers often have combined with the importance of co-creation, it might well be that customers are even more interested in customization instead of co-creation. This is as customization, being different from co-creation, often requires a lesser amount of time from the customer (Kristensonn, Matthing & Johansson, 2008). When looking at how well Indicata BV takes is performing in fulfilling these needs regarding the co-design of new services, it is mentioned that Indicata BV' performance is quite poor regarding the co-design of services and asking for input from customers when developing or creating new services. This is also backed up by the quantitative results, as presented in table 9 (COCR1 Gap = 0,95; COCR6 gap = 0,62). As an example, interviewee 9 stated that "when I should have to give a grade for it on the scale of 0 to 10, I would probably give them a 2". Hence, it can be said that there is a lot of value to be gained, for both customer and provider, when improving the co-design process. Subsequently, the qualitative data tells us this could be done by (proactively) organizing pre-structured co-design/co-creation sessions of which the purpose is clear on beforehand.

The second category of value elements that was found during the coding process is *the mutual exchange of information and experiences*. As is also explained by Grönroos (2011) and Vargo & Lusch (2004) the exchange of information is at the core of reciprocal value creation. In order for a service

provider to be able to provide the most valuable offering for the customer, it first needs a 'service' back from the client in the form of providing input to the service provider. Hence, it can be stated that it is no wonder that the exchange is often mentioned, as the exchange of information in order to increase value-in-use for the customer in exchange, is at the core of reciprocal value (co-) creation (Grönroos, 2011; Vargo & Lusch, 2004). However, interviewee 1, 2, 4, 6 and 10 mention that they don't always get all desired information from their service provider. There are some types information which the customer would like to receive, but are not offered by Indicata BV by default. Examples of such types of valued information are; insights in the usage of the service (bandwith use, storage use, number of cores used, number of RAM-memory etcetera) (interviewee 1 and 10); information about the status of to be solved problems (feedback on status) (interviewee 6); more detailed insights on what the costs are of using the service (through, for example, more extensive invoices) (interviewee 1 and 4) as well as information about new trends in IT and relevant updates about new possibilities for the market that the customer operates in (multiple interviewees). The latter is thereby seen as highly valuable. This will be more thoroughly discussed later under the value-in-use process paragraph. When looking at the performance on the exchange of information and experiences then we see that this, in general, is mentioned to be adequate. Almost all of the interviewed customers acknowledged that, in most of the times, they are provided with the right information when requested. Subsequently, a large share of the interviewees feel like they receive all the information in order to use their service optimally. Generally, the majority of the interviewees do also feel that this exchange of information does lead to an improved service delivery and solution. It can be argued that, through the exchange of feedback, services can be altered and improved over time through creation of a better fit to the customer's situation as well as through the continuous solving of minor problems that might arise during usage of the service. In the case of Indicata BV, this is often done through periodically operational and/or strategic meetings with the customer.

During the interview, we also asked the interviewees if they thought that the use of Social Media could take a role in this exchange of information and experiences between supplier and customer. The largest part of the interviewees does not seem to see additional value in doing so. Interviewee 1 and 3 for instance reckon that the type of information that is exchanged is not that feasible to share in an open social network, as it might endanger their competitive position in the market. Next to this, interviewee 3 states that there already are digital communication media in place at his location which were seen as more effective in their use then Social Media. Hence, Social Media is seen as a sub-optimal way of communicating.

However, the exchange of information could be improved through a more *pro-active way of delivering information* to the majority of the interviewees. That is, delivering valuable information to the customer without them having to invest time to ask for this (as will also be explained along the value elements of the value-in-use process). In turn, interviewee 1 and 3 mention that the use of social media *would not* be very effective in doing so. In extension of the previously found category, we found another category of

value elements that is closely related to the improvement of the service through mutual exchange of information: *Handling problems / critique / feedback properly.* In turn, this should be done through integration/handling of the feedback / critique that customers provide. When looking to the quantitative results, we see that handling critique (COCR3) as well as integrating feedback (COCR4) was seen as the most important attributes of the co-creation process. However, the results seem to indicate that there are relatively large gaps on both COCR3 (1,06) and COCR4 (0,95). When looking at the qualitative data, however, the only thing we find is that there is a lack of feedback on problem solving statuses. The main shortcoming that is hereby mentioned by interviewee 2 and 6 that they often aren't well informed on what the status is regarding the solving of this problem or at what time a certain service is provided. This same problem also came forth out of the relating "Adequacy of service delivery & Solving of problems" through RESP1. However, the qualitative data on itself does not provide us any other clear reasons category of the service interaction process, which is partially overlapping and relating to the gap that is measured for the existence on the gaps of COCR3 and COCR4. This could mean multiple things: **1)** that this lack of feedback on the status of the problem solving is the only or main factor that determines these gaps, or **2)** that the group interviewees do not experience this gap in the same extent or **3)** that there are other relating factors that determine the existence of this gap. We argue that a combination of the last two is the most likely, as we found other relating shortcomings along the other processes that relate to this topic. Possible other factors that determine this gap could be, among others, the shortcoming on the timeliness of the service delivery & issue solving (AD3) and the lack of evaluation sessions with the customer, which could have its effect on the possibilities for customers to ventilate possible feedback or critique. The latter is further explained in the next paragraph.

The fourth and fifth categories of value elements that we found are relating to *the scalability & flexibility of the service* and the *customizability of the service.* However scalability & flexibility of the service might also be placed along the value-in-use process, we placed it under the co-creation process based on its connection with the customizability of a service. It can be argued that scalability can be seen as a more specific form of customizability, as it is also can be seen as to be based on the adjustability of the service. The scalability & flexibility of the service seems to be divided in two groups. First of all, a group of interviewees, such as interviewee 1, 4, 5 and 9, highly valued it when the service is scalable in a *technical w*ay. This means the interviewees wants the ability to be able to increase the capacity of its service on a technical basis; such as flexibility in storage capacity, number of servers used, number of virtual workspaces, personalized settings for firewalls etcetera. These drivers of flexibility are more or less based on the resources that are used for the utilization of the service. This type of flexibility can be more closely related to the degree of *customizability* of the service, which is the final category along the co-creation process during the coding process. The majority of these interviewees thereby mention that they should ideally be able to purchase a IT-system that only consists of what the customer needs, such as is often used in the telecom sector: One purchases on the basis on the type of phone, the number of MB's and calling minutes that one needs, and not more. When one does need more MB"s, one can scale it up, when one needs less MB's, one can scale it down. Secondly, a group of interviewees (interviewees 3, 5, 7)

desires flexibility of the service in a *functional way*. This means that the interviewee desires flexibility in the support of the service use through e.g. flexibility in the number of on-spot engineers, flexibility in the number of hours that a customer uses for support or adjustable use of consignation services. However, the interviewees do understand that customized services might be more expensive. Subsequently they state that a fully customized service will probably be too expensive.

In summary, we found 5 categories consisting of 7 value elements along the co-creation process based on the qualitative data. Through the triangulation of the data we found a lot of confirmation between the qualitative data and the quantitative data on almost all of the value elements. Even though the value elements are more specific as measured through the questionnaire, the importance of the underlying value could largely be confirmed. Looking at the theory of Grönroos (2011), the mutual exchange of information is the basis for the co-creation process, as it is there were the desires of the customer can then be ventilated and be integrated in the offering based on the feedback. It can thus be stressed that this should be adequate in order to maintain a good co-creation process overall. When looking at the qualitative data, we see that the majority of the interviewees agree on that there currently exists a decent, but yet improvable, exchange of information among both parties. However, a majority of interviewees mention that the exchange of information could be improved through a more proactive delivery of valuable information such as: Insights in the usage of the service (bandwidth use, storage use, number of cores used, number of RAM-memory etcetera); information about the status of to be solved problems (feedback on status); more detailed insights on what the costs are of using the service (through, for example, more extensive invoices) as well as information about new trends in IT and relevant updates about new possibilities for the market that the customer operates in. Subsequently, almost all interviewees seem to indicate that the exchange of information has led to improvements to the services over time. As the quantitative already suggested, based on attribute COCR3 and COCR4, one finds it highly important that service providers also improve their services based on the feedback and critique that is ventilated through this exchange of information. However, we did find some evidence in the qualitative results that contradicts the gap along COCR3 and COCR4. However, we couldn't find a decent explanation for both its assigned importance as well as the analyzed gap in the qualitative results either. We argue that there are number of other factors that influence the perception on these attributes which do account for the existence of this gap. It therefore might be that COCR3 and COCR4, being the most important factors of the co-creation process according to the quantitative results, and may be a little misleading and overstated in its importance.

Even though we can confirm that the importance of the process of mutual exchange of information can be confirmed, it can be argued that the mutual exchange of information is not a value driver on itself, but rather a process that facilitates and/or enables other value drivers. We were able to distinguish three elements of such kind, based on the coding of the qualitative data: *The co-design of services*, *the customizability of services*, and as a part of the customizability of services*; the scalability / flexibility of services*. All of these elements thereby seem to confirm the importance of attribute COCR2 of the questionnaire. Based on the qualitative data, we argue that the gap along this attribute, as well as its

importance, can be confirmed in general. A large share of the interviewees, however, mention that they are not involved a lot in the co-design of new services even though they think that is valuable event though it is seen as time-costly. Next to this, and maybe even as a result of this, they would desire more possibilities for customization and scalability. It is stated by Kristensonn, Matthing & Johansson (2008) that customization differs from co-creation of products in that it generally requires less time, which, hence, might be more valuable for customers – often being short on time. However the importance can be confirmed, we argue that the importance of COCR2 might even be understated in the results of the quantitative research, based on the high value the respondents often seem to assign to these elements during the interviews.

Table 12: Qualitative analysis matrix of the co-creation process

Category	Subcategory	Related Items	Times Coded	Illustrative Quote(s)
Co-design of services	Co-creation of new services	COCR6	14	- "Creating new services together. That is pretty important I think. Because than you will have another competitive factor towards end-clients. However, it has to be concrete enough." - "Look. I have very little time.. if it is really a value-add for me and it is relevant, than I would. However, I would first have to understand where we specifically talk about and if it would therefore be relevant for us to participate."
	Inviting customers to co-creation sessions / Asking for input	COCR1	9	- "If it are services in which we see added value, then we definitely want to invest time in co-creation sessions." - "So, if they would invite you to come over and ask your input about certain new services, than you would be interested to do so? Oh yeah, sure. We are a creative firm as well so.. sometimes opportunities come along in which you have to invest a little so you can get returns out of it later. Definitely."
Mutual exchange of information & experiences		Several	43	- "Information sessions for customers.. about topics that are currently 'hot'.. that would be valuable if you have a good topic…" - **"Researcher:** Do you have the feeling that you receive all information that is needed in order to use the service optimally? **Customer:** Yes, and otherwise I will ask for it." - "We sit together regularly and then information is exchanged. Like what are the problems that we face… and then they think along with us in those things."
Handling problems / critique / feedback properly		COCR3 COCR4	32	- "We first had an engineer on site that didn't really fit in, we communicated that problem and het got replaced. That was just solved well." - "I think.. if we had recurring issues, it was recognized quickly and structurally solved. So, yes."
Scalability & Flexibility of service package	Technical scalability of service (IT-System based)	COCR2	16	- "You might want to up- and downscale more easily… the demand at our company is fluctuating quite regularly. Sometimes you want to have extra resources when you are doing a pilot project, and shortly after that you want to downscale again… Indicata BV is currently quite flexible with that.. but it would of course be even more valuable if you can make some kind of framework agreement which also, preferably, technically facilitates easy up and downscaling. "
	Functional scalability of service (Service Delivery)	COCR2	10	- "A problem that is also relating to upscaling is regarding consignation services. A flexible model which can deal with that would be very nice."
Value through customization		COCR2	33	- "I think that there definitely is added value in customizability through collaboration. - Customization is essential. If I would not have that possibility I wouldn't know why to hire a third party.." - "I think that you can't do without it.. However, it is of course the case that you want 80% to be generic.. because everything that is customized is expensive, but customizability is something great."

Qualitative results regarding the value-in-use facilitation process

After coding the qualitative data, one category concerning the value-in-use process was clearly mentioned to be highly valuable by *all* of the interviewees: *removal of burden / outsourcing.* For the majority, one of the main reasons for choosing for an external IT provider is because they want to be unburdened. They don't want to spent time on tasks that are not their core-business. Instead, they chose to pay an external party to do it for them, as they argue that this will increase their business effectiveness and, hence, will result into value-in-use. It is also mentioned that this unburdening also provides the customers a sense of assurance. Interviewee 8 mentions for instance that, whatever the problem is, he can delegate it to their IT provider and it will get solved. The latter is often mentioned in the interviews, indicating that the interviewees find it highly easing and assuring to do so. Next to this, interviewee 4 and 5 for instance mention that one don't have to worry about keeping up their IT knowledge up-to-date. They feel this *knowledge-based assurance* is provided through outsourcing. When looking at the quantitative data, we see that COCR5, enabling customers to spend more on their time business, is seen as third most important in the co-creation process after the integration of feedback (COCR4) and the integration of critique (COCR3). As mentioned earlier, we state that these two elements might have been overrated in the quantitative results. Hence, it can be argued that the removal of burden at the customers might well be the most important value element of the co-creation process. Next to this we argue that, when looking back to the development of the questionnaire, the removal of burden is better placed along the value-in-use process. However, this does not matter for the measurement of the importance of the attribute as the customers did not know to which process the attribute was relating at the time of filling in the questionnaire. Of course some customers mention that they still have some burden regarding their IT system now and then, and that is therefore not a "full unburdening of tasks". However, in general, the interviewees seem quite pleased with the performance of Indicata BV' outsourcing capabilities. This is also reflected in the quantitative results, where a gap of 0.59 was found. It can be argued that this gap is relatively small compared to the other gaps of the process. We argue that this gap is, hence, an adequate reflection of the reality and can be confirmed with the qualitative data after triangulation. In relation to the unburdening of customers, we found another specific value element that help the interviewees to unburden them from their non-core business. Interviewee 1 and 4 mentioned that they would like improvements to be made in the *administrative- & invoicing functionality* of the service provider, such as working with project numbers, clearer invoices and other improvements that have time-saving and/or removing burden from the customer.

A second major driver of value that was discovered along the value-in-use process, and of which it is mentioned to be very valuable, is the *proactive-ness of the service provider.* This value element was also measured in the questionnaire through VIU1 and came out to be the 2nd most important attribute of the value-in-use process. In the qualitative data, as many as 80 statements were made regarding the desire for proactive-ness. The majority interviewees did not only find this valuable, but told that they also have a high expectation from service providers regarding this element. Based on the qualitative research, we found that the majority of the interviewees expect proactive-ness on two levels: First of all, interviewees

expect a *proactive approach*. The interviewees mentioned that they often don't have the knowledge, time or resources to spot all problems themselves. Therefore it is expected that the service provider actively keeps track of what is going on in the businesses of its customers. It is expected that the service provider proactively takes (preventive) measures that decrease the chance on problems at the business of the customer. Next to this, a large share of the interviewees find it highly valuable when they are continuously informed on how the effectiveness of their business could be increased even further. This is what, subsequently, results in the expectation of *proactive information delivery*. As mentioned by interviewees 2, 4, 5, 7, 8 and 10, they don't want to spend time on following all the trends and market changes and that they, in turn, expect the service provider this for them and to inform them if there is something new on the market that could be valuable for their businesses. Almost all interviewees have mentioned that pro-active delivery of information is seen as highly valuable. However, to be able to do so, the service provider does need to keep track of these changes and needs to possess this information in order to be able to transmit and share this information with the customers. However, when looking at the qualitative data, this proactive delivery of information does not seem to happen much. Interviewees 2 and 4, for instance, get the feeling that problems are solved when they arise, but that they don't have the feeling that Indicata BV is moving beyond solving problems, even though that is what they are really interested in: constantly thinking about making the next step towards their greater goal for their business and constantly being one-step ahead in improving their IT-environment. To do this, it is mentioned that pro-active thinking is required.

This proactive thinking leads to the next valuable category that was derived out of the data: *Strategic advice delivery / roadmapping at the customers*. The majority of the interviewed customers state that they expect a service provider to provide them with (proactive) advice about how their purchased service could be used most optimally (VIU2) as well as and what they ought to do in the future regarding their IT-environment. Multiple interviewees, such as interviewees 4 and 5, admit to be highly depending on the knowledge and expertise of their service provider. Hence, the customers expect from service providers that they transmit their knowledge into their businesses. This, in turn, should be reached through sound and strategic advice. This, however, does requires the service provider to gather in-depth knowledge about the business of the customer. Hence, a large part of the interviewees argue that a service provider should have the right staff in order to so. However, Indicata BV does not seem to be able to entirely fulfill these needs of the customer even though the relating attribute came out as the most important attribute of the value-in-use process in the quantitative data (See VIU1). Interviewee 4 and 9 stress that engineers often lack the communicative and planning skills to create a strategic plan for the future together with the customer. On the other side, they argue that sales representatives are not entirely fit for this task either, because of their lack of project management skills. Next to this, interviewee 9 states that he feels like their main intention is a commercial one rather than providing advice. Interviewees 4 and 9 hence argue that it would be highly valuable to invest in a layer of employees that operate between sales representatives and engineers, such as business consultants. Interviewee 4 even mentions that this is the one thing of which

they would like to be improved the most. It can be argued that employing such staff does, of course, require an investment. However, it can be argued that it will most likely have its returns as well. This can be reached through customer retention, greater customer satisfaction and most likely new sales, as one is basically clarifying the needs of the customers and advising customers on how to fulfill those in the future. In addition to the previously explained element, customers mention that they desire *evaluation sessions / aftersales* with such business consultants. According to a large group of interviewees, such as interviewees 1, 2, 4, 5 & 10, these evaluation sessions would provide them the opportunity to exchange some thoughts about how they feel about the service, to discuss improvements based on their feedback (COCR4) and to collaboratively think with the service provider on where their business should move to in the future.

The final and concluding element that we found regarding the value-in-use process, as quite expected, was the *improvement of the customer's business.* We argue that this element reflects a "pure" value-in-use related element as this would very likely be the key value that the customer strives for in the end. The majority of the interviewees argue that, in the end, all earlier mentioned elements should contribute to the improvement of their business. This is understandable, as we argue that this is what a customer eventually strives for upon purchasing a service; one wants to be able to provide better service to their customers themselves by purchasing a service from an external party. Interviewee 9, for example, mentioned that he strives for "optimal operationability". To reach this, he chose to outsource his IT-tasks to Indicata BV. As this was not the core business of the customer, he figured that if he would outsource these tasks to Indicata BV, he would have fewer problems with their IT-systems. This would, in turn, enable him to experience as little downtime as possible, leading to improved efficiency of his business. He mentioned that he found this very important, as each minute that his IT-system was down, his employees could not do anything because of the technical nature of the service that they need to provide.

In summary, it can be argued that we found four main value elements that are seen as highly valuable by the customers: removal of burden from the customer (including increased administrative efficiency), pro-activeness, strategic advice delivery (including facilitating evaluation sessions at the customer) & the improvement of the customer's business. Thereby the last value element should be seen as a result of the previous three elements and the "final" goal of the customer. When looking at the performance of Indicata BV relating to such opportunities to create value, we argue that Indicata BV should put its main focus on pro-activeness and strategic advice delivery regarding the value-in-use facilitation process. We stress this on the combination of the high value that customers designate to these two elements and the relative large gaps that exist along these attributes. Hence, we argue that by improving these processes, the firm can increase the value for their customer effectively. Even though the unburdening of customers is seen as very important, the focal firm seems to perform quite well on this attribute already and, hence, we argue that it is should not be the main focus for improvement. This, however, does not mean that it should not be communicated in the value proposition, as customers seem to gain a lot of value-in-use through this unburdening when looking at the interviews.

Table 13: Coded categories of the value-in-use process as mentioned by respondents.

Category	Sub-categories	Times Coded	Related Items	Illustrative Quote
Outsourcing / unburdening customer		55	COCR5	- "I do not want to have any burden anymore. You are my experts, you fix the server roles for me, you provide the correct ip-ranges that should come along with it. Not me." - "When I look to the situation now.. we outsourced it… we are assured that we have a party that has the latest knowledge on technology, so that we can finally concentrate on our job." - "What I like.. you don't have any hassle anymore.. when you have a problem, you communicate it to Indicata BV and it gets fixed." - "What concerns me most is the complete unburdening of IT."
Administrative / invoicing functionality		44	COCR5	- "Administratively it is sometimes a bit tricky… It just takes a lot of effort to keep all the records in order. So there is a point of improvement there." - "The invoicing is unclear sometimes. That just pops up in my mind now. I have to approve all invoices, but sometimes I receive invoices from Indicata BV that only mention, for example, 'delivered services' of something like that, a very vague description with which I can't do much. Then I have to think about what it was again and I have to spend time to figure out what it was. That's sometimes a bit of a hassle."
Pro-activeness	Pro-active information delivery	39	VIU1	- "I would appreciate it if they pro-actively provide us with information when there are new innovations in the market that would be interesting for us… that they come to us and say ''look, I found this superb thing.. this would fit perfectly in your firm" - "What I do expect is that… if there is something of which Indicata BV thinks that it would fit in our organization, that they contact us about it.."
	Pro-active approach	80	VIU1	- "For example, We had to ask them about their mobile solutions, to brainstorm about that.. maybe they should proactively push such things a bit more. - "Sometimes I am amazed that Indicata BV does not take the initiative to ask to sit around the table with us, and talk through some things." - "How can we work towards a proactive improvement of the services. That is something that is of great importance to me."
Delivery of strategic advise / road mapping for customer		29	VIU4 VIU5	- "Like I mentioned, I would like to just have a couple of hours of time with Indicata BV sometimes, so we can think about the future.. what are the trends? What does the future bring us? That is what we need." - "What we want is.. that Indicata BV advises on how 2016 will look like for our company, IT-wise." - "For a very large part we do expect pro-active, strategic advice."
Evaluation sessions with the customer		35	VIU2 COCR4 COCR3	- "What I am missing are the evaluations in which we can talk about what to do the future.. for that you need someone that can take step back and take a look at your company.. which changes do we need to make to our IT system?" - "Exacty.. just talk for a few hours about how satisfied we are with the hardware and software.. how we handle all kinds of tasks regarding storage, back-up… do we need to make more troubleshoot backups? Do we need to place it in a cloud? Et cetera, et cetera.. " - "We want someone who speaks to us and says "well, we initiated this project.. but it is not going that well until now.. what are we going to do about it? "
Improvement of customers' business efficiency		22	VIU4 VIU5 COCR5	- "Look, my philosophy is 'optimal operationability', so my employees should be as operational as possible.. and Indicata BV should do everything it takes to get to that." - "I ask for a partner, and a partner thinks along with me on how I can get to those scale advantages"

General influencing factors regarding the service perception & potential additions to the service package.

Next to the process related value elements, we also derived a couple of value elements of which can be argued to be of a more general nature. We argue that these are more indirectly related elements instead of direct, process-related, elements. Nonetheless, these elements do seem to bring value to the customer In a couple of ways. First of all, we found that the *proximity of the service provider* is generally influencing factor. Thereby it seems to be the most important regarding the service interaction process through its positive effects on their communication and interaction with Indicata BV, as mentioned by interviewee 1, 8 and 10, their close proximity to their service leads to positive effects on e.g. their relationship with the service provider, their exchange of information, and the adequacy of the communication. Thereby some interviewee 6 even mentioned that they had chosen for Indicata BV, just because they were located nearby back when he decided to choose for Indicata BV. Other interviewees, in turn, gave similar statements, mentioning that it would probably be easier if the service provider was more closely located to their firm, like interviewee 7 and 9. However, we argue that proximity can't be "improved" as a process as one cannot easily move its existing firm from one place to another as well as that you will always face such problems in a certain degree, no matter where you located. Hence, we argue that it is rather a point of attractiveness for potential customers in the nearby area of Indicata BV, as being closely located to the service provider is seen as a benefit to customers.

As can be expected, the *price of the service* was mentioned to be an influencing factor regarding attractiveness of the offering/proposition. However, we found that a large group of the interviewees seem to find price less influencing when the firm is promising a good performance on various elements of the service interaction process. Interviewee 7 and 9 for instance, mentioned that even though the price of Indicata BV was higher than those of competitors, they had chosen for Indicata BV because they seem to have promised great value to the customer through, as mentioned by customers, partnerships, reliability, mutual trust and personal attention. It can thus be argued that even though the price does matter, it is not necessarily one of the key criteria of the customer. In addition, interviewee 9 even said that the price of a competitor was that low that he even felt discouraged in choosing for that offer, as this gave him a feeling of distrust. He mentioned that; "we got another offer from a competitor, who was much cheaper, but we didn't choose them… because we didn't believe them". Hence, it can be argued that a lower price can make the offer somewhat more attractive, under the condition that all other is equal. However, customers mention that IT-services are very seldom comparable. It can however be stressed based on the data that pricing the offering too low can result in distrust at the customer.

We also asked the interviewees about three promising future opportunities which might have value for the customer: Green IT Solutions; which can be defined as energy-saving and sustainable IT-solutions, IT Security services; delivery of advice regarding IT and Data security and finally; implementation of online

self-service helpdesks, which would enable customers and the end-users of customers to enter an online portal in which they can search for answers to their problems, 24/7.

We saw clear similarities in the answers of the customers regarding to the three service opportunities that we proposed. Regarding green IT solutions, the majority of the interviewees mention that they would most likely find this a valuable addition. However, half of the interviewees (interviewees 3, 4, 5, 6 and 7) mention that this is not *yet* their top priority. Even though this is the case, they do expect that this will be changing the coming years in a way that they expect it to get a higher priority in the coming years. The majority of the interviewees mentioned it would mainly be valuable if it can bring immediate cost-benefits through, mainly, reduced energy costs. Others, such as interviewee 7, sees the value of green IT solutions in a more intangible way, stating that it might help them in their image or compliance. Hence, we argue that offering 'green' IT solutions can add minor value at the moment but that it will most likely be increasing in value in the near future.

Regarding IT Security services customers there was a two-fold of answers to be recognized. On the one hand interviewees mention that they see this type of services to be valuable. Most of the interviewees see it as a valuable addition to the current service package, as they do not possess such knowledge themselves, even though it recognized as an upcoming priority. Interviewee 8 even communicated that he would like to be contacted about these kinds of services as soon as possible, as he had been struggling with such an issue for a while. In turn, interviewee 10 mentioned that he gets questioned about their safety more often by their own customers as well. However, even though these IT Security services are seen as valuable, it is mentioned that the interviewees, like interviewee 6, do want to see that Indicata BV has proven experience with such services before he will purchase it. This could, for instance, be shown through IT-security related certificates. On the other hand, some interviewees (5 and 8) already expect their purchased service to be safe in the first place. Hence, interviewee 5 and 8 did mention that when delivering such IT Security services as a separate service, it might look like the 'standard service' is not safe. It can therefore be argued that when offering such type of services, one should first clearly define the extra benefits of purchasing this service, which should reach beyond the level of security of the general IT-services that are already offered.

Subsequently, we proposed the use of online self-service helpdesk to the interviewees. This would enable customers to access an online "Frequently Asked Question"-style portal, in which customers are able to search for answers to their questions, 24/7. Again, the majority argued that this might come handy. However, it is mentioned that this should then be an addition to the currently existing helpdesk functionality. Possible benefits that were mentioned regarding the implementation of such a system were; being able to get answers to questions 24/7, higher accessibility to problem-solving information and the time-saving capacity of such systems. Hereby, the latter is seen as the main benefit from such an online self-service helpdesk.

Next to this, interviewee 2, 5 and 9 also came up with a potential addition to the service package themselves. Multiple customers stated that they would find it very valuable if Indicata BV would also offer *telecom-related* services. Thereby they state that this would be very useful as they feel that telecom and IT are getting more and more intertwined these days. Hence, multiple customers state that Indicata BV should expand their range of services by adding telecom in order to be able to offer a complete package of both IT and Telecom in one. This would, in turn, lead to *unburdening* of the customer as one only has to deal with one external party for all of their IT and Telecom related problems. Next to this, it can be argued that economies of scale might be achieved. When looking at the potential of this addition, then it can be argued to be very high in general. Interviewee 5 even stated that if Indicata BV would include telecom in its services today, he would be purchasing this service from Indicata BV the day after, so to speak.

In summary: Based on the qualitative results we stress that the price of the offering, as well as the proximity of the services provider, do influence the service perception of the interviewees. Thereby it can be stressed that lower prices are not automatically making the proposition more attractive. It is even mentioned by the interviewees (especially interviewee 9) that if a price is perceived to be too low it generates a feeling of disbelieve and distrust. In turn, a higher price is often accepted if one perceives high performance on several service interaction related attributes such as reliability, mutual trust, partnerships and personal attention. Thereby multiple interviewees stated that, even though the price was higher than those of its competitors, they still had chosen for Indicata BV because of this. Next to the price, the proximity of the service provider is also seen as an influential factor on their service perception. Some interviewees that are located near the focal firm state that they mainly experience the benefits of their close proximity through the attributes of the service interaction process, such as better communication their provider and a high speed of service delivery. Regarding the potential of possible additions to the current existing service package, we argue that all three additions that we proposed were generally seen as valuable, either now or/and in the (near) future. Next to this, interviewees 2, 5 and 9 strictly proposed that Indicata BV should include telecom in their service package as they often experience that telecom and IT services are highly intertwined in their business. Therefore they would see added value in this addition as it would enable them to purchase an "all-in-one" package from Indicata BV which, in turn, would lead to further unburdening of the customers and, possibly, a decrease in their costs.

5 Conclusions

The core aim of this research was to explain how customer value is created among service providers and, subsequently, how this understanding could be utilized to practically improve the customer value (propositions) of service providers. With this research we have contributed to the value (co-) creation literature by constructing an holistic understanding of value (co-) creation through an innovative combination of existing theories of value co-creation and added practical relevance to this research by putting the holistic understanding in practice. To do so, a mixed methods approach was used consisting of data collection through both questionnaires and in depth interviews with customers of Indicata BV, providing us insights on value (co-)creation in practice as well. The current study has proven that by integrating the theories of Zeithaml et al. (1990), Grönroos (2011) and Lovelock & Gummesson (2004), a holistic understanding value (co-) creation could be developed which sheds new light on value creation as an all-encompassing process.

Despite we concluded that each of the models fall short in explaining value creation on its own, we have proven that the three separate theories can be an enrichment to the existing literature on value creation when re-structuring the core elements of these existing theories into a chain of three *interconnected* and *subsequent* processes: *the service interaction process*, *the co-creation process* and *the value-in-use facilitation process.* The service interaction process should thereby be seen as the initial process of value creation, concerning the creation of perceived value through the service encounter. Through this process, the amount of customer value that is created is based on the quality of the encounter or *interaction* between the customer and the service provider. Our data has shown that the quality of this process highly determined and perceived by the customer through the "softer" elements of the interaction, such as the *empathy*, *assurance* and *reliability* that the service provider is able to deliver to the customer, instead of the "harder" and/or more objective and measureable elements of the interaction, such as the supporting *tangibles* as well as *responsiveness*.

Concerning the *value co-creation process*, of which we conclude to be subsequent to the service interaction process, we conclude that the process is forthcoming out of the encounter between customer and provider. During the value co-creation process both the service provider as well as the customer engage in one of the key forms of value creation: *Joint- or reciprocal value creation*. This type of value creation can be reached when the service provider and the customer are both creators of value by creating a better fit between the offering of the company and the desires of the customer, based on the mutual exchange of input between customer and supplier. As a result, customer value is generated. Our data suggests that the opportunities for *customization and scalability of the service* and the *facilitation of co-design sessions with customers* thereby are core elements for value creation inside this process.

Finally, we distinguished *the value-in-use facilitation process,* of which can be concluded to be the final process of value-creation according to our holistic understanding. This process mainly takes places at the customer sphere and, hence, places the customer as the main creator of value. During this final process the customer should, however, be supported by the service provider in the customers' creation of value upon usage of their purchased product: *Value-in-use*. Our data suggests that the *unburdening of the*

customer, a *pro-active approach to the customer* as well *as a pro-active supply of (strategic) information and advice to the customer* are concluded to be key determinants of customer value creation inside this process.

By utilizing a mix of quantitative and qualitative measurements that were developed during our research, we have been able to expose on which underlying attributes additional value can be created in a practical but holistic manner. By making an assessment of the gaps between customer perception and expectation along the attributes of all three value creation processes and exposing on how these gaps should be closed from a service-based view, we conclude that we also have achieved in creating two practical tools that enable service providers to put our holistic understanding of value creation in practice in order to increase their customer value. It, in turn, does also enable service providers to enhance their value propositions, based on the gathered insights on what the most important value elements along the different processes of value creation are according to the customer.

6 Discussion & advice for future research

When looking at the developed holistic understanding and the analyses that were presented in our research, we stress that we were able to provide a useful addition to the current literature in a variety of ways. When looking at the theory and insights of Zeithaml et al (1990), we mainly stress that our understanding places the service encounter as an important determinant and core for customer value creation, a relation which is left unexposed service quality literature until now. Even though Zeithaml et al. (1990) as well as Parasuraman et al (1988, 1991) do provide a detailed descriptions of how the service interaction quality can be measured and benchmarked, they do not provide a further investigation of how these insights could be reflected in terms customer value. Our research has shown, however, that by integrating and presenting the service encounter as the one and only enabler of value co-creation, it stands at the core of customer value creation. Subsequently, we stress that the insights of the SERVQUAL model have unjustly been left out of sight in the value (co-) creation literature in the last decade. We argue that, even though the existing insights on service quality literature did fall short in explaining value creation, one would also fall short in explaining value creation if one not includes it, based on the arguments that were presented in the current research. Furthermore, when reflecting our research to the findings of Grönroos (2011), we see that our understanding provides an addition to the insights of Grönroos (2011) in such a way that we place his theory into a broader and more detailed perspective. Even though Grönroos (2011) does explain the co-creation process in detail, it does not provide any insights on what underlying attributes make or break a successful co-creation process and which of these attributes of this process are truly valuable to the customer. Subsequently, we argue that the existing literature on co-creation should be careful with assuming that customers will "naturally" engage in a co-creation process. When scrutinizing this assumption based on the findings of the current research and the insights of Lovelock & Gummesson (2004), we stress that the customers participation in the co-creation process is not that self-evident. In our data we found numerous indications that refute this assumption. Our data shows that customers are not always that willing and/or able to engage in a co-creation process with the service provider. The results of the current research do for instance show that co-creation is often seen as a very time consuming and sometimes undesirable activity for customers when the purposes and potential value of such co-creation sessions are not clearly communicated by the service provider on beforehand. The willingness of the customers is, hence, not that self-evident, but has to be created by handling this the co-creation process in the right manner and seeing it in the right, holistic, perspective. According to our data, however, we see that the value of *customization*, as a less time-consuming and less-involving way of co-creating (Kristensonn, Matthing & Johansson, 2008) is more clearly recognized by customers.

A limitation of the current research is, however, that the holistic view on value creation that we have provided is developed from the perspective of a *knowledge intensive business services (KIBS)* providers only. Subsequently, adjustments to our holistic understanding may therefore be needed when applied to other service settings. The service processes that take place in other service setting might differ from those in a KIBS setting. When looking at the literature of Grönroos (2011) for instance, a clear difference is

made between full-service processes and self-service processes as well as it explains how these process result in differences regarding to how value is created. We stress that, due to the knowledge intensiveness of the setting in which the focal company does reside, one should keep in mind that the presented understanding on value creation is only reflected through a service setting in which full-service processes are very common. Subsequently, it should be stressed that full-service processes often imply long-term service deliveries containing services that are embedded over a longer period. This, hence, does provide the service providers a much better opportunity for co-creation and value-in-use facilitation to take place. As the interaction between the customer and provider is at the core of our framework, we stress that our conceptual framework is far less applicable in settings in which self-service process are most common. This decrease in applicability is based on that self-service process usually imply (very) short periods of service delivery and, hence, less interaction. In some self-service process settings the interaction between customer and provider is, for instance, mainly based on communication through automated devices, or is even entirely (and/or purposely) lacking. Hence, we propose that the development of a new holistic understanding for value creation in self-service settings is needed and/or a thorough assessment of the applicability of the current framework regarding to self-service processes should be done in future research.

In extension of this, our understanding might be influenced by yet unexposed confounding factors such as environmental, cultural or organizational factors (such as the earlier mentioned knowledge-intensiveness of the market in which the service provider operates in), which may have an impact on our proposed conceptual framework. Such unexposed factors could even force future research to alter our understanding as more and more will become known regarding such influential factors or variables. Testing the holistic model in multiple service settings will enable future researchers to disclose or expose other influencing factors that can explain of influence the relations between, and/or the influence on, the three value creation processes that we have distinguished. Some studies have, for instance, already tried to connect cultural factors to the concept of co-creation, such as the impact of cultural risk-averseness of organizations on the co-creation process (Voorberg, Bekkers & Tummers, 2014). Even though adjustments might be needed, we do believe that the core of our conceptual framework, the subsequence of the three processes that lie at the core of our understanding, are correct and, to a reasonable extent, also are applicable other service settings.

Finally, the current research can be seen as an extension of the theory of Aarikkaa-Stenroos & Jaakkola (2011), whom have already investigated co-creation concerning knowledge-intensive business services. As the current study holistically explains value creation in an IT-service setting, one of which we argue it to be highly knowledge intensive. Hence, it might be relevant for future researchers to apply additional depth and broadness to our framework, for instance through an innovative integration of the findings and premises that are presented by Arrikkaa-Stenroos & Jaakkola (2011).

7 Recommendations

First of all, as the holistic understanding is based on three subsequent processes, it is important to know that the processes are connected and subsequent to each other and that, hence, it is likely that the co-creation and value-in-use facilitation process are also likely to benefit from improvements that are made in the service interaction process. As an example, he current research has for instance shown that customers are more likely to *share more information (input)* as a result of a *well maintained relationship* with the service provider. This does not mean that service providers should only focus on improving the service interaction process alone. However, when the quality of the service encounter is very poor it can be argued that the co-creation process will suffer from this and, hence, might be harder to improve. Therefore, it can be stressed that it is wise to start with making improvements on the service interaction process when the gap analysis shows that the company is performing far below the expectation of the customer concerning the process.

Based on the data of this research, we found that service providers are able to practically improve their *service interaction process* through:

- *Maintaining continuity in staff deployment*. Customers prefer to deal with a same pool of employees of the service provider. Also will help in retaining knowledge about the firm of the customer.
- *Putting a focus on personal attention.* The current research has shown that customers allocate high importance to the fact that the service provider is personal. As an example, some interviewees have chosen the focal company because of its smaller size and therefore higher capability to maintain personal relations. Put your focus on customer intimacy.
- *Engage in "Strategic partnerships" rather than supplier-customer relationships*. As knowledge intensive service providers often embed their service over a longer period, it is important to that you do not only supply the needed resources to the customer (a supplier), but create true value by (pro)actively advising the customer during the service delivery. This will instill assurance and empathy.
- *Beware of putting too much focus on the harder process attributes of the service interaction.* This research has shown that, apart from the quality of the hardware, excellence in attributes concerning softer processes of the service interaction are seen as more important and valuable to the customer. Improving attributes that will instill assurance and trust will create major benefits in the following processes of value creation.
- *Making sure customers get constant feedback on what you are doing.* Keep the customer in the loop on what you are doing. Make sure that the customer knows that you are solving a problem for them and/or when exactly you will be implementing (certain parts of) your service. Practical examples to do so are helpdesk improvement, improvements in ticketing systems or "track-and-trace" systems regarding your service delivery.

Service providers are able to effectively improve customer value through the *value co-creation process* by:

- *Making sure that you facilitating the customers to share their feedback and desires with you.* Take initiative by organizing pre-structured brainstorms and/or co-creation sessions. Formulate the potential value of such sessions up front.
- *Increasing the scalability of the offered service.* Even though many services are sold at one point in time, the needs and desires of the customer may change over time. Hence it is wise to embed scalability in your service so that you are able to maintain a good fit between your offering and the desires/needs of the customer without needing to re-design the service that was initially implemented.
- *Looking for opportunities of mass customization*. As shown in the current research, customers do see the value of co-creation, but do not always have the time available for this. Mass customization does offer customers the possibilities to customize with them needing to invest a lot of time in evaluating the possibilities.
- *Implementing evaluation sessions.* Allows you to monitor the needs of the customer over time. Annual of bi-annual service evaluations can help service providers by doing so, allowing them to gather information on which improvements are the most desirable.

Effective process improvements regarding the *value-in-use facilitation process* include:

- *Being pro-active in your approach and information delivery.* Take initiative in future service deployments. Customers are often short on time and does often lacks the knowledge to do so themselves. Create value by fulfilling yet unfulfilled desires that were exposed during, for example, evaluation or feedback sessions.
- *Delivering strategic advice, becoming an long-term advisor of the client, not just a seller*. This will help in retaining customers and creating value-in-use for the customer by advising them how to use their purchased service most effective.
- *Ongoing unburdening of the customer on all of the providers', service related, non-core tasks.* Make sure that you allow the customer to create as much value-in-use as possible by saving them time on non-core tasks that are relating to the type of service that is provided. Inclusion of related services in the offering, such as combining telecom and IT, is thereby an example of unburdening the customer even further.
- *Improvement of the business of the customer is the core task of the service provider.* At all times, services should eventually lead to an increase of the customers' business in some way, for instance increased efficiency, a core example of value-in-use.

The developed quantitative instrument is thereby designed to be utilized over time. This is so that a service provider can see what the effects of the improvements are that were made by the company. By utilizing this instrument on, for example, a yearly basis, one is able to get an indication if the improvements of the service have led to a better performance. For Indicata BV, the current research could thereby be used as a benchmark for future measurements.

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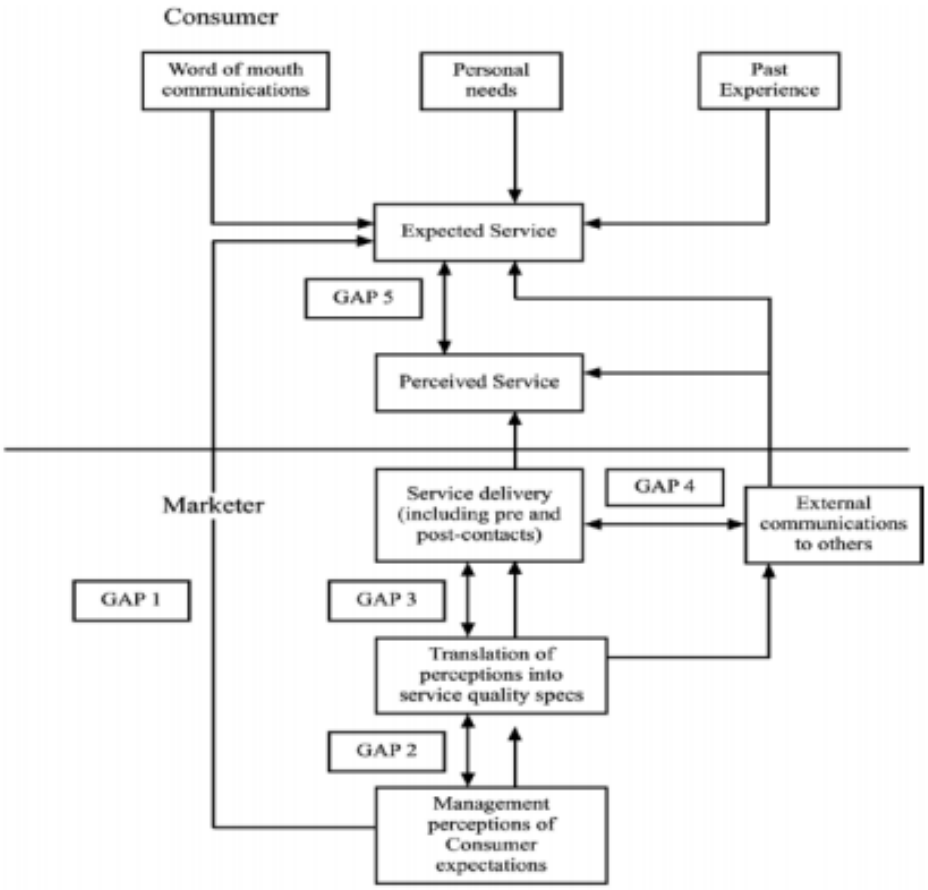
9 Appendices

APPENDIX A: Gaps Model



The conceptual model of Service Quality (SERVQUAL) or "Gaps" model (Source: Parasuraman et al. 1995, 1988, Zeithaml et al. 1990)

APPENDIX B: Dimensions of SERVQUAL scale

	SERVQUAL Dimensions				
Original Ten Dimensions for Evaluating Service Quality	Tangibles	Reliability	Responsiveness	Assurance	Empathy
Tangibles					
Reliability					
Responsiveness					
Competence Courtesy Credibility Security					
Access Communication Understanding the Customer					

The correspondence between SERVQUAL's new dimensions and the Original Ten Dimensions for Evaluating Service Quality (Zeithaml et al., 1990)

APPENDIX C: Foundational Premises

Foundational premises related to value creation according to Vargo and Lusch (2008) Source: Grönroos (2011)

Foundational premises related to value creation		Implication
No. 1	Service is the fundamental basis of business ("Service is exchanged for service")	The ultimate basis of activities performed by parties engaged in business is to provide service
No. 3	Goods are a distribution mechanism for service provision	Goods have no value in themselves, but only as transmitters of service for the user
No. 6	The customer is always a co-creator of value	The customer as user is always involved in the value-creation process
No. 7a	The firm cannot deliver value	Value is not embedded in resources delivered by the firm. Hence, the firm cannot produce value.
No. 7b	The firm can only offer value propositions	The firm cannot engage itself with the customer's value creation and influence it
No. 9	All social and economic actors are resource integrators	Consumption/usage is about integrating resources acquired from different sources into a usage process
No. 10	Value is always uniquely and phenomenologically determined by the beneficiary (e.g. in a business context the customer)	In a business context the customer and only the customer determines what value is created (or emerges) for him-/herself in the specific context of usage

APPENDIX D: IHIP Applicability

Applicability of "Unique Characteristics of Services" to Different Types of Services

	Service Category Involving			
	Physical Acts to Customers' Bodies (e.g., passenger transport, health care, lodging, beauty salons)	*Physical Acts to Owned Objects (e.g., freight transport, repair/ maintenance, warehousing, laundry and cleaning)*	*Nonphysical Acts to Customers' Minds (e.g., entertainment, news, education, consulting)*	*Processing of Information (e.g., Internet banking, insurance, accounting, research)*
Characteristic				
Intangibility	Misleading—performance is ephemeral, but experience may be highly tangible and even result in physical changes	Misleading—performance is ephemeral but may physically transform possession in tangible ways	Yes	Yes
Heterogeneity	Yes—often hard to standardize because of direct labor and customer involvement	Numerous exceptions—can often be standardized	Numerous exceptions—can often be standardized	Numerous exceptions—can often be standardized
Inseparability of production and consumption	Yes	No—customer usually absent during production	Only when performance is delivered "live"	Many exceptions—customers often absent during production
Perishability—cannot be inventoried after production[a]	Yes	Yes	Numerous exceptions—performance can often be stored in electronic or printed form	Many exceptions—performance can often be stored in electronic or printed form

a. Note, however, that some service industries can explicitly inventory defined units of capacity for sale in advance of production.

Table: Applicability of the characteristics of the IHIP schema. Source: Lovelock & Gummesson (2004)

APPENDIX E: Quantitative research tool

Exhibit A-1 Measuring expectations and perceptions of Service Delivery and Value (Co-)Creation Processes

Based on your experiences as a consumer of the *PaaS/On-Premise/System Management* IT services, please think about the kind of IT company what would deliver excellent quality of service. Think about the kind of IT company with which you would be pleased to do business. Please show the extent to which you think such an IT company would possess the feature described by each statement. If you feel a feature is not at all essential for excellent IT Companies, circle the number 1. If you feel a feature is absolutely essential for excellent IT Companies, please circle 7. If your feelings are less strong, circle one of the numbers in the middle that corresponds with your thought. There are no right or wrong answers – all we are interested in is a number that truly reflects your feelings regarding IT Companies that would deliver excellent quality of service.

Statement	Strongly Disagree			Neutral			Strongly Agree
TAN1: Excellent IT companies provide high quality equipment.	1	2	3	4	5	6	7
TAN2: Employees at excellent IT companies will be neat-appearing.	1	2	3	4	5	6	7
TAN3: At an excellent IT company, the goods and facilities associated with the service delivery are appealing and modern.	1	2	3	4	5	6	7
REL1: When excellent IT companies promise to do something by a certain time, they will do so.	1	2	3	4	5	6	7
REL2: When a customer has a problem, excellent IT companies will show sincere interest in solving it.	1	2	3	4	5	6	7
REL3: Excellent IT companies will perform the service right the first time.	1	2	3	4	5	6	7
RESP1: Employees of excellent IT companies will tell customers exactly when services will be performed.	1	2	3	4	5	6	7
RESP2: Excellent IT companies provide a quick delivery of their service.	1	2	3	4	5	6	7
RESP3: Employees of excellent IT companies will never be too busy to respond to customers' requests.	1	2	3	4	5	6	7
ASSU1: The behavior of employees of excellent IT companies will instill confidence in customers.	1	2	3	4	5	6	7
ASSU2: Employees of excellent IT companies will have the knowledge to answer customers' questions.	1	2	3	4	5	6	7
EMP1: Excellent IT companies will have operating hours convenient to all their customers.	1	2	3	4	5	6	7
EMP2: Excellent IT companies will have employees that show personal interest in solving the problem the customer.	1	2	3	4	5	6	7

EMP3: The employees of excellent companies will understand the specific needs of their customers.	1	2	3	4	5	6	7
COCR1: Excellent IT companies ask for input from customers for the development and creation of new services/products for their clients.	1	2	3	4	5	6	7
COCR2: Excellent IT companies offer highly customized services based on the customers feedback.	1	2	3	4	5	6	7
COCR3: Excellent IT companies take the critique that customers may have seriously.							
COCR4: Excellent IT companies are willing to improve their services based on feedback.	1	2	3	4	5	6	7
COCR5: Services from excellent IT companies enable customers to spend more time on their core-business.	1	2	3	4	5	6	7
COCR6: Excellent IT companies offer services which are designed together with the customer.	1	2	3	4	5	6	7
COCR7: Excellent IT companies invest in a good relationship with their customers to understand their needs.	1	2	3	4	5	6	7
COCR8: Employees of excellent IT companies invite customers to think about a solution that fits to their problem together.	1	2	3	4	5	6	7
VIU1: Excellent IT companies proactively think about which how their services would be valuable upon use in customers' businesses.	1	2	3	4	5	6	7
VIU2: Excellent IT companies actively support their customer in the usage of their service after purchasing.	1	2	3	4	5	6	7
VIU3: Services from excellent IT companies enable customers to perform a task of which they weren't able to before.	1	2	3	4	5	6	7
VIU4: Excellent IT companies facilitate customers in getting the most out of their purchased service.	1	2	3	4	5	6	7
VIU5: Purchasing services from excellent IT companies allows customers to gain more revenue with their businesses.	1	2	3	4	5	6	7
VIU6: Services from excellent IT companies should be delivered without much involvement needed from customer.	1	2	3	4	5	6	7

*= statement contains reversed questioning.

Exhibit B-1:

The following set of statements relate to your feelings about Indicata BV. For each statement, please show the extent to which you believe Indicata BV has the feature described by the statement. Once again, circling a 1 means that you strongly disagree with the statement, and circling a 7 means that you strongly agree disagree on the given statement. You may also circle the numbers in-between to show how strong your feelings about the statement are. There are no right or wrong answers – all we are interested in is the number reflects your perception about Indicata BV the best.

Statement	Strongly Disagree			Neutral			Strongly Agree
TAN4: Indicata BV provides high quality equipment.	1	2	3	4	5	6	7
TAN5: The employees of Indicata BV are neat-appearing.	1	2	3	4	5	6	7
TAN6: The goods and facilities associated with the service delivery of Indicata BV are appealing and modern.	1	2	3	4	5	6	7
REL4: When Indicata BV promises to do something by a certain time, they will do so.	1	2	3	4	5	6	7
REL5: When a customer has a problem, Indicata BV shows sincere interest in solving it.	1	2	3	4	5	6	7
REL6: Indicata BV performs its services right the first time.	1	2	3	4	5	6	7
RESP4: Employees of Indicata BV tells customers exactly when services will be performed.	1	2	3	4	5	6	7
RESP5: Indicata BV provides a quick delivery of their service.	1	2	3	4	5	6	7
RESP6: Employees of Indicata BV never are too busy to respond to customers' requests.	1	2	3	4	5	6	7
ASSU3: The behavior of the employees of Indicata BV instills confidence in customers.	1	2	3	4	5	6	7
ASSU4: The employees of Indicata BV have the right knowledge to answer customers' questions.	1	2	3	4	5	6	7
EMP4: Indicata BV its operating hours are convenient to their customers.	1	2	3	4	5	6	7
EMP5: Indicata BV has employees that show personal interest in solving the problem the customer.	1	2	3	4	5	6	7
EMP6: The employees of Indicata BV understand the specific needs of their customers.	1	2	3	4	5	6	7
COCR9: Indicata BV asks for input from customers for the development and creation of new services/products for their clients.	1	2	3	4	5	6	7
COCR10: Indicata BV offers highly customized services based on the feedback from their customers.	1	2	3	4	5	6	7
COCR11: Indicata BV takes the critique that customers might have seriously.	1	2	3	4	5	6	7
COCR12: Indicata BV is interested and well willing to listen to the feedback of their customers.	1	2	3	4	5	6	7
COCR13 Services from Indicata BV enable customers to spend more time on their core-business.							
COCR14: Indicata BV offers services which are designed and created together with the customer.	1	2	3	4	5	6	7
COCR15: Indicata BV puts time and effort into maintaining a good relationship with their customers.	1	2	3	4	5	6	7

COCR16: The employees of Indicata BV think about the best fitting solution through collaboration with their customers.	1	2	3	4	5	6	7
VIU7: Indicata BV proactively thinks about how their services would be valuable upon use in customers' businesses.	1	2	3	4	5	6	7
VIU8: Indicata BV actively supports their customers in the usage of the service after purchase.	1	2	3	4	5	6	7
VIU9: Services from Indicata BV enable customers to performa task of which they weren't able to before.	1	2	3	4	5	6	7
VIU10: Indicata BV facilitates customers in getting the most out of their purchased service.	1	2	3	4	5	6	7
VIU11: Indicata BV its services help customers in generating more revenue with their business.	1	2	3	4	5	6	7
VIU12: Services from Indicata BV are delivered without much involvement needed from the customer.	1	2	3	4	5	6	7

*= statement contains reversed questioning.

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APPENDIX F: Qualitative research tool

QUALITATIVE RESEARCH TOOL: INTERVIEW WITH CUSTOMERS OF INDICATA BV.

Date: _____
Time: _____
Company: _____

First let me introduce myself and explain you why I am here: My name is Job Leemreize and for my graduation from the University of Twente I am writing my thesis at Indicata BV. During my graduation I am researching how the service delivery and value creation processes of firms can be improved. The goal of this research is to enable companies to deliver more value to the customer through the improvement of these processes. Assessing the experiences and feedback from customer plays a key role in doing so.

I would like to know your opinion about Indicata BV today. In specific, we would like to know how you would evaluate the services that you are currently using from Indicata BV. In the coming 30-60 minutes, I would like to talk to you about a number of topics regarding Indicata BV's services, service delivery and service value for their customers. There are no right or wrong answers; we appreciate your sincere opinion. If a question is not entirely clear to you, please let me know so I can further explain the question.

Everything you say will remain confidential and is for research purpose only. It will not be shared with any other parties other than Indicata BV and/or the University of Twente. Your name, neither your company name, will be published in the final research report. In order to be able to gather all your valuable information I would like to ask you if I have your permission to audio-tape this interview.

Signature: _____

Now the purpose and the setting of the interview is clear, I would like to start with the interview. First I would like to ask you some questions about what service your company exactly uses from Indicata BV and how your company is currently using these services in their operations.

1. **Could you explain me for which purpose the service from Indicata BV is used in your company?**
    - What problems did your company face before using the service from Indicata BV?
    - Did the service from Indicata BV provide you a good solution to this problem?
    - How satisfied are you with the solution of Indicata BV in general?

2. **What do you consider to be the greatest benefits for your company due to using the service in your company?**
    - Is your company operating more efficiently/better now compared to when you did not use the purchased service?
        - Did the purchase of the service lead to, for example, more revenue , happier staff, more satisfied customers or higher efficiency due to the relieve time consuming any tasks ?

Thanks for your insights on the first questions. Now I would like to ask you for your insights about how Indicata BV performs in comparison with other companies in the same sector.

3. **When looking for a solution, did your company look into any alternative solutions next to the solution that Indicata BV offered? If not, why did you only look at the solution from Indicata BV?**
    - Did your company consider any offers from companies other than Indicata BV?
    - Could you explain why your company chose for the services of Indicata BV above those of another company?

The following questions will relate to your company's interaction and collaboration with Indicata BV as well as how, and how often, Indicata BV involves you in the improvement of current services and the development or creation of new services. Also we would like to know how you feel about the customizability of Indicata BV' services.

4. **Can you please tell me about how you interact with Indicata BV and how the collaboration with Indicata BV takes place? (How often, through which channels, with who?)**
    - How important is to you and your company to have good interaction with Indicata BV? Why?
        - Do you have the feeling that there is a good collaboration and interaction between your company and Indicata BV? Can you explain why (not)?
        - Do you feel like this interaction allows your company to make the service more fitting/personalized to your company through the interaction with Indicata BV? How?

5. **Do you feel like Indicata BV provides you a good opportunity to customize your service? How?**
    - To what degree do you expect service suppliers to provide a possibility to customize their services to fit your needs?
    - Are there any other elements of Indicata BV' services which you would like to be customizable in the future?

6. **Does Indicata BV involve your company in the development or creation of services? If so, can you please tell us how?**
    - To what extent do you think that this co-creation of new services is important for your company?
    - Would your company be willing to spend time on developing new services in collaboration with Indicata BV? Why (not)?

7. **To what degree does your company exchange useful information or experiences with Indicata BV regarding their service(s)? How is this exchange currently happening?**

    - If so, has this exchange of information lead to the improvement of your services over time? How?
    - Do you think that a more extensive use of Social Media would help in improving this exchange of information between Indicata BV and your company ?
    - Do you feel like you have access to all the right information that you need in order for your company to use the service as well as possible?
    - Is there any kind of information which you would like to be provided from Indicata BV that is not provided yet - or should be provided more regularly - in order to improve your user experience with their service?

Finally, we would like to know if there are any specific improvements which could be made to Indicata BV services, or if there are any other new services or changes to services which you would like to see.

8. **Are there any things which Indicata BV could improve on its services in order to make them better for your company?**

    a. Could you please tell us if and how you think that the following services/technologies would be promising or not upon usage in your company?

        i. An online self-service helpdesk.
        ii. IT Security services
        iii. Green IT Services

APPENDIX G: Reliability & Adequacy tests

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,798
Bartlett's Test of Sphericity	Approx. Chi-Square	1074,972
	df	378
	Sig.	,000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,804
Bartlett's Test of Sphericity	Approx. Chi-Square	1497,863
	df	378
	Sig.	,000

Results of the Kaiser-Meyer-Olkin tests.

Reliability Statistics (Expectation Questionnaire)

Cronbach's Alpha	N of Items
,948	28

Reliability Statistics (Perception Questionnaire)

Cronbach's Alpha	N of Items
,975	28

Results of the Cronbach's Alpha test for the Expectation and Perception scales

Reliability Statistics - Expectations of Service Interaction Process

Cronbach's Alpha	N of Items
,910	14

Reliability Statistics - Expecations of Co-Creation Process

Cronbach's Alpha	N of Items
,871	8

Reliability Statistics - Expecations of Value-in-use facilitation

Cronbach's Alpha	N of Items
,792	6

Results of the Cronbach's Alpha test for the three separate processes (expectation)

Reliability Statistics - Perceptions of the Service Interaction Process

Cronbach's Alpha	N of Items
,945	14

Reliability Statistics - Perceptions of the Co-Creation Process

Cronbach's Alpha	N of Items
,947	8

Reliability Statistics - Perception of the Value-in-Use facilitation process

Cronbach's Alpha	N of Items
,901	6

Results of the Cronbach's Alpha tests for the three separate processes (perception)

Appendix H: Tests for sample normality

Shapiro Wilk & Kolmogorov-Smirnov tests for normality of sample

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
TAN1	,402	47	,000	,658	47	,000
TAN2	,252	47	,000	,887	47	,000
TAN3	,249	47	,000	,851	47	,000
REL1	,349	47	,000	,685	47	,000
REL2	,405	47	,000	,641	47	,000
REL3	,248	47	,000	,803	47	,000
RESP1	,252	47	,000	,792	47	,000
RESP2	,282	47	,000	,862	47	,000
RESP3	,296	47	,000	,852	47	,000
ASSU1	,295	47	,000	,768	47	,000
ASSU2	,297	47	,000	,763	47	,000
EMP1	,249	47	,000	,825	47	,000
EMP2	,263	47	,000	,766	47	,000
EMP3	,263	47	,000	,719	47	,000
COCR1	,197	47	,000	,858	47	,000
COCR2	,257	47	,000	,793	47	,000
COCR3	,370	47	,000	,662	47	,000
COCR4	,272	47	,000	,785	47	,000
COCR5	,293	47	,000	,742	47	,000
COCR6	,218	47	,000	,860	47	,000
COCR7	,293	47	,000	,782	47	,000
COCR8	,212	47	,000	,847	47	,000
VIU1	,266	47	,000	,815	47	,000
VIU2	,236	47	,000	,814	47	,000
VIU3	,264	47	,000	,857	47	,000
VIU4	,272	47	,000	,818	47	,000
VIU5	,191	47	,000	,888	47	,000
VIU6	,192	47	,000	,896	47	,001
TAN4	,287	47	,000	,850	47	,000
TAN5	,298	47	,000	,805	47	,000
TAN6	,384	47	,000	,728	47	,000
REL4	,245	47	,000	,819	47	,000
REL5	,348	47	,000	,738	47	,000
REL6	,279	47	,000	,824	47	,000

RESP4	,209	47	,000	,892	47	,000
RESP5	,212	47	,000	,885	47	,000
RESP6	,223	47	,000	,901	47	,001
ASSU3	,284	47	,000	,825	47	,000
ASSU4	,296	47	,000	,838	47	,000
EMP4	,185	47	,000	,903	47	,001
EMP5	,289	47	,000	,795	47	,000
EMP6	,255	47	,000	,756	47	,000
COCR9	,164	47	,003	,904	47	,001
COCR10	,220	47	,000	,856	47	,000
COCR11	,322	47	,000	,753	47	,000
COCR12	,213	47	,000	,851	47	,000
COCR13	,321	47	,000	,782	47	,000
COCR14	,199	47	,000	,926	47	,005
COCR15	,259	47	,000	,828	47	,000
COCR16	,335	47	,000	,757	47	,000
VIU7	,245	47	,000	,810	47	,000
VIU8	,225	47	,000	,882	47	,000
VIU9	,203	47	,000	,904	47	,001
VIU10	,212	47	,000	,886	47	,000
VIU11	,168	47	,002	,928	47	,007
VIU12	,204	47	,000	,906	47	,001

a. Lilliefors Significance Correction

Appendix I: Value importance scores per individual process.

Value improval scores (VIS) – Service Interaction Process

Item Pair	Gap	Expec.	VIS	Item Pair	Gap	Expec.	VIS	Item Pair	Gap	Expec.	VIS
TAN1 - TAN4	0,7	6,55	**4,585**	**RESP1 - RESP4**	1,08	6,27	**6,7716**	**EMP2 - EMP5**	0,54	6,24	**3,3696**
TAN2 - TAN5	0,61	5,41	**3,3001**	**RESP2 - RESP5**	0,47	5,73	**2,6931**	**EMP3 - EMP6**	0,88	6,37	**5,6056**
TAN3 - TAN6	0,11	6	**0,66**	**RESP3 - RESP6**	0,75	5,75	**4,3125**				
REL1 - REL4	1,17	6,49	**7,5933**	**ASSU1 - ASSU3**	0,84	6,37	**5,3508**				
REL2 - REL5	0,78	6,57	**5,1246**	**ASSU2 - ASSU4**	0,71	6,39	**4,5369**				
REL3 - REL6	1,07	6,24	**6,6768**	**EMP1 - EMP4**	0,67	6,14	**4,1138**				

Value Improval Scores (VIS) - Value co-creation process.

Attribute Pair	Gap	Expec.	VIS	Attribute Pair	Gap	Expec.	VIS
COCR1 - COCR9	0,95	5,84	**5,548**	**COCR5 - COCR13**	0,59	6,14	**3,6226**
COCR2 - COCR10	0,82	6,14	**5,0348**	**COCR6 - COCR14**	0,62	5,49	**3,4038**
COCR3 - COCR11	1,06	6,57	**6,9642**	**COCR7 - COCR15**	0,38	6,12	**2,3256**
COCR4 - COCR12	0,95	6,33	**6,0135**	**COCR8 - COCR18**	0,22	5,9	**1,298**

Value Improval Scores (VIS) - Value-in-use facilitation process

Attribute Pair	Gap	Expec.	VIS	Attribute Pair	Gap	Expec.	VIS
VIU1 - VIU7	0,88	6,16	**5,4208**	**VIU5 - VIU10**	0,75	5,43	**4,0725**
VIU2 - VIU8	0,62	6,22	**3,8564**	**VIU6 - VIU11**	0,14	4,88	**-0,6832**
VIU3 - VIU9	0,6	5,73	**3,438**				
VIU4 - VIU10	0,84	6,14	**5,1576**				

Appendix J: Value improvement score ranking based on all attributes of the three processes.

Value Improvement Scores (VIS) – Ranking of all attribute pairs along all three processes of value (co-)creation.

Process	Attribute Pair	Gap	Expec. Score	VIS (GAP*Expec. Score)
Service Interaction Process	REL1 - REL4	*1,17*	6,49	**7,5933**
Value Co-creation Process	COCR3 - COCR11	*1,06*	6,57	**6,9642**
Service Interaction Process	RESP1 - RESP4	*1,08*	6,27	**6,7716**
Service Interaction Process	REL3 - REL6	*1,07*	6,24	**6,6768**
Value Co-creation Process	COCR4 - COCR12	*0,95*	6,33	**6,0135**
Service Interaction Process	EMP3 - EMP6	*0,88*	6,37	**5,6056**
Value Co-creation Process	COCR1 - COCR9	*0,95*	5,84	**5,548**
Value-in-use Facilitation Process	VIU1 - VIU7	*0,88*	6,16	**5,4208**
Service Interaction Process	ASSU1 - ASSU3	*0,84*	6,37	**5,3508**
Value-in-use Facilitation Process	VIU4 - VIU10	*0,84*	6,14	**5,1576**
Service Interaction Process	REL2 - REL5	*0,78*	6,57	**5,1246**
Value Co-creation Process	COCR2 - COCR10	*0,82*	6,14	**5,0348**
Service Interaction Process	TAN1 - TAN4	*0,7*	6,55	**4,585**
Service Interaction Process	ASSU2 - ASSU4	*0,71*	6,39	**4,5369**
Service Interaction Process	RESP3 - RESP6	*0,75*	5,75	**4,3125**
Service Interaction Process	EMP1 - EMP4	*0,67*	6,14	**4,1138**
Value-in-use Facilitation Process	VIU5 - VIU10	*0,75*	5,43	**4,0725**
Value-in-use Facilitation Process	VIU2 - VIU8	*0,62*	6,22	**3,8564**
Value Co-creation Process	COCR5 - COCR13	*0,59*	6,14	**3,6226**
Value-in-use Facilitation Process	VIU3 - VIU9	*0,6*	5,73	**3,438**
Value Co-creation Process	COCR6 - COCR14	*0,62*	5,49	**3,4038**
Service Interaction Process	EMP2 - EMP5	*0,54*	6,24	**3,3696**
Service Interaction Process	RESP2 - RESP5	*0,47*	5,73	**2,6931**
Value Co-creation Process	COCR7 - COCR15	*0,38*	6,12	**2,3256**
Value Co-creation Process	COCR8 - COCR18	*0,22*	5,9	**1,298**
Service Interaction Process	TAN3 - TAN6	*0,11*	6	**0,66**
Value-in-use Facilitation Process	VIU6 - VIU11	*-0,14*	4,88	**-0,6832**
Service Interaction Process	TAN2 - TAN5	*-0,61*	5,41	**-3,3001**

Appendix K: Backgrounds/roles of interviewees

Interviewee No.	Role in organization	Sector of organization	Date and duration of interview
Interviewee 1	Development Manager	IT	13/02/14, Duration: 00:29:06
Interviewee 2	Head of operations	Cultural Organization	20/02/15, Duration: 00:56:52
Interviewee 3	Head of IT	Nutrition	24/02/15, Duration: 00:22:34
Interviewee 4	IT Manager	Nutrition	02/03/15, Duration: 00:47:17
Interviewee 5	Innovation Manager	Industrial Design	19/03/15, Duration: 00:36:17
Interviewee 6	Manufacturing Manager	Engineering	18/03/15, Duration: 00:20:09
Interviewee 7	IT Manager	Recruitment	06/03/15, Duration: 00:20:54
Interviewee 8	ICT Manager	Energy	05/03/15, Duration: 00:47:34
Interviewee 9	Head of operations	Engineering	04/03/15, Duration: 00:38:53
Interviewee 10	Operations Manager	IT	25/03/15, Duration: 00:30:30