TAMPERE UNIVERSITY OF TECHNOLOGY

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RECOGNIZING THE OPPORTUNITIES FOR NEW SERVICE-ENHANCED PRODUCTS

Master of Science Thesis

Prof. Miia Martinsuo and Dr. Mika Ojala have been appointed as the examiners at the Council Meeting of the Faculty of Business and Technology Management on August 17, 2011.

ABSTRACT

TAMPERE UNIVERSITY OF TECHNOLOGY
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In a modern, globally competitive business environment, it is no longer enough to make quality products or even satisfy the stated needs of the customer. To create competitive advantage, a company has to discover latent needs of the customers and provide solutions to their problems – even the ones that the customers were not aware of. Both the suppliers and the customers in metal industry have stated their interest in shifting towards a more service-oriented approach.

The task of this study was to find out how an industrial, product-oriented company can recognize and utilize opportunities for developing services that create value to their customers. The goal was to identify the components of customer value, find out ways to discover value creation opportunities in the metal industry, and to create a framework that the case company could use to get information from customers and recognize opportunities for new service business.

Majority of existing service research focuses on after-sales services on the installed base, and cannot be applied as such in metal industry. This work focused on discovering latent customer needs and identifying and creating customer value. Various concepts of customer value, along with processes of developing customer understanding, are discussed.

Theme interviews were conducted with the case company and two of its customers with a goal of gaining insight into the customers' and their respective customers' operations. Data from customer interviews was mirrored against data from the case company interviews. Workshops with the case company were used to verify and validate the data. The most important components of customer value were seen to be delivery time and appropriate pricing. Another theme that arose from the research was the opportunity to influence other parts of the supply chain. Third parties, such as end product designers can play a major role in deciding which materials to use. By influencing them, it is possible to affect the demand of products throughout the supply chain.

TIIVISTELMÄ

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Maailmanlaajuisesti kilpaillussa liiketoimintaympäristössä laadukkaiden tuotteiden valmistaminen tai edes asiakkaan ilmaisemien tarpeiden täyttäminen ei riitä menestykseen. Kilpailuedun luomiseksi on havaittava asiakkaiden piilevät tarpeet ja löydettävä ratkaisuja heidän ongelmiinsa – myös niihin joista asiakkaat eivät ole vielä edes tietoisia. Kiinnostus palvelusuuntautumisen lisäämiseen on ilmaistu selkeästi sekä metalliteollisuuden toimittajien että asiakkaiden taholta.

Palveluiden tutkimus keskittyy pääsääntöisesti asennettuun laitekantaan kohdistuviin palveluihin eikä näin vastaa metalliteollisuuden tarpeita. Tässä työssä selvitettiin kuinka teollinen, tuotekeskeinen yritys voi tunnistaa ja hyödyntää mahdollisuuksia asiakasarvoa lisäävien palveluiden kehittämiseen. Tavoitteena oli tunnistaa asiakasarvon komponentit ja arvontuoton mahdollisuudet teollisuudenalalla ja luoda viitekehys asiakastiedon keräämiseen ja uusien palvelumahdollisuuksien tunnistamiseen. Erityisesti painotettiin piilevien asiakastarpeiden havaitsemista.

Kohdeyritykseen ja sen kahteen asiakasyritykseen perehdyttiin teemahaastattelujen muodossa. Tavoitteena oli saada tietoa asiakkaiden ja heidän asiakkaidensa toiminnasta, sekä selvittää kuinka uusiin palvelumahdollisuuksiin liittyvää tietoa voidaan parhaiten kerätä. Asiakkailta saatu aineistoa peilattiin kohdeyrityksestä saatuun aineistoon. Kohdeyrityksen kanssa järjestettyjä työpajoja käytettiin aineiston tarkistamiseen ja vahvistamiseen. Tutkimuksen perusteella asiakasarvon tärkeimmät komponentit metalliteollisuudessa ovat toimitusaika ja hinta. Tutkimuksessa ilmeni myös toimitusketjun muihin osapuoliin vaikuttamisen mahdollisuus; kolmannet osapuolet, kuten lopputuotteen suunnittelijat, voivat olla ratkaisevassa asemassa materiaalivalintojen suhteen. Näihin osapuoliin vaikuttamalla on mahdollista parantaa tuotteiden kysyntää läpi toimitusketjun.

PREFACE

After many, many years of studies, my Master's thesis is now completed. Conducting this study and writing the thesis has been both challenging and interesting. I have been able to utilize what I have learned in my studies, both in University of Maine and Tampere University of Technology, and apply them to a new field of business that I was not familiar with beforehand. For that reason, I believe that this work has been an excellent learning process for me.

I am thankful for everyone who has helped and supported me during this journey. First, I would like to thank Miia and Mika for their instructions, advice, and ideas, and Tapio, Jesse, Emil, and everyone else who has played a part in creating this supportive working atmosphere. I would also like to thank everyone who has participated and invested their time in this research.

Most of all I want to thank my family, my Mom, Dad, and sisters for their continuous support from day one; without you, this would not have been possible. I also want to thank Suvi for supporting me through the ups and downs of the writing process.

Tampere, March 15, 2012

Olli Ahvenniemi

ABBREVIATIONS AND NOTATION

B2B	*Business-to-Business*
B2C	*Business-to-Consumer*
CVD	*Customer value determination*
MRO	*Maintenance, repair, operation*
NPD	*New Product Development*
NSD	*New Service Development*
R&D	*Research and development*
SSP	*Services that support the supplier's product services that support the client's action in relation to the supplier's product*
SSC	*Services that support the client's action in relation to the supplier's product*

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1. INTRODUCTION

1.1. Background and motivation

Globalization of economy has created a new playing field in many industries. Increased competition is forcing companies to develop their offering to better cater to their customers' needs. This affects the entire supply chain and has provided a basis for totally new service innovations. While companies increasingly focus on their core business areas, the need for suppliers to develop services that support, or in some cases replace, customers' operations is evident. There can be great opportunities of growth for companies that can provide such services through business relationships.

For more and more companies, service business is becoming a crucial way to achieve a sustainable competitive advantage. With increasing competition the possibility to make breakthrough technological innovations decreases. This forces companies to find new sources for sustainable competitive advantage. Two basic options to gain competitive advantage can be distinguished: price and offering customer-based innovative services. It is extremely difficult to successfully maintain competitive advantage by pricing in a very competitive business. This means that offering customer-based innovative services is the best way to create sustainable competitive advantage (FIMECC, 2010). It has also been studied that with consumer products, product innovation and quality alone can no longer provide a basis for a competitive advantage (Butz Jr. & Goodstein, 1996). Similar conclusions can be made about B2B-products.

Service business innovation has been defined as the process of improving, expanding and transforming the entity of services and service operations to achieve the firm's own and customer benefits (Martinsuo & Seppänen, 2010). 'Service' in this case could be seen as enhanced products, services or solutions that help customers improve their operations and their offering to the end user.

The emphasis in this type of project has to be on customers. By finding out their preferences and needs – conscious and subconscious – the supplier can best develop services that provide mutual benefits. Providing services to customers is an excellent way to get more customer feedback and find out about customer needs, creating a positive snowball effect. The better the company knows its customers, the better it can provide them with services that answer even to their latent needs.

It is important to explain the benefits that new services give to customers. It has been argued that giving people a reason to try a service in a crowded marketplace requires going a step above what they experience with their current service. If a company is

offering a new class of services, it also has to get its customers to recognize the value of trying something new (Jones & Samalionis, 2008).

At a workshop held at the case company in June 2011, it was explicitly mentioned several times that a framework with which the salespeople could assess their key customers was needed. At the moment they walk into customer meetings empty handed - figuratively speaking - and clearly expressed a need for the aforementioned framework.

Customers may not necessarily know what they want or need, especially when it comes to radical innovations in products or services. Likewise the firm may not realize what kind of opportunities it has to offer new services to its customers. Developing a framework from an outsider's point of view can help the company to see possibilities that it has not noticed before and this way also create benefits for its customers.

Most research conducted in the field of product related service business has concentrated on after sales functions such as maintenance. Because of the nature of the metal industry most service opportunities are directly bundled with the product itself, whereas after sales service or services on installed base seem to be of little importance in this context. For this reason, the research concentrates on services that are linked to or support the companies' core products. This viewpoint was first brought up by Levitt, who developed the concept of augmented product (T. Levitt, 1969). Also, the after sales element is less emphasized due to the nature of the core products in question. There is a lack of appropriate research on this type of services; very little research has been made on linking services to bulk or more refined metal products that are used as components in customers' manufacturing processes.

1.2. Case company

The main company in this study is a large industrial, product oriented company that supplies metal-based products to the construction and mechanical engineering industries. It is divided into business units based on the area of expertise. It offers a wide variety of metal products, and lately it has begun to focus more on the product service systems in the construction and engineering industries. In this case we are focusing on the metals sector and its service units.

The company is increasingly facing competition, especially with bulk products. Companies from both Europe and low cost countries have caught up with quality requirements and can in some cases offer products with lower prices. The company has seen new service development as a way to better separate them from the competition and create new competitive advantages in metal industry. In this study, the case company will be referred to as MetalCo.

1.3. Research questions and objectives

Based on the project guidelines and background research, the main question to be answered is:

How can an industrial, product-oriented company recognize and utilize opportunities for developing services that create value to their customers?

This can be divided into three subquestions:

1. *Which are the different components of customer value with service-enhanced products in metal industry?*
2. *Who are the main influencers of demand in metal industry?*

Answering these questions allowed for concentrating on the essential parts when moving on to subquestion number 3.

3. *How can information that supports new service opportunities be collected and analyzed?*

The objectives of this research can be derived from these questions. The first objective is to identify the components of customer value. Closely linked to this is the second objective, to find out ways to discover value creation opportunities for the supplier in customers' business. The third and most important objective is to create a framework that the case company and especially its salespeople can use to recognize opportunities for service business innovation among their customers. In ideal situation, sales people such as key account managers could take this framework as a basis for customer assessment. Fourth objective is to increase general, academic knowledge about this particular area of study.

Framework creation, data collection and analysis can lead to instant discovery of new service opportunities. However, this is not a direct objective of this research, just a possible bonus feature. The main goal is to create a framework that can be used to recognize service opportunities now and in the future.

1.4. Scope of the thesis

The basis of this thesis is in researching the opportunities that the case company has in order to develop new service concepts to its customers. The object is not to find new concepts, although that could as well happen during the research, but to create a framework that the case company can use to approach its key customers and find out their service needs. This study focuses on understanding the concept of service enhanced products, discussing the value dimensions of services in metal industry, and developing a framework that can be used in future customer assessments.

While the case company is an international company, this study is limited to two customers located in Finland. The goal is to create a framework that could also be applied to other key customers, mainly in Finland but also elsewhere.

This study concerns metal and engineering industry, and the framework is designed with that in mind. With modifications, it could be used in other fields of business as well.

It is not in the scope of this study to go into technical details about how new services are created, just to give the case company a tool to help with the new service development process.

1.5. Structure of the thesis

The basis for this research was the literature review. It was made to support the creation of the customer understanding framework, and the preliminary framework was constructed based on the findings in the literature review. The preliminary framework was tested and further developed during the customer interview phase of the empirical research.

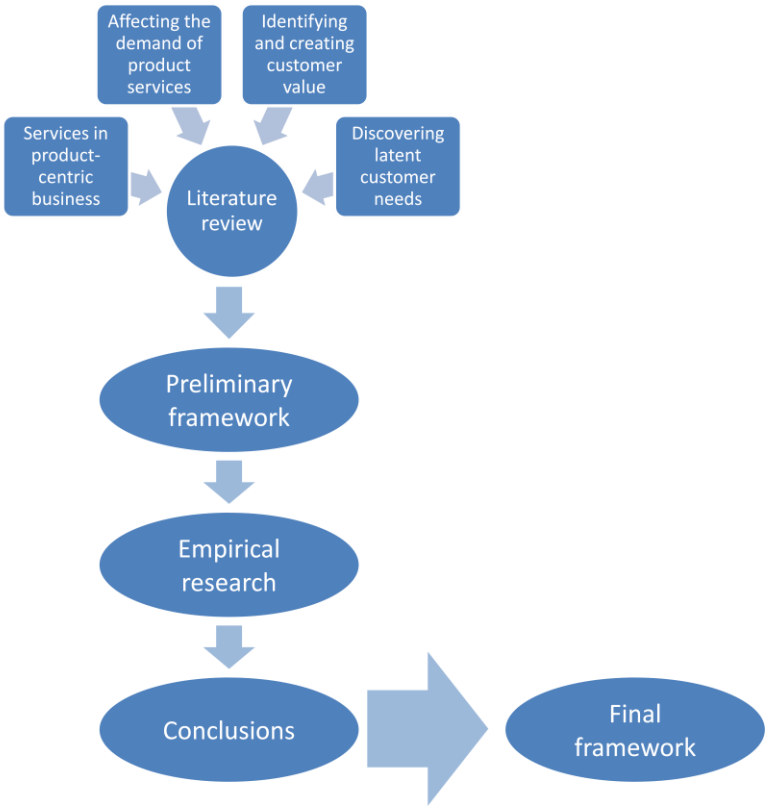

Figure 1. Structure of the thesis.

Based on the analysis and conclusions that were made from the empirical research, a final framework was constructed. It combines the most useful and appropriate

components of the preliminary framework, and is modified to provide a simple tool for people in contact with customers. The structure of this report is shown in figure 1.

2. THEORETICAL BACKGROUND

2.1. Services in product-centric business

A majority of service research concentrates on services on installed base of products, e.g. maintenance of machinery or spare parts purchasing. Because of the nature of the business, this does not directly apply in this case, and thus new approaches are needed. As mentioned in the first chapter, this research takes place in the context of product-centric business and takes the viewpoint of augmented product when looking at services.

2.1.1. Types of services

Services are usually separated from tangible products with a few specific properties. The most commonly mentioned properties are intangibility, heterogeneity, inseparability and perishability. All these characteristics have been questioned by various scholars (e.g. Vargo & Lusch, 2004b, C. Lovelock, 2000), and there are also many viewpoints supporting the idea that services and tangible products should be looked at as one entity.

It has been mentioned that services cannot be produced separately from the customer. The delivery of the service is equivalent to its production. However, service capacity can also be kept on stand-by condition (Edvardsson & Olsson, 1996). However, services such as providing design and product attribute manuals can be seen as very standardized and in a way independent of the customer.

Usually business service classifications have taken the perspective of the supplier as opposed to that of the buyer. Wynstra et al. (Wynstra, Axelsson, & Valk, 2006) classified services based on how the buyer applies the service to its own business processes. In the last decades, it has been argued that marketing and purchasing research should focus on the ongoing interactions between customers and suppliers and less on the transactional purchasing process. This is closely linked to the thought of relationship marketing.

There have been many attempts to distinguish service types through the years. Kotler and Griffin (Kotler & Griffin, 1994) divided business services into two broad categories: maintenance services and business advisory services. Lalonde and Zinszer (Lalonde & Zinszer, 1976) classified services based on whether they are offered before, during or after the sale. Frambach et al. (Frambach, Wels-Lips, & Gündlach, 1997) proposed a classification based on whether the provided services are transaction related

or relationship related. The transaction related services can be divided between usage related product services that take place before or after the transaction, and purchase related product services (Frambach et al., 1997).

Mathieu challenged the traditional perspective of product services with a new classification system (Mathieu, 2001). She identified two types of product services: services that support the supplier's product (e.g. after-sale service) (SSP) and services that support the client's action in relation to the supplier's product (e.g. training service) (SSC). The first type is more along the lines of traditional services provided in business markets, but the second requires better understanding of the product services offering. Whereas the main goal of a service supporting the product is to make sure that the product is properly functioning and the client has access to it, the service supporting the client's action means that the supplier has to consider how services support clients' initiatives and assist in reaching their goals. Under this classification, if a company wants to provide advanced services, it requires thorough knowledge of its customers' operations. This is very much in line with the viewpoint that customer understanding is vital in new service development. Services that support the client's actions are usually highly customized, while services that support the product are generally seen to be quite standardized. Also the supplier-customer relationship is much more intense with services that support client's actions than in those that support products (Mathieu, 2001).

It has been claimed that there is not sufficient research on services that are used in the production process, and later on become part of the buyer's offering to its clients (Jackson & Cooper, 1988 in Wynstra et al., 2006). These types of services are very much present in metals industry, especially in the earlier phases of the supply chain where this research takes place. Jackson and Cooper propose such a classification that includes both goods and services: products (major equipment); operation products, which comprise minor equipment and MRO (maintenance, repair, operation) services such as maintenance but also legal services, etc.; and output products, encompassing raw materials, components and production services purchased for the final product.

It has to be noted that different services do not automatically belong to a specific category. Companies are in various stages in their service development processes, and they plan their operations according to the stage they are in. Arantola and Simonen (Arantola & Simonen, 2009) divided different types of service business into three categories: after sale services, service business, and process business. In addition to Arantola and Simonen's classifications, there could also be a fourth category; support services that take place before the sale, or more specifically, before the delivery of the product. As far as success factors, offering, and positioning, it would have the same characteristics as after sales services. In table 1, the two categories are combined into one, the category of support services.

Table 1. Service business categories. Modified from (Arantola & Simonen, 2009).

	Support services	Service business	Process business
Success factors	Product leadership (Various means, e.g. material, technology, design, price	Commercialized service offering and industrialized service operations	Describing the value to customer with economic indicators; process integration capabilities
Offering	The company makes products. Services support the products. Services are often without a fee, costs of services included in product prices	Service can include tangible products or be a "pure service"	Process results and specified indicators carry the costs; Service provider delivers entire processes on behalf of the customer; outsourcing
Positioning	Product centric company with services that support the product, e.g. maintenance	Services can be commercialized and bundled or they can be tailored separately to each customer	Process expert, seeks continous service contracts

Services can also be classified into different categories based on which stage of the industrial, or in some cases consumer, purchasing process they take place. Lalonde and Zinszer (Lalonde & Zinszer, 1976) classified them into three categories: before, during, or after the sale. Service offerings can cover the whole life cycle of a product or a solution. Frambach et al. (Frambach et al., 1997) refer to Samli et al. (Samli, Jacobs, & Wills, 1992) who concentrated on industrial purchasing process and came up with similar classifications. According to Frambach, product services prior to the purchase decision, i.e. pre-sale, include things that aid the buyer in the process, such as product trials. The second category, product services that are directly linked to the purchase decision, i.e. sale, include services that help the customer utilize the product, such as installation and training. The third category is the product services that follow the purchase decision, i.e. post-sale. These are meant to keep the customer happy with the purchase and include services such as maintenance. Considering the context of this research and the nature of the metal industry, the first two categories are dominant in this work.

2.1.2. Service innovations

Many businesses have expanded their sales efforts towards services that support the sales of the core offering. Such services can include planning, testing, or other services. They are usually provided without a fee and used as order winners (Arantola & Simonen, 2009).

In metal industry, with its long tradition and rigid conventions, creating new service innovations can prove to be difficult. To ease the difficulties that one faces while starting the new service development process, two things must be remembered: First, services do not have to be revolutionary; it can be enough to provide some additional value over the core product. Second, new service innovations, even radical ones, do not have to be new to the world – new to the business is often enough. Innovations that have already been in widespread use in other fields of business can be utilized as new service innovations when transformed to another field. The following example by Arantola and Simonen (Arantola & Simonen, 2009) displays the use of such innovation:

> *Cemex was a service company that evolved from a bulk (concrete) supplier to a service provider by both commercializing and industrializing its solutions. They simultaneously found a way to understand customer value and to create services with high cost-effectiveness.*
>
> *Concrete was seen as a highly standardized product, and customers viewed it as a commodity. However, timely deliveries of concrete were important for customers' processes.*
>
> *Cemex studied pizza delivery, FedEx, and ambulance practices. By using ideas from those completely unrelated fields, it was able to create value for its customers with flexible concrete deliveries instead of "just selling concrete". They created competitive advantage by being able to quickly answer to customers' changing needs.*

Van der Aa and Elfring mentioned different forms of innovation in services (van der Aa & Elfring, 2002):

- Multi-unit organization
    - supporting processes: standardization of the service management system, making the service concept explicit, a certain amount of experimentation connected with internal benchmarking
- New combinations of services
    - supporting processes: organizing linkages between services, creating transparency in the service offering, cross-selling of the various elements in order to customize the service bundle
- Customer as a co-producer
    - supporting processes: motivating the clients, integrating them into the delivery process
- Technological innovations

When creating new service innovations, it is vital to understand what kind of services would be most beneficial to customers. If a company understands customers' operations and processes, it can offer appropriate types of services to them.

In the context of this case, service innovations can be seen as new additional components to the tangible core product that add value to the customer. Such innovations can be tangible like processing or logistics services, or intangible like design support or consultation.

An innovation can create competitive advantage if it allows for cost savings compared to the competitors. To achieve cost-effectiveness, a company should not only think about its own services, but also study other players in the network (Arantola & Simonen, 2009). When talked about service innovations, it is often overlooked that everything does not have to be new and revolutionizing; combining existing services in a new way can create benefits and competitive advantage. Van der Aa and Elfring (van der Aa & Elfring, 2002) stated that:

Innovation does not have to be new to the world, being new to the industry is enough.

This means that in many 'new combinations' of services the actual components are not all that new, and that the novelty of the concept comes from new combinations of existing components (van der Aa & Elfring, 2002). It is extremely difficult to achieve sustainable competitive advantage just by providing superior products. Technological innovations that are combined with service components are more likely to succeed (Teece, 1986).

It is normal for companies to take their first steps in service business by integrating service elements into their product deliveries (Grönroos, 2000). By moving to service business, they aim to gain continuous streams of revenue, higher profits, and new opportunities to differentiate their business from competition (Quinn, Doorley, & Paquette, 1990, Wise & Baumgartner, 1999). All these benefits apply in after sales service context. In metal industry where most services are provided before or during the purchase, higher profits and especially new opportunities for differentiation are the most prominent benefits of new services.

Services can also be used to improve existing customer relationships. Offering services is an effective way to maintain ongoing relationships (Evans & Laskin, 1994 in Artto, Wikström, Hellström, & Kujala, 2008). With the provision of services to the customer, the familiarity between the supplier and the customer increases and allows the company to recognize changes in customer requirements as early as possible (Meier & Massberg, 2004). This creates a positive snowball effect, and if correctly utilized, allows for continuous improvement of the service quality and customer relationship.

2.1.3. Augmented product concept

In the classic transaction-oriented 4P model of marketing, the product concept is one of the key dimensions. There can be additions, such as packaging, to the core product, but

it remains a transactional concept. Over 40 years ago, Levitt (T. Levitt, 1969) introduced a theory of augmented product and stated that:

> *"the new competition is not between what companies produce in their factories, but between what they add to their factory output in the form of packaging, services, advertising, customer advice, financing, delivery arrangements, warehousing, and other things that people value"*

The theory of augmented product adds supporting services to the core offer. In his later works (e.g. T. Levitt, 1980) Levitt developed the theory by outlining the "generic", "expected", "augmented" and "potential" product model and elaborated on the previous work by distinguishing between marketing of "intangible products" and "product intangibles". He emphasizes that when looked at from the buyer's perspective, a product can be seen as "a promise, a cluster of value expectations of which its intangible parts are as integral as its tangible parts".

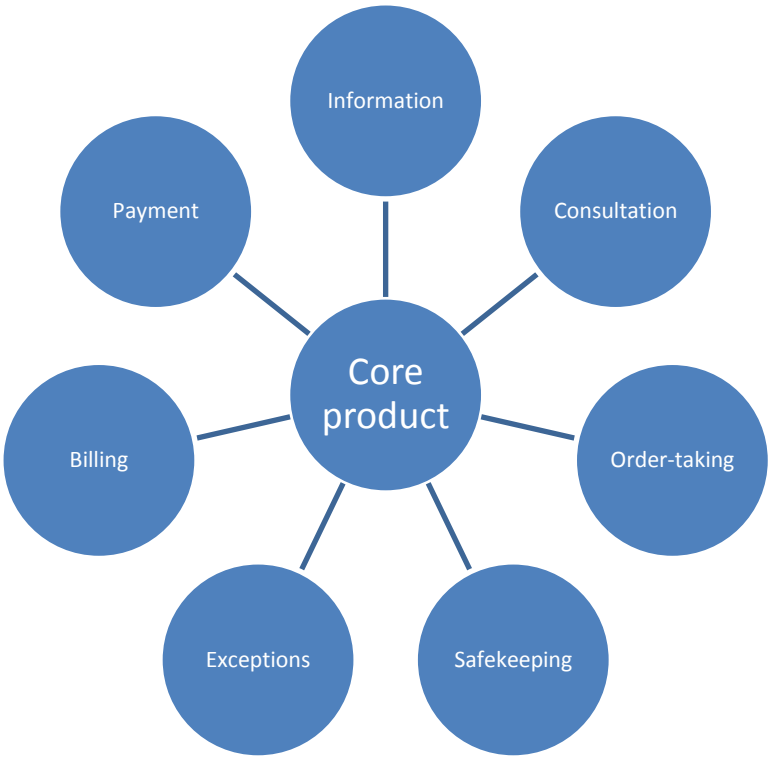

Figure 2. Flower of service in metal industry. Modified from (C. Lovelock, 1995).

If the tangible part of the offering is for example a metal sheet, the intangible parts can include delivery options, warehousing, or design support. When this viewpoint is taken, value to the customer can be inherently seen as a part of the product and thus allowed to combine the product-oriented and consumer oriented views of the offer (Payne & Holt, 2001).

Levitt's model of augmented product was extended by Lovelock (C. Lovelock, 1995), who introduced the "flower of service- model". The flower of service-model includes

eight elements of supplementary services which add value to the core offering. Figure 2 depicts Lovelock's model as it applies to metal industry. In a well-functioning business the core and the petals are fresh and complement each other. It has to be noted that all core products are not necessarily surrounded with services from each petal.

The limitation of these models that recognize the intangible components of product as a service is that often in B2B-markets, especially in metal industry, services can actually have very strong tangible components, such as material processing. Modifications that are made to bulk products, like customer-specific coating or welding of metal sheets, allow customers to leave said tasks out of their own operations and thus can be considered services.

2.1.4. Systems integration

When a supplier-customer-relationship develops, products, services, and systems can be delivered in combinations that are long-lasting, especially in project settings. These actions can have multiple definitions. Davies (Davies, 2004 in Artto et al., 2008) refers to them as "integrated solutions", Gann and Salter (Gann & Salter, 2000) talk about "service-enhanced" and Alderman et al use the term "service-led" (Alderman, Ivory, McLoughlin, & Vaughan, 2005). All these terms are used to describe cases that combine big projects with services. In my opinion, the term "service-enhanced" best depicts the nature of operations in the context of metal industry.

In metal industry, more emphasis is put on pre-sale functions and purchase services than post sale services. The core of this business is, and has been, the tangible product. The appeal of the core can be enhanced with various services, whether they are purely intangible like design assistance or tangible like coating. All these parts are needed in order to provide customers a high value, service-enhanced product. Value cannot anymore be seen in mere tangible offerings, but is co-created through interaction with customers (Normann, 2001, Vargo & Lusch, 2004a).

Companies in various sectors have started to outsource what they consider their non-core activities to their suppliers, while they increasingly focus on providing services to final consumers (Brady, Davies, & Gann, 2005). Such actions inevitably cause the suppliers to develop new capabilities. In addition to carrying out activities previously performed by their customers, they might have to take on completely new tasks, such as consultancy and finance.

This need for new capabilities has been confirmed through research. Brady et al. (Brady et al., 2005) showed that both service and product firms develop new capabilities as they shift towards becoming integrated solutions providers. The research focused mostly on capital goods industries. The capabilities are mentioned in table 2.

Table 2. New capabilities of integrated solutions providers. Modified from (Brady et al., 2005).

Capability	Explanation
Systems integration capabilities	Designing and integrating systems composed of internally or externally developed hardware, software and services
Operational service capabilities	Maintaining, operating, upgrading and renovating a product through its operational life cycle
Business consulting capabilities	Providing customers with advice on how to develop business plans, design and build a system and maintain and operate it
Financing capabilities	Helping customers purchase high-cost products and manage an installed base of capital assets

All these capabilities apply, to some extent, to companies that are thriving to move towards service business in metal industry. The most important capabilities in this context and with such service-enhanced products are the systems integration capabilities and business consulting capabilities. System integration capabilities are practically self-evident. With service-enhanced products suppliers have to be able to integrate various components, both tangible and intangible, into an appealing entity that creates value to the customer. This can be done through internal operations but also by combining them with outsourced components, tangible or intangible. Business consulting capabilities in this context include utilizing the company's expertise to allow for cost savings, improvements in operations or product quality, or even to create all new practices for the business. This expertise can include assistance in product design, testing, or material research. In metal industry where post-sale services are rare, most of such consulting takes place in the early phases of new product development.

If a company succeeds in developing such capabilities that allow it to provide integrated solutions, it can create unique benefits for each customer. It not only takes over the risks and responsibilities of performing activities previously carried out in-house by their customers, but also develops new ways for components to work together as an integrated entity. This increases the overall value of the solution for the customer (Anderson & Narus, 1998).

Providing integrated solutions dramatically changes the way a company handles its customer relationships and defines its value creation activities. Integrated solutions suppliers cannot respond passively to customers' specifications or assume that the customers' needs remain constant. The focus has to be on a long-term relationship that is built on trust. Under this relationship, the two organisations engage in a "close dialogue to develop conceptual solutions to a problem before the customer has even thought about its products and service requirements" (Brady et al., 2005). This only applies to key accounts; otherwise the use of efforts to build such a relationship can be considered inefficient use of resources.

2.2. Affecting the demand of product services

Marketing as a discipline has gone through various changes throughout the years. The goods-based manufacturing model was adopted by marketers in a time when economic exchanges concentrated on production and distribution of tangible goods. As industries developed, the model and the following marketing theory became inadequate and marketing models started to shift towards including nonmanufactured market offerings (Vargo & Lusch, 2004b).

Most of the discussion on the relationship between goods and services has focused on describing the differences between the two. The difference between services and goods is usually described with four characteristics: intangibility, inseparability, heterogeneity, and perishability. This list of characteristics has been rather widely accepted, but there are also argumentations that these characteristics do not correctly distinguish between the two, and only have meaning from a manufacturing perspective. (e.g. Vargo & Lusch, 2004b).

According to Vargo and Lusch (Vargo & Lusch, 2004b) the characteristics that are used to distinguish services from goods are only meaningful from the "very limited perspective of the individual whose role in the exchange has been completed when a finished good rolls off of an assembly line". In a way, this is the perspective that metal industry is somewhat stuck with. From a consumer's or marketer's perspective, these are characteristics that may point to a wrong direction. They argue that goods and goods production should be made more service-like rather than making service provision more goods-like. To support that, they argue that a more service-dominant strategy can be developed for all marketing and that marketing needs to "break free from the manufacturing-based model of the exchange of output." This means that all exchanges could be examined with a service-based model. From a customer perspective, which we are following in this study, the implications and challenges for marketers are very similar with goods and services.

There have been previous supporting arguments for this view, for example Shostack (Shostack, 1977) has argued that "'either-or' terms (products vs. services) do not

adequately describe the true nature of marketed entities". Gummesson (Gummesson, 2000 in Vargo & Lusch, 2004b) stated that "the distinction between goods and service has become a burden", and that "we do not know what services are, nor do we know what goods are in a more generic sense".

Vargo and Lusch also suggest that, in a way, everything is a service; economic exchange is fundamentally about service provision (Vargo & Lusch, 2004b). In their view, service is the common denominator in exchange, not some special form of it. They consider manufacturing as a service, and goods as appliances that are used in service provision. Kotler (Kotler, 1997 in Vargo & Lusch, 2004b)mentioned that the biggest importance of physical products is in obtaining the services they render, not in owning them. Rust (Rust, 1998 in Vargo & Lusch, 2004b)was thinking along the same lines and contended that most businesses view themselves primarily as service providers, with the good being an important part of the service. This view is also shared by Grönroos (Grönroos, 2000), who stated the following:

The emerging principles of services marketing will become the mainstream principles of marketing in the future. … The physical goods become one element among others in a total service offering. … This means that physical goods marketing and services marketing converge, but services-oriented thinking will dominate. (pp 87-88)

However, not all scholars share Vargo and Lusch's strong opinion on the matter. Van der Aa and Elfring (van der Aa & Elfring, 2002) see a blurry line between goods and services. They state that the process of producing services is much more open compared to manufacturing and that there is a flexible borderline between the activities of the producer and the customer.

Along with the shift from manufacturing-based to service-based marketing models, the focus of exchange has also shifted away from discrete transactions and towards a model based on long-term relationships, i.e. relationship marketing (Vargo & Lusch, 2004b). This type of thinking has developed marketing towards a more generalizable service-dominant model instead of the previous manufacturing-based model of exchange.

Another classic theory that must be recognized is the notion of marketing myopia (T. Levitt, 1960). It describes the shortsightedness of marketers, who defined the offering as what was produced in the factory, not what the customers wanted. This is a trap into which many companies, even nowadays, fall. Avoiding this from happening by developing customer understanding is one of the cornerstones of this study.

2.2.1. Customer interaction in new service development

Interaction with customers and the consequent development of customer understanding are as important in new service development as they are with marketing of product services. Service innovation research has emphasized the importance of idea generation,

idea screening and concept development stages of new service development (NSD) process. (e.g. Alam & Perry, 2002, Barczak, 1995 and Iwamura & Jog, 1991 in Alam, 2006). Research on success factors of new services suggests that customer interaction has a positive effect on new service performance (e.g. de Brentani, 1991, de Brentani, 1995, de Brentani & Cooper, 1992 and Edgett, 1994 in Alam, 2006). The need for customer interaction is most crucial in the early stages because they are the most information intensive (Zahay, Griffin, & Fredericks, 2004 in Alam, 2006). The first phases of the NSD are important because they create the foundation for the whole process.

Alam et al (Alam, 2006) also mention that research on new product development (NPD) has substantially improved our understanding of the innovation process. However, they argue that research has failed to distinguish between the innovations on tangible products and new services, and only focused on the tangible parts. In their opinion, there are characteristics – inseparability, intangibility, perishability and heterogeneity – that differentiate services from goods (see C. H. Lovelock, 1983 and Zeithaml & Bitner, 2000), and thus a different perspective must be taken when studied new service development (Alam, 2006). Although their view is almost opposite of Vargo and Lusch's one, Alam et al also lean on Gummesson (Gummesson, 2002) who mentioned that customer- supplier interaction, relationships, and service encounters and relationships are the most distinct features that separate services from goods.

It has to be noted that there are also arguments against including customers in the innovation process (Hamel & Prahalad, 1994 and Simonson, 1993 in Alam, 2006). They argue that customers cannot tell what they want, and thus should be ignored. This is closely linked with the thought of discovering latent customer needs and offering customers something that they were not aware of needing. However, I agree with Ulwick (Ulwick, 2002), who put some of the blame on suppliers for not knowing how to correctly obtain information from customers. They suggest focusing on desired outcomes instead of directly asking about solutions for customers' problems. This allows the creation of competitive advantage through services; that way customers cannot state their direct needs and simply bid for the best offer. It can also improve the service quality; customers can be poor reporters of their own needs and thus unable to describe what the product or service should be like.(Alam, 2006)

It has been found that in a service setting, the people in best position to proactively collect, process, and utilize customer information are front-line personnel such as salespeople.(Alam, 2006) This is why the salesforce has such a responsibility in new service development process. The main problems with getting customer information in early stages of the NSD process were confidentiality, lack of cooperation by customers, and indentifying appropriate individuals for interaction (Alam, 2006). Research has suggested interactions with customers who already have a close relationship with managers (Wim G, 1991 and Gruner & Homburg, 2000 in Alam, 2006) to avoid such

problems with confidentiality. This brings up the notion of relationship value and its benefits in new service development. Also, in order to succeed in collection customer information, there has to be a common "language" between the supplier and the customer.

2.2.2. Role of the supply network

The services that are needed vary greatly from customer to customer. Appropriate service features and their costs can be totally different depending on the supply chain configuration. Customers can be divided into four categories based on the supply chain configuration they require (Figure 3); continuous replenishment, lean, agile, or fully flexible (Kong, 2009).

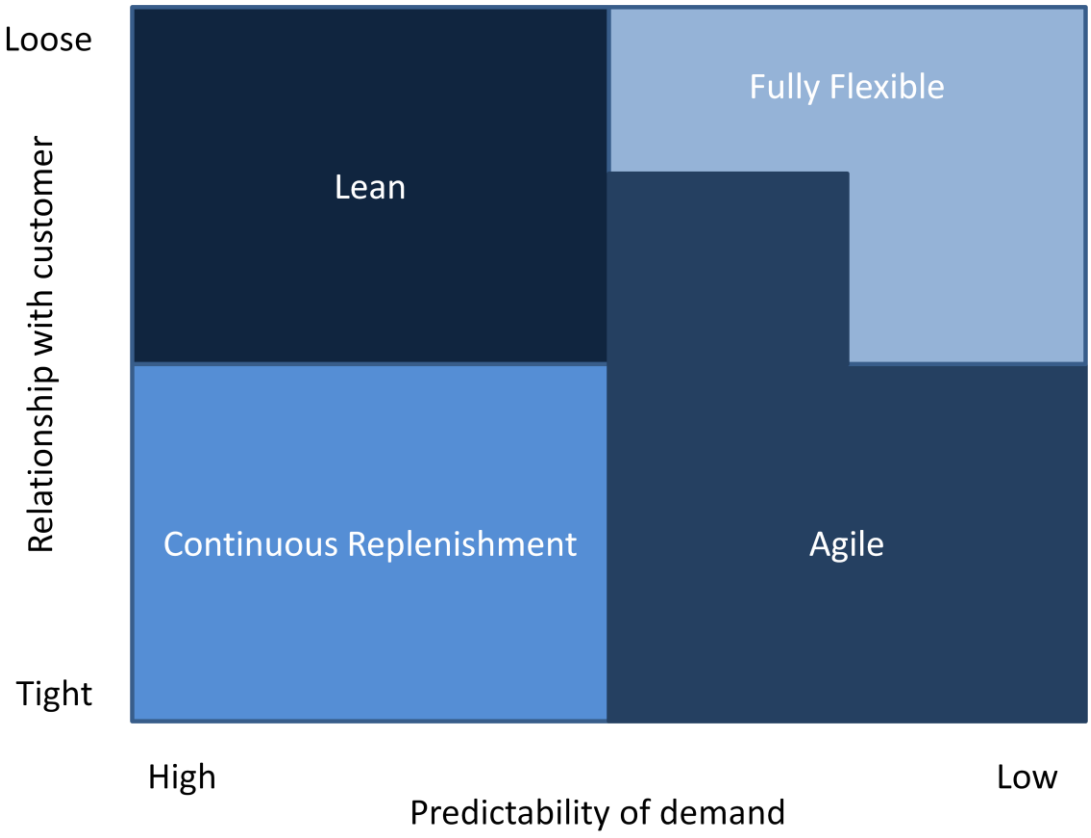

Figure 3. Four generic types of supply chain configuration (Gattorna, 2006 in Kong, 2009).

There are various cost-to-serve components linked with each type of configuration. For continuous replenishment customers, the components that increase costs for the supplier include IT systems integration and vendor-managed inventory. For lean customers, the major components are order management and demand forecasting. Agile and fully flexible customers require a whole another set of service components; with them, the quickness of deliveries and schedule "break-ins" are most important and justify higher costs. For fully flexible customers, costs for rush orders, unplanned demand and

emergency requests can even be disproportionately higher. Knowing both the customer and own operations is vital with planning the appropriate supply chain alignment. Lack of customer understanding, inadequate decision-making tools, and the existence of organizational silos (e.g. between service centers and factories) are all barriers that can prevent achieving the optimal supply chain alignment for each customer (Kong, 2009).

In order to fully service customers, companies can increase the integration of the supply chain. Stevens (Stevens, 1989) presented a four-step model of supply chain integration (Figure 4.), where step one is the starting point with separate functions of purchasing, material control, production, sales, and distribution, and step four fully integrated chain where suppliers, company's internal supply chain, and customers all interact. This evolution from step one to step four means a change of focus from product-centricity to customer-centricity. By knowing both its customers' and suppliers' operations, the company can better react to customer demand and fulfill customers' needs and requirements.

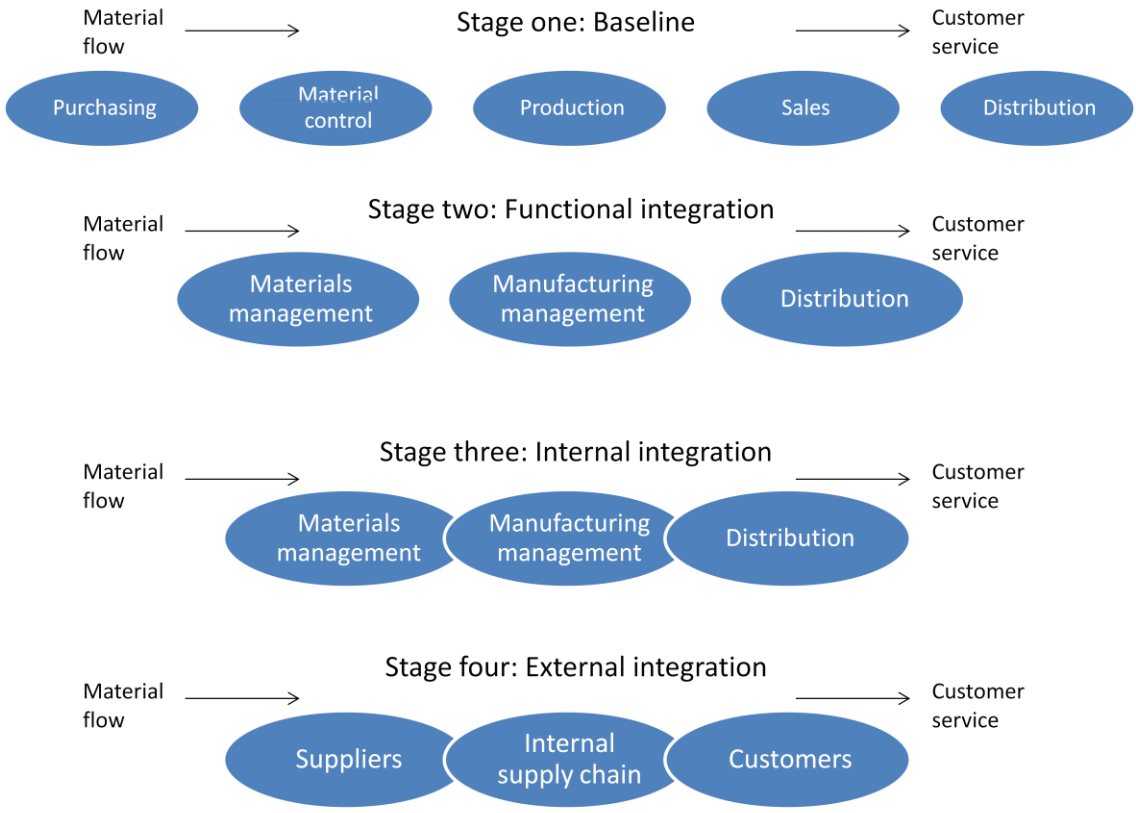

Figure 4. Steps of achieving an integrated supply chain. Modified from (Stevens, 1989).

There can also be various viewpoints with which the network of suppliers and customers are defined. Langabeer and Rose (Langabeer & Rose, 2001 in Walters & Rainbird, 2004) argued for the use of "demand chain" that is defined as

"The complex web of business processes and activities that help firms understand, manage, and ultimately create consumer demand."

The differentiation between supply chain and demand chain approaches is explained in table 3.

Table 3. Supply chain versus demand chain. Modified from (Langabeer & Rose, 2001 in Walters & Rainbird, 2004).

Supply chain	Demand chain
Efficiency focus (cost per item)	Effectiveness focus; product-market fit
Processes are focused on execution	Processes are focused more on planning
Cost is the key driver	Revenue is the key driver
Short-term oriented	Long-term oriented
Typically the domain of tactical manufacturing and logistics personnel	Typically the domain of marketing, sales, and strategic supply-chain managers
Focus on immediate resource and capacity constraints	Focus on long-term capabilities, not short-term constraints
Historical focus on manufacturing planning and controls	Historical focus on marketing and supply chain alignment

A strategy that is based on demand chain approach requires understanding the current and potential markets, but also recognizing the core processes and capabilities that are needed in order to cater to the markets' needs. The demand strategy includes a supply-chain strategy, customer strategy, a product and a brand strategy, and a sales and marketing strategy (Langabeer & Rose, 2001 in Walters & Rainbird, 2004). When a company moves from product-centric approach to customer-centric approach, the last three dimensions become increasingly important. Knowing the customers and markets (customer strategy) and product requirement and customization needs (product and brand strategy) are vital in that shift. Creating appropriate awareness and demand for the products and services (sales and marketing strategy) in this context means recognizing the members of the network that play a role in deciding the demand of a company's offering and guiding them towards the use of the said offering.

2.3. Identifying and creating customer value

Often, especially in product-centric businesses, the value has been thought to come from the products themselves. There have been numerous studies on understanding what customers value. Practically all of them reach the consensus that it is no more enough to just create quality products and services. In global, very competitive markets, it is vital to understand what customers really want.

The traditional product first-perspective cannot be seen as the basis for value creation. Value creation process must start out with the idea of desired outcome for the customer and suppliers have to work backwards to the products and services required to meet the needs of the customer. This can only happen through detailed understanding of the customer's business activities and processes. (Brady et al., 2005)

Woodruff (Woodruff, 1997) stated that "more and more competitors understand their customers' satisfaction at the attribute level and use that knowledge to improve what they already do", i.e. go further than just creating standardized quality products or services. In-depth understanding of a customer's desired consequences and use situations can become similar starting point for new innovations as invention of new technology has been. Finding new ways to meet customers' desired value enhances commitment and reduces the motivation to shop around, ultimately resulting in competitive advantage (Woodruff, 1997). This enhances the relationship with suppliers and their customers, whether in B2B or B2C context.

Although marketing thought has not always emphasized customer understanding as strongly, it has – consciously or subconsciously – been the cornerstone of all market exchanges. If understanding the customer creates customer value, it will increase the success rate of any given exchange. Value has always been the basis for all marketing activities; all parties involved in a market exchange expect to gain value with it (Ulaga, 2003). This viewpoint is especially important considering the B2B exchanges, where companies consider their "make or buy"-strategies. Often augmented products include components that the customer could alternatively do themselves, but instead of only buying the core product, they decide to outsource certain additional components of the augmented product to the supplier.

The issue with competing with superior customer value delivery is not whether a company should do it, but how it should do it. Adopting a customer value delivery orientation requires companies to learn extensively about their markets and target customers (Woodruff, 1997).

There have been numerous attempts to define value. Woodruff (Woodruff, 1997) has put together a look at the definitions, which can be seen in table 4.

Table 4. Definitions of value. Modified from (Woodruff, 1997).

Author(s)	Definition
Zeithaml (Zeithaml, 1988)	Value is the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given
Zeithaml (Zeithaml, 1988)	Customer value generally defined as the trade-off between the benefits ("what you get") and the sacrifices ("what you give") in a market exchange
Anderson, Jain, and Chintagunta (Anderson, Jain, & Chintagunta, 1993)	Value in business markets [is] the perceived worth in monetary units of the set of economic, technical, service and social benefits received by a customer firm in exchange for the price paid for a product, taking into consideration the available suppliers' offerings and prices.
Monroe (Monroe, 1990)	Buyers' perceptions of value represent a tradeoff between the quality or benefits they perceive in the product relative to the sacrifice they perceive by paying the price.
Gale (Gale, 1994)	Customer value is market perceived quality adjusted for the relative price of your product.
Butz and Goodstein (Butz Jr. & Goodstein, 1996)	By customer value, we mean the *emotional bond* established between a customer and a producer after the customer has used a salient product or service provided by that supplier and found the product to provide an added value.

There are some commonalities and divergences with the aforementioned definitions. Woodruff (Woodruff, 1997) found the following commonalities:

- Customer value is inherent or linked through the use of some product.
- Customer value is something perceived by the customer rather than objectively determined by the seller

and the following divergences:

- The way definitions are constructed, making it difficult to compare concepts
- The circumstances within which the customers think about value. Customers might consider value differently at different times, for example while making the purchase decision or during the use of the product.

In the context of B2B augmented product concept, the customer perceived value can be thought of as the added value over company deciding to perform certain service components of the whole product concept themselves. The value in business markets can also be considered to be "the monetary worth of the economic/commercial, technical, service and social benefits a customer receives in exchange for what it pays for a market offering" (Anderson & Narus, 1998).

2.3.1. Customer's perception of value

Throughout this work it has been mentioned that finding out about customers' needs is vital in order to provide services that support the core product and how value to the customer must be in mind when creating such offerings. Such customer-centricity cannot be defined based on the core offering of the company. It is more about how the company views its clients, whether they are seen as recipients of the company's products or as active partners that are offered benefits and solutions for their problems instead of products or pre-set services (Arantola & Simonen, 2009).

Especially when outsourcing activities, it is common to sell the outcome, rather than the work that will result in achieving that outcome. It is not the workhours, tons or units that are sold, but rather cost savings, additional sales or process improvements (Arantola & Simonen, 2009). In this context and from a customer's perspective the value of a product is not created in the factory where a physical product is manufactured, but when the customer uses it, whether as the end user, as part of their own product, or as operational support. From this perspective physical products and services are equal.

Figure 5 depicts the intertwined relationships between understanding the customer, service business development and new service innovations. The company that is offering a service has to understand both the customer's processes and the connections between their own and customer's processes. Value is created when these processes

intertwine. The importance of understanding the customer's customer (who might be the same as the end user) and the whole value chain increases as the value creating networks become more complicated and open. Many times a competitor can be simultaneously a client and a partner, depending on the situation. Studies have shown that in B2B-markets it is more profitable to create business models based on services and solutions closer the end user than competing in the current position in the value chain (Arantola & Simonen, 2009, Wise & Baumgartner, 1999).

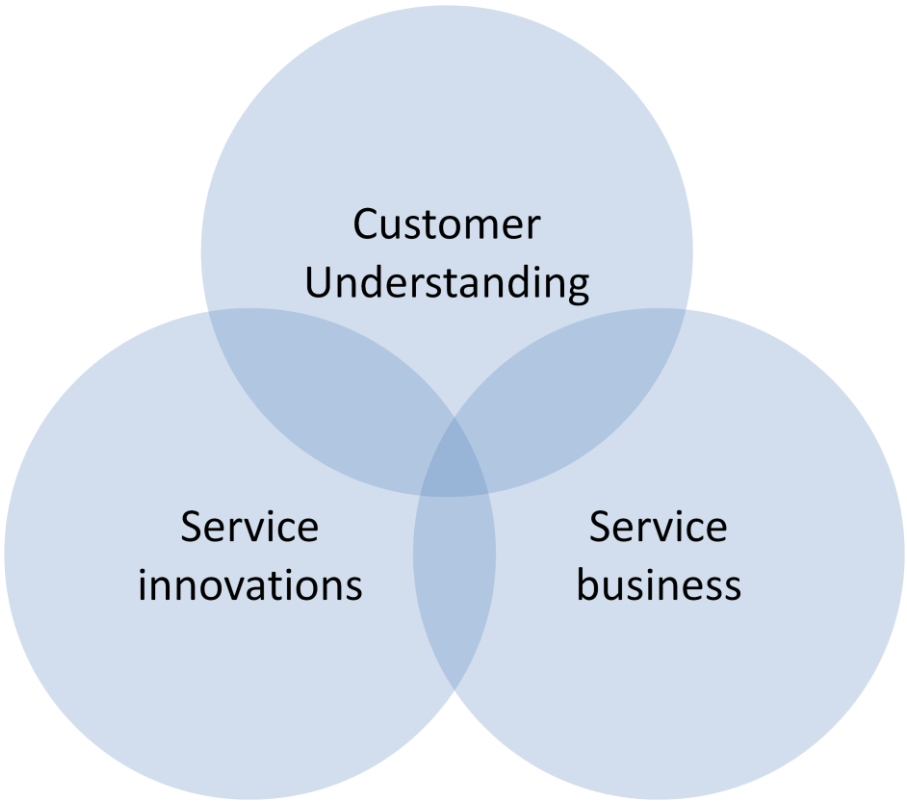

Figure 5. Customer understanding, innovation management and service business development intertwined. Modified from (Arantola & Simonen, 2009).

Understanding of the end user is required from companies that are pursuing strategic partnerships with key clients. Partnerships often include a value selling strategy, where the company strives to find profitable business opportunities. The financial benefits of these improved processes are shared between the partners (Arantola & Simonen, 2009). If the demand of the end product is high and it is profitable, there are more profits to share throughout the value chain.

2.3.2. Customer relationships

As one can notice, the conceptual knowledge about customer value is quite fragmented, without a widely accepted way of putting together a cohesive framework. Woodruff

(Woodruff, 1997) consolidated different views of customer value in the following definition:

"Customer value is a customer's perceived preference for and evaluation of those product attributes, attribute performances, and consequences arising from use that facilitate (or block) achieving the customer's goals and purposes in use situations."

The transformation of marketing from a goods-based perspective to a more holistic view was also discussed. Similar evolution in marketing has happened with concern on the relationships between different parties of exchange. A single exchange, a transaction has long been the center of marketing activity. Kotler (Kotler, 1972) shared this view, while simultaneously taking into account different types of components that can create value to customers:

"The core concept of marketing is the transaction. A transaction is the exchange of values between two parties. The things-of-value need not be limited to goods, services, and money; they include other resources such as time, energy, and feelings." (Kotler, 1972)

Kotler's view broadened the concept of marketing, but still did not take into account the element of a supplier-buyer relationship. Later on, research has shown that collaborative relationships can be a key source of value and thus competitive advantage. In many business areas, manufacturers reduce the number of companies in their supply base and focus on strengthening relationships with key suppliers. (Ulaga, 2003) When assessing value, companies should take into account both episode (short-term) and relationship (long-term) benefits and sacrifices. The trade-off between benefits and sacrifices in a long-term exchange process is not limited to the level of a single episode (Ravald & Grönroos, 1996). This view is also shared by Gummesson (Gummesson, 1999), who argued that value creation shouldn't be viewed as part of an individual transaction. Value is jointly created between all the parties involved in a relationship. Grönroos (Grönroos, 1997) defined two benefit and two sacrifice dimensions as following:

Customer-perceived value can be described as core solution plus additional services divided by price and relationship costs or core plus/minus added value.

To be able to capitalize on both relationship and episode benefits, a company needs information regarding both respective time frames. Woodruff (Woodruff, 1997) proposed a framework for analyzing customer information. The time perspective used in the framework can be divided into two separate dimensions: snapshot and longitudinal perspective. An organization can categorize information that its managers use into four different cells (Figure 6). The cells should be evenly filled with information; imbalances in cells mean that the information is not spread evenly and information deficiencies are possible. Snapshot perspective includes current preferences, evaluations and behavior,

i.e. where immediate actions are needed. Longitudinal perspective includes patterns of change, i.e. understanding, predicting, and responding to future change.

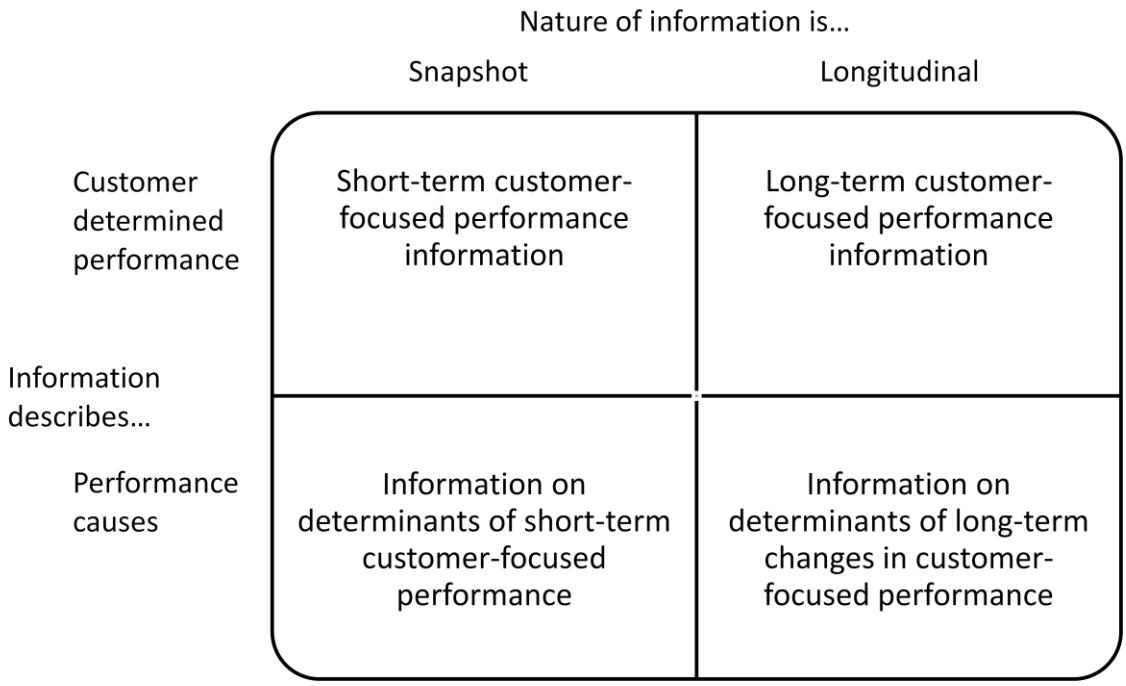

Figure 6. Emphasis on types of information in marketing information systems (Woodruff, 1997)

Both of these perspectives are needed to be able to fully understand and capitalize on episode and relationship benefits, and minimize episode and relationship sacrifices. In order to effectively create new services, such a thorough understanding of the customer is needed.

2.3.3. Relationship value drivers

As the relationships between customers and suppliers deepen, the drivers of value move away from ones that apply with single transactions. Ulaga (Ulaga, 2003) has found eight different relationship value drivers, and many of these are either directly or indirectly linked to overall customer value and service provision. The drivers are shown in figure 7. Ulaga's research concentrated on product manufacturers and service industries were not addressed in the research. Nonetheless, it can be argued that similar approach could also function in settings where services are added to the core product like in metal industry.

With product quality, consistent delivery of quality over time is expected. Making quality products is no longer a way to differentiate from competition, just a way to stay as an "accepted product". Adequate quality can be seen as a hygiene factor. Problems with quality can drain the relationships between suppliers and buyers.

Many times suppliers provide a mix of tangible products and a range of supporting service elements (Hutt & Speh, 2001 and T. Levitt, 1981 in Ulaga, 2003). Services such as product warranty and availability of spare parts can be seen as core, product-related services. Supporting services may include supplier availability, outsourcing of activities, or increased co-operation such as synchronizing the supplier's and the customer's production schedules.

It has been found that 'quality', 'service', and 'delivery' were frequently mentioned as key value drivers in a supplier-manufacturer relationship. Delivery performance can include, but is not limited to, the on-time delivery of parts, delivery flexibility, just-in-time delivery, and the accuracy of delivery (Ulaga, 2003).

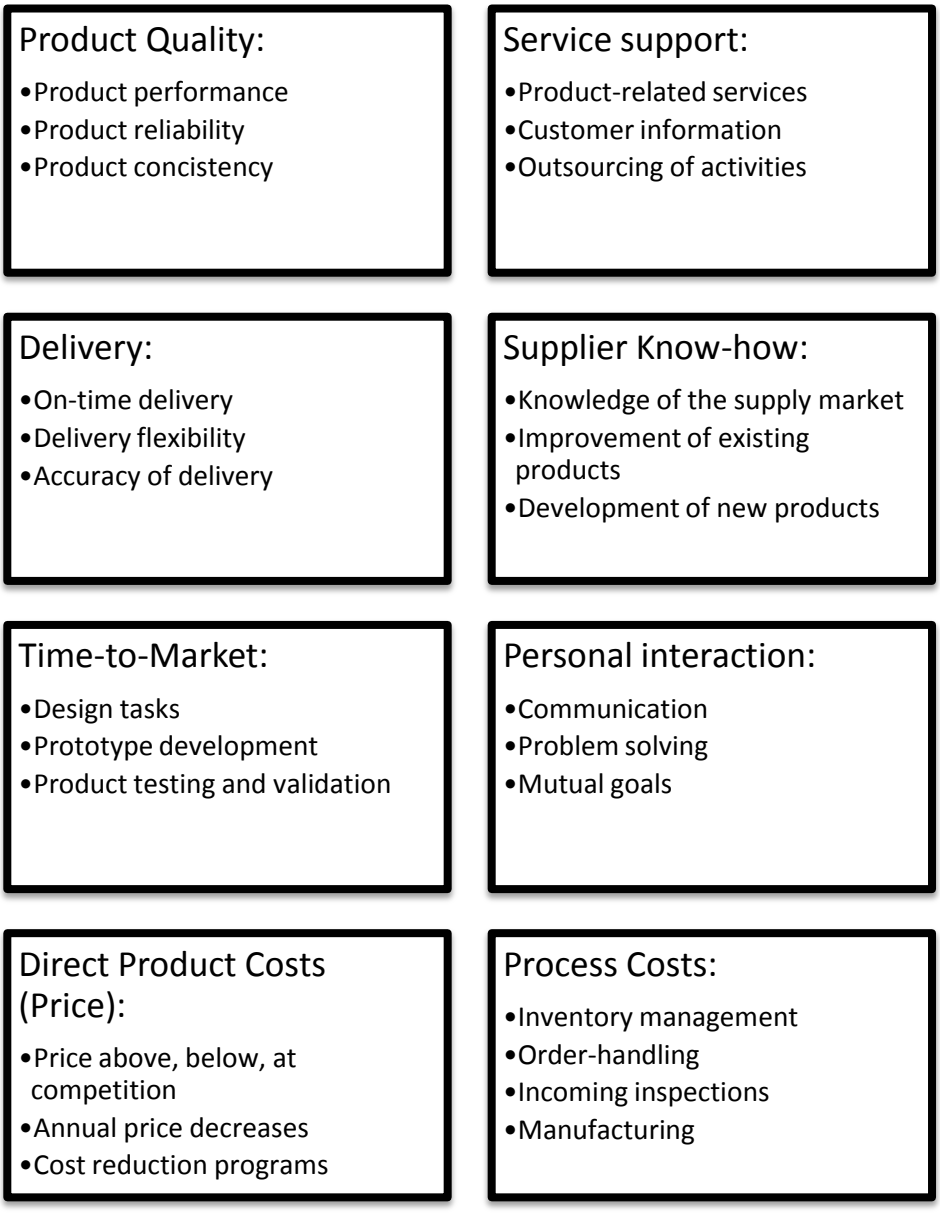

Figure 7. Relationship value drivers (Ulaga, 2003).

Relationship between supplier and customer can be seen as a resource to achieve competitive advantage (Hogan & Armstrong, 2001 and Wernerfelt, 1984 in Ulaga, 2003). Manufacturers seek access to the suppliers' resources and skills in long-term manufacturer-supplier relationships (Kalwani & Narayandas, 1995 in Ulaga, 2003). Suppliers might have special technical expertise that the customer doesn't have or may not want to acquire. Manufacturers can benefit from supplier's know-how in three areas; knowledge of the supply market, improving existing products, or new product development process.

The competitive advantage in manufacturing industries has shifted from low labor costs to flexible manufacturing (Stalk, 1988 in Ulaga, 2003). This has increased the importance of time-to-market. Suppliers are seen as in-house partners; they take on more testing and validation tasks, design work, and product development. In short, suppliers are a source of value creation for manufacturers.

Some companies might be easier to work with than others purely because of personal interactions. Such interaction should be developed in all levels of organization. Lack of interaction can in some cases prove to be dangerous to the business relationship. However, Ulaga's study showed that managers have quite diverse opinions on how valuable the personal interaction is in business relationships.

Direct product cost is the most easily indentified sacrifice in the purchasing process (Cannon & Homburg, 2001 in Ulaga, 2003). Ulaga (Ulaga, 2003) claims that a supplier's investment in close relationship with the customer should provide it with an opportunity to charge premium prices compared to its competition. Close relationships allow suppliers to continuously indentify ways to decrease costs and pass those savings on to customers. The question with premium pricing is how to convince or educate customers to use certain products and justify higher asking prices.

Although the manufacturers generally focus first on direct product costs, it is not only price reductions that companies are aiming for when they take part in collaborative relationships but also improving their overall operations. Costs can be divided into two areas: acquisition costs and operations costs (Cannon & Homburg, 2001 in Ulaga, 2003). Acquisitions costs are those that customers incur in acquiring and storing products, while operations costs are inherent in the customer's primary business. It is difficult for the companies to clearly distinguish between direct product costs, acquisition costs, and operation costs (Ulaga, 2003).

There are several ways to create value by decreasing process costs. These include transportation costs, inventory management costs, order-handling costs, and costs related to incoming inspections, and are explained in more detail as follows:

- Transportation costs: can be a differentiator among suppliers, however usually little leeway for differentiation.

- Inventory management: If the supplier manages the customer's inventories, the benefits include reduced inventories, less working capital needed, improved cash flow
- Order-handling: reduces relationship costs, customers have to allocate less time and dedicate fewer people to the ordering process.
- Incoming inspections: some manufacturers have abandoned incoming inspections due to the high quality standard of suppliers' products.

Operations costs were not as strongly emphasized in Ulaga's study, but some examples of savings through improving operations were mentioned. Suppliers were able to add value through reducing downtime costs, costs for tooling, warranty costs, and costs related to differences in product yields in the transformation process.

In a long-term business relationship it is a goal to either decrease the aforementioned costs or to find ways to improve one's operations through cooperation. Either way, the aim has to be in creating mutual benefits. Cooperative activities that are based on relationship can help suppliers move away from competition that is strictly price-based.

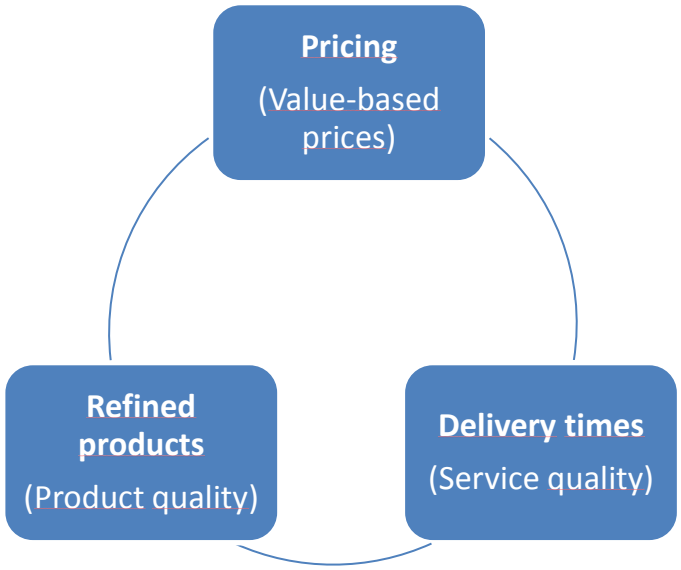

Figure 8. Value triad (Naumann, 1995).

There are also a bit more simplistic models of value drivers. Naumann (Naumann, 1995) builds on the key concepts from augmented product and service quality literature and stresses the company's ability to deliver better customer value than its competition. Product quality alone is not enough to be successful. His customer value triad (Figure 8.) combines product quality, service quality and value-based prices as dimensions of value.

Even if companies have to focus most of their attention towards creating value to the customer, it has to be remembered that there are also other stakeholders. Both the customer value and shareholder value have to be considered together. If too much (or too little) emphasis is placed on either of them, it can cause a negative long-term impact on the company (Payne & Holt, 2001).

2.3.4. When to engage in a relationship

Marketing in a relational context can be seen as a process that should support the creation of perceived value for customers over time. There are always latent relationships, and it can be either the supplier, customer, or both, that take measures to activate such relationships. Whether or not they choose to do that is up to their strategy, needs, wishes, and expectations. A firm may choose either a transactional or a relational strategy (Grönroos, 1997).

Some customers may want to activate the aforementioned latent relationships and get in contact with the marketer; some may decline to do so. In any marketing situation the customer is either in a relational mode or in a transactional mode. Customers in a relational mode can be either in an active or a passive relational mode. Customers in an active mode seek contact, while customers in a passive mode are satisfied knowing that the supplier will be there for them if needed. Figure 9 explains these in the form of a relational configuration matrix. By analyzing where in the matrix the current or potential customer falls, the firm can select the most appropriate marketing strategy for the situation.

		FIRM Efforts based on	
		Relational intent	Non-relational intent
CUSTOMER or USER	Active relational mode	1	2
	Passive relational mode	3	4
	Non-relational mode	5	6

Figure 9. Relational configuration matrix (Grönroos, 1997).

In a non-relational intent/non-relational mode configuration, represented by cell 6, a transactional strategy that leads to the exchange of a product (a product in this context can be a physical good or a service) for money makes sense. It creates the value that the

customers are looking for. Developing the relationship beyond that would not produce additional value.

Similar transactional approach also makes sense in a relational intent/non-relational mode configuration (cell 5). It leads to the exchange of a product for money, and because customers are not in a relational mode, anything else would be a waste of efforts.

Except for cells 5 and 6, customers are looking for something beyond the core product to satisfy their value needs in all other configurations (cells 1, 2, 3 and 4). In these cases, value creation goes beyond the core product, and a marketing strategy that is based on a relational intent (moving to cells 1 and 3) makes the most sense. Sometimes the customer perceives and appreciates the relational intent knowing that the firm will be there for them if and when needed.

The key point concerning marketing strategy is whether the company finds it profitable to use relational strategy or not. There are always latent relationships. If the customers are not in a relational mode or if such strategy cannot be justified economically, it may be more profitable to adopt a transactional marketing strategy (Brady et al., 2005).

There role of the core product is decidedly different in these two perspectives. If transactions are seen to be the foundation for marketing, the value for customers is embedded in the exchange of a product for money. If marketing is based on relationships, the role of the core product becomes blurry. Activities that support the core product and its functions are necessary additions to the solution in order to achieve customer satisfaction.

In many cases the core product can be seen as the hygiene factor, something that has to exist but cannot provide competitive advantage. If the additional services are missing or not good enough, the core product itself has little value. This applies directly to more complex products such as industrial robots, but can also be applied to metal industry. The value added with such services can also be negative. The value of a good core product can be decreased or even nullified by delayed service or untimely deliveries, just to name a few.

Grönroos (Grönroos, 1997) sees products in transactional context as

a result of how various resources, such as people, technologies, raw materials, knowledge and information have been managed so that a number of features that customers in target markets are looking for are incorporated into it.

Based on that definition, in a transactional concept it is the task of marketing and sales to find out the product features that the customers are interested in and to try and reach the potential market segments. In a way, this kind of thinking is linked to early

marketing thought of "the product will sell itself". If the product includes the features that customers want, it will fulfill the promises that have been given to customers.

In a B2B integrated solution context, the concept is a bit more complicated, and requires more co-operation between the manufacturer and the customer. Grönroos explains that in a relational context, resources that are used over time in the relationship have to be managed throughout the duration of it. The aforementioned notion of a product with features that customers simply look for is too simplistic. Often in the beginning, or at any point of a relationship, it is not known what resources should be used, to what extent, and with which configurations.

"They (service firms) only have a set of resources and, in the best case scenario, a well-planned way of using these resources as soon as the customer enters the arena" (Grönroos, 1996)

In short, when offering services to customers, the attributes of the given customer must be known and services based on what the company knows about the customer.

It has been claimed that any firm that adopts a relational strategy becomes a service business (Grönroos, 1996 and Webster, 1994 in Grönroos, 1997). For a manufacturing company, the physical good is the core element in the offering and a prerequisite for a successful perceived customer value. However, it is not enough to provide a good core product; what matters most is the company's ability to manage its resources and create a holistic offering over time and thus provide value to the customer (Grönroos, 1997). A simple concept such as a product as a prefabricated package of resources is not sufficient anymore. The company has to go beyond the product concept to understand how its offering creates benefits to the customers. Well developed and managed set of additional services that support the core product will create positive added value to the core solution (Grönroos, 1997).

It is not the competences per se that are important; how a company deploys them is (Bowman & Ambrosini, 1998 in Payne & Holt, 2001). It does not matter if a company has unrivalled knowhow in some field; if it is not able to utilize it to solve customers' problems, it has no value to the company. This is closely linked to Grönroos' thinking of resources that are applied and combined to create a total offering.

2.3.5. Involving the customers to create value

It has been mentioned throughout this work that knowing the customer is vital in order to gain benefits with new services. The next step from that is getting the customers involved in the value creation process. Such co-creation of value is important for businesses in order to satisfy personalized demands and to gain competitive advantages (Zhang & Chen, 2008). This kind of customer interaction is especially vital in new service development process. New service developers have to interact with the

customers during the development process (Alam, 2006). By not only having a better product but also being better in supporting activities, it is possible to beat the competition (Whiteley & Hessan, 1997 in Zhang & Chen, 2008).

In the era of mass customization, companies increasingly rely on customizing products and services to satisfy customers' individual demands. When taking part in co-creation activities, companies are required to create breakthroughs in the way they interact with customers. The more a company communicates with its customers, the better it knows about its customers' preferences and needs, and thus can provide exactly what the customers want, making it tough for competitors to lure said customers (Pine, Peppers, & Rogers, 1995 in Zhang & Chen, 2008). This is a positive cycle that reinforces both the relationship between the company and its customers and the company's edge over its competition. In addition to knowing what to provide for the customers, they learn what NOT to provide.

The customers have to be involved early enough in the new service development process. Informal discussions with existing or potential customers need to take place before any bid process can begin. This needs to be done in order to understand their strategic needs and priorities. Pre-bid discussions often involve discussing how to help the customer could enhance existing business operations, but they may also cover more strategic issues such as how to re-shape a business model or open up new markets. The term strategic engagement is used for this phase of the process (Brady et al., 2005).

2.4. Discovering latent customer needs

There has been lots of discussion about fulfilling customer's needs and being customer centric by doing so. However, this needs-based approach leads to reactive mindset. If a customer talks about his needs, he has already recognized them and can define them to possible solution providers. If the customer knows his needs, he can define an appropriate solution and pit suppliers against each other. If the customer has clearly defined the desired service, the competition will be based on quality and price. It also has to be noted that the customer does not always know or recognize all available solutions. He could be unable to talk about his problems, or might not even be aware of what the problems are for his business processes. When the challenges or problems are known, but the customer cannot define a solution on its own, it is a task for a proactive service provider to find an answer for them (Arantola & Simonen, 2009).

What needs to be answered is the question of finding the benefit or a task that the customer needs. Thorough customer understanding is needed to fully discover such tasks. By making this question, the company can recognize alternatives solutions for the customers' needs.

Service oriented companies have an intuitive idea about customer needs based on their experience and expertise (Arantola & Simonen, 2009). Sometimes this intuition provides good results, but often it needs to be challenged. A company can get stuck with a very conservative point of view, and cannot realize the opportunities it has. In my opinion, sometimes an outsiders' view or out-of-the-box-thinking can help the company to serve its customers better.

Many times projects move along in a funnel, or a project map, through set gates. Understanding the customer might come to play way too late in the process. Most of the market research investments are made during the product (or service) launch period, not in the early stages of innovation process (Arantola & Simonen, 2009). In an industry where product life cycles are fairly long and relationships between suppliers and customers long-standing, as in metal industry, there are possibilities for early co-operation.

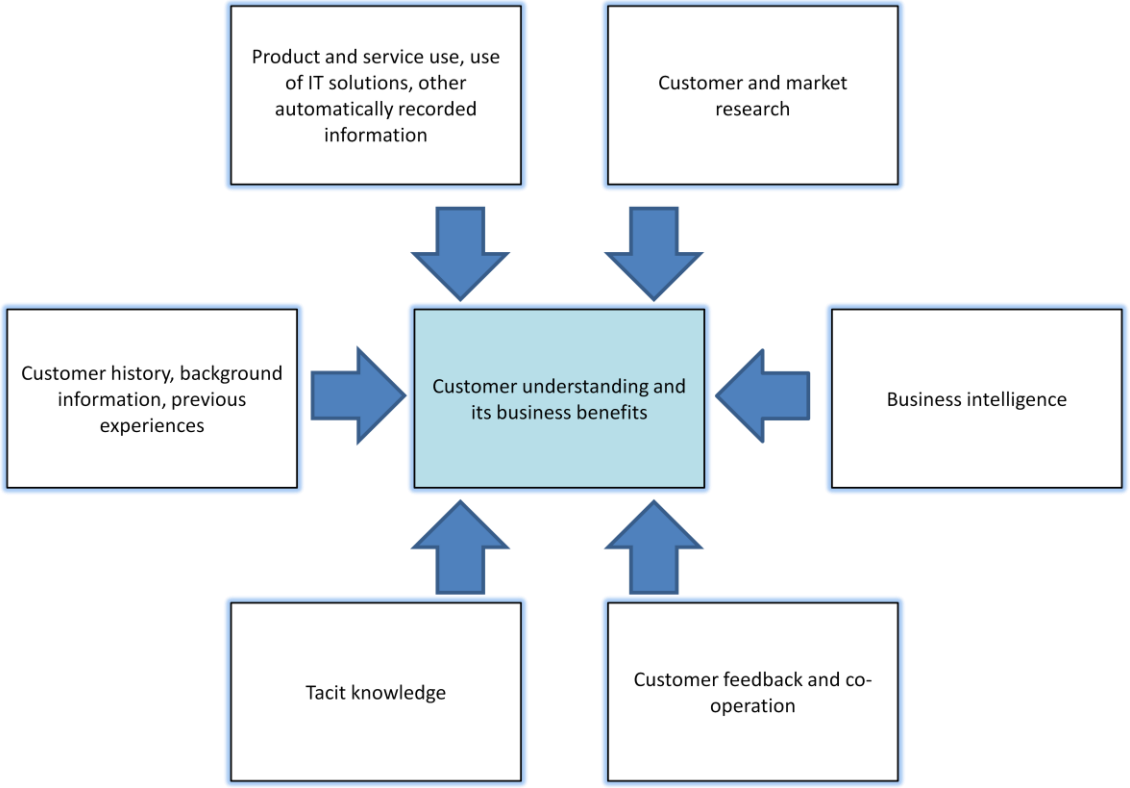

Figure 10. Sources of customer information and ways to understand it. Modified from (Arantola & Simonen, 2009).

In an ideal situation extensive customer understanding comes into the process alongside cost and technology management in different stages. In early stages it is derived from market and customer behaviour information, later on information might concern individual customers. Sometimes, as in this study, the whole process can be started with one single customer. Even in that case, the early stages of the process can be

generalized, for example for one customer segment (Arantola & Simonen, 2009). Figure 10 shows different sources of customer information.

In all types of service business the company is striving to grow by becoming a larger part of the customers' operations. This kind of economic logic requires extensive knowledge of the customer, so that possible links between operations can be discovered (Arantola & Simonen, 2009). One concern with becoming a part of customers' operations is "stepping on their toes", especially in metal industry where companies can simultaneously have a supplier-customer-relationship with certain product segments and be competitors in other fields.

2.4.1. Customer value determination

Research has shown that there are differences between what companies think their customers value and what the customers say they value (Parasuraman, Berry, & Zeithaml, 1985 and Sharma & Lambert, 1994 in Woodruff, 1997). These differences increase the potential for mistakes in an organization's effort to deliver value to its customers. The aim of customer learning should be to reduce those gaps. Obviously, customer value loses its meaning as a tool if it is not shared within the organization. The people involved in the process of creating and implementing customer value delivery strategies need a common framework for thinking about customer value. An operational concept helps to specify what a company should learn about its customers (Woodruff, 1997).

Woodruff stated four simple questions that aid companies in discovering customer needs and the company's position (Woodruff, 1997):

- What do customers exactly value?
- Of all the things customers value, which ones should we focus on?
- How well do customers think we deliver that value?
- How will what customers value change in the future?

The more expanded version was developed by Woodruff and Gardial (Woodruff & Gardial, 1996 in Woodruff, 1997). They introduced the customer value determination (CVD) framework. The CVD process is displayed in figure 11.

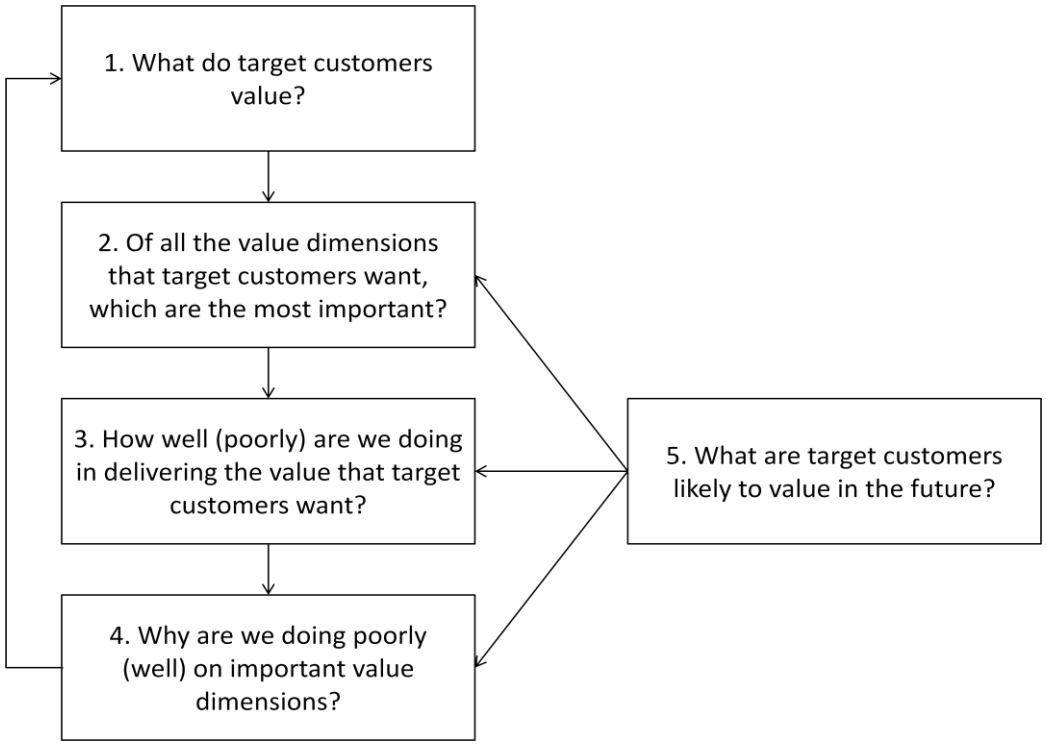

Figure 11. Customer value determination Process (Woodruff & Gardial, 1996 in Woodruff, 1997).

The steps of customer value determination are following:

- Identifying the target customers (usually companies have already done this by selecting their key accounts)
- What do target customers value?
    - Qualitative techniques needed to explore a broader and more complete set of desired value dimensions
- Screening customer value dimensions
    - What value dimensions customers want, which ones are most important?
    - One approach to go to customers for their input (as applied in this study)
- How well (or poorly) are we doing in delivering the value that target customers want?
    - Mostly quantitative data
- Why are we doing poorly (well) on important value dimensions?
    - Qualitative techniques well suited for exploring reasons for satisfaction ratings
- What are target customers likely to value in the future?
    - These predictions give lead time to respond with new customer value delivery strategies
    - Customers typically don't know what they will value in the future
    - Need for more indirect approaches for making these predictions

After the steps of customer value determination process have been completed, it is time for the company to develop and implement action plans to utilize the given results in their business.

2.4.2. Process of developing customer understanding

There are many types of processes to develop customer understanding. Arantola and Simonen's process has very similar elements with Woodruff & Gardial's customer value determination process. The process is based on customer data that is processed to provide information about the customer. Customer understanding develops when that processed data is used in business activities. Understanding the customer is the key in the process of finding out about customer value. By taking part in the innovation process, the customer creates customer information that can be used in further innovation of solutions, e.g. additional services, more efficient operations, or process improvements. The customer is an integral part of the innovation process while undergoing its own business development process (Arantola & Simonen, 2009).

Customer understanding can be used as a resource for service business development when the company

• knows what kind of customer understanding can be utilized for service business development,

• knows where to get the information regarding customers,

• has processes or practices to store, process, and share such information,

•has customer information available across its whole business,

• has processes or practices to appropriately utilize customer understanding,

•can process customer information close to or at the point of decision, and with the perspective of service business development.

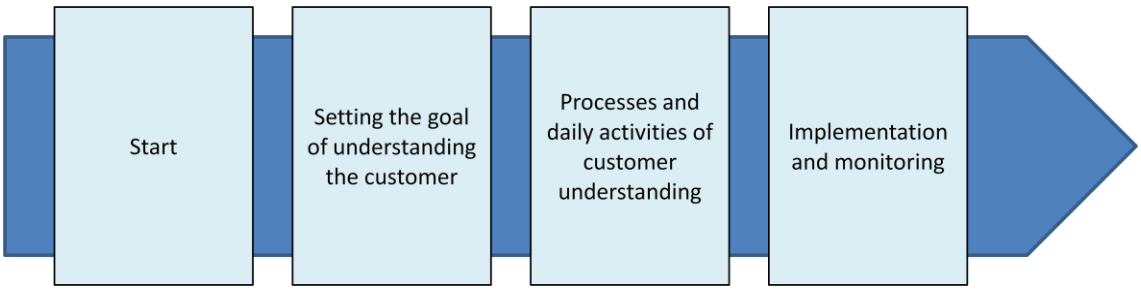

Figure 12. Process of developing customer understanding (Arantola & Simonen, 2009).

The aforementioned dimensions are included in Arantola and Simonen's process of developing customer understanding. This process can be divided into four separate steps as shown in figure 12 and explained in more detail in table 5.

Customer-centric business requires understanding the customer's business and the role of the company's services in it. The attributes of the service are not important – what matters are the benefits and effects on customer's business. As the customer is a co-creator of value it is vital to understand how the service fits into the customer's business model. Utilizing customer understanding happens both in daily activities and on a strategic level.

The primary users of customer understanding are perceived to be – and in reality also are – sales and marketing, functions that are in frequent contact with the customer. That said, service providers cannot be forgotten, because service planning is constantly undertaken based on customer demand estimates (Arantola & Simonen, 2009).

Table 5. Process of developing customer understanding (Arantola & Simonen, 2009).

Step	Actions
1. Start	Charting both the means and tools of collecting customer information, and the procedures regarding it. First step might also include a report of the basic structure of the clientele.
2. Setting the goal of understanding the customer	Deciding what the company is aiming for with the information and how it can be utilized.
3. Processes and daily activities of customer understanding	Making investments, developing practices, etc.
4. Implementation and monitoring	Management and development of customer understanding processes, practices, and utilization.

Building and fully utilizing customer understanding requires grasping the multifaceted nature of customer understanding and customer value. The company should have insight of the methods and tools with which to gather, share, store, and create customer understanding (Arantola & Simonen, 2009).

2.4.3. Customer scenarios

Another tool for a company to find creative ways to help its customers is the idea of customer scenarios (Seybold, 2001). Customers in different situations and environments

have different needs. If the company does not know its customers, it can only provide one-size-fits-all-service. Developing customer scenarios means building a "big picture" of a customer's need. Customer scenarios can be constructed as different steps of the customer's buying process, i.e. how a customer functions. Thinking about customer scenarios can help companies improve their customers' experiences and strengthen their loyalty. The challenge with this kind of thinking is how to put oneself in the customer's shoes; usually the focus is on the point at which the customer contacts the company, but that touch point is rarely the center of the customer's experience. Creating scenarios requires thinking beyond companies' own processes and objectives.

The following steps are needed when mapping out customer scenarios:

- select a target customer set
- select a goal that the customer needs to fulfill
- envision a particular situation for the customer
- determine a start and an end point for the scenario
- map out as many variations of each scenario as you can think of
- think of the individual activities performed and the information needed at every step

Seybold states that by developing multiple scenarios, a company will begin to see patterns. The patterns can be used to further develop new, more precise customer scenarios.

Different scenarios may have critical steps in common. By finding those steps, it may be possible to create services that cater to different customers' needs. In metal industry customers are usually large key accounts that have individual preferences, but it is possible to draw some basic guidelines that can be applied to various customers.

Scenarios must be tested with real people who use the products or services. Ultimately the goal is to empower customers to define their scenarios for you, which, in a way, is co-creating the service. Also Seybold has adopted the outcome-oriented perspective to creating new services:

"By thinking broadly about the challenges your customers face, rather than narrowly about what you can sell them, you can almost always find ways to make their lives easier. That, more than anything else, will earn you their loyalty." (Seybold, 2001)

While this theory is originally suited for B2C markets, it is possible to use the main principles of it also in B2B markets. Especially in long-term customer relationships where companies have experiences with their customer's buying behaviour and in best cases their operations, it is possible to create similar customer scenarios. By using the scenario tool as a support for the sales process companies can find ways to better fulfill customers' needs, latent or clearly stated.

To support these tools and processes there are also other types of information that can be collected. That information can be related to the situation on a personal, process, company, industry or society level. Especially in situations where radical changes and discontinuities with those factors take place, it is both mandatory and very beneficial to get appropriate information. Understanding the situation thus creates a lens through which the company can recognize opportunities with customers' business. (Arantola & Simonen, 2009) Also knowing the economic factors adds to the customer understanding. Knowing as much as possible about customers' business logic, cost structure, balance sheet and risk management can allow companies to create services that are mutually beneficial.

3. DEVELOPMENT OF THE FRAMEWORK

3.1. Requirements and preliminary framework

The framework development process started with the goal of constructing a tool for the salespeople to utilize (with possible individual modifications) as a support of their evaluation of the respective needs and characteristics of the key customers.

Based on the findings made during the literature review, the general perspective was to seek the outcomes that were desired by customers instead of directly asking what kind of products or services they want. It is important to identify the situations where customers are trading off benefits and sacrifices and recognize what is driving them in those situations, whether they are purchasing or using or consuming products. When determining what the customers value, one has to have insight on both the tangible and intangible components of the customers' value expectations (Payne & Holt, 2001).

In order to fulfill the goals that were set, the framework had to be simple enough to be used with various types of customers while giving some room for utilization of personal expertise. However, it still had to be extensive enough to cover the most important themes regarding the customer's business now and in the future in the context of new product service development. Customer-centricity and emphasis on services were the dominant themes throughout the framework development process. Also the possible limitations of access to the customer had to be taken into account; many times it is not possible to interview a large number of customer representatives from different areas of their business. Obviously this would give the best possible information about the customer's operations. In ideal situation, there would be contacts on different levels, layers, and business areas between the supplier and the customer. However, in practice it is often a dialogue between the supplier's salespeople and the customer's purchasing. For that reason, the frame work had to be such that can be used with a single point of contact to the customer.

Company personnel have a lot of tacit, individual knowledge and know-how that is difficult to document, share, and duplicate. In service business, the people who create the services have the most contacts with customers and thus the most pre-existing knowledge of the customers operations. Personnel working with customers might not always realize the value of the information they get from customers, because it is so obvious and a routine matter for them (Arantola & Simonen, 2009). That is why even a simple framework can prove to be useful in collecting, categorizing, and sharing the information.

Companies have vast amounts of customer data, ranging from sales numbers and other economic figures to personal information accumulated through the existing interpersonal relations. Customer history illustrates the interaction between the company and the client, with emphasis on sales and marketing activities and their respective results. Examples of this information include offering history, contact history, individual transactions, payment history and different services provided to the customer. Also in this case some of the information can be, and is, already collected by the case company, so it is up to the salespeople or whoever is in contact with the customer to use the appropriate parts of the framework.

The interview frame for customer interviews was used as the preliminary framework. The preliminary framework included seven themes, and is depicted in figure 13. During the interview and data analysis process the frame was developed and simplified to better answer to the goals of this study.

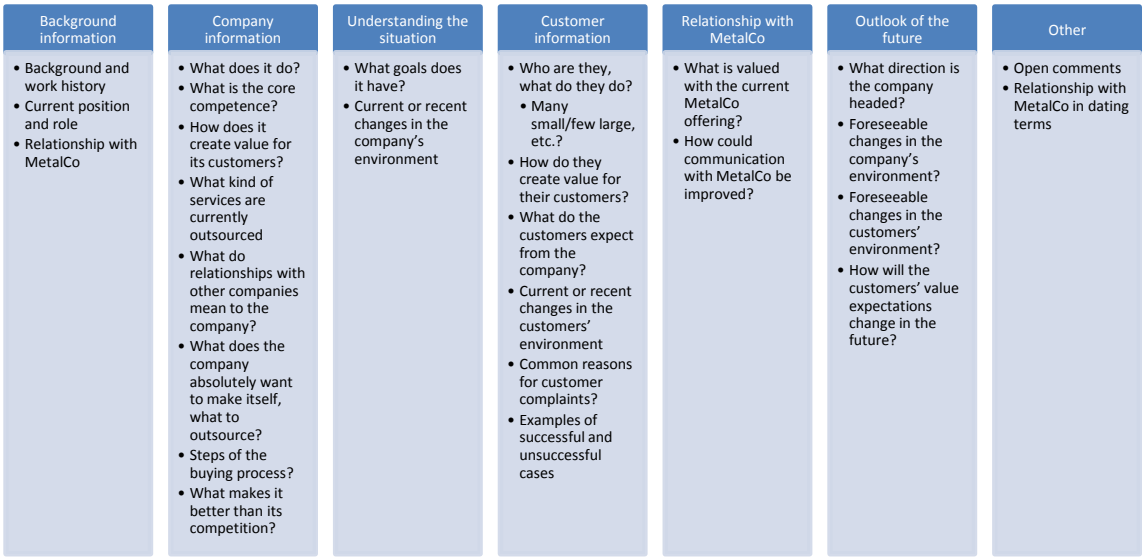

Figure 13. Preliminary customer information framework.

The final framework with descriptions of its content can be found in chapter 7.2.

3.2. Deliverables of the framework

This framework should be used in conjunction with the pre-existing data that the case company has, including economic indicators and sales figures that can be collected from the business activities. If used as such, the case company should know its customers and

their respective customer base better, and have sufficient data to see opportunities for providing services that create value for its customers.

The challenge with the framework was to create a tool that gives appropriate information with a single point of customer contact, which unfortunately often is the case. It is designed keeping in mind the limitations of information that the contact has, whether a member of purchasing department or other function of the customer. To gain best results and increase customer understanding, contacts between multiple levels and functions of customers and the case company is preferred. Even in cases where there are contacts between e.g. R&D or production personnel, the use of the framework will help to find out information about the appropriate topics needed for new service development.

Having a common framework for customer evaluation allows the company to better compare its clients, to see commonalities and divergences between them, and in general improve the front end of the new service development process.

4. RESEARCH METHODS

4.1. Research design

This research was performed as a constructive embedded single case study (Yin, 2009). It concerns the development of functions for the case company and two of its selected customers. The research consists of two separate parts: literature review and empirical research. The literature part was performed to provide basis for creating framework to be used with customer contacts. The empirical part was done partly alongside the literature review and was used to test and further develop the framework based on the analysis and findings.

4.2. Data collection and analysis

The structure of data collection in the empirical part was threefold. Information was collected by interviews with customers, by using existing interview data with MetalCo, and from workshops that were held with MetalCo. Customer data collection was conducted with semi-structured interviews with representatives from various areas of the customers' business. The interview frame can be seen in appendix 1. A total of seven interviews were conducted. All interviewees were selected by purposive heterogeneous sampling with focus on key themes. Theme interviews are an excellent way to test service concepts in an environment where a company has long-term customer relationships (Rekola & Rekola, 2005). Customer companies were selected by MetalCo. The basis for company selection was to get information from different types of customers that are both large enough to be considered key customers and who also utilize MetalCo offering on a wide scale, both from service centers and from factories.

Data from all customer interviews was categorized under respective customer companies, and afterwards merged into general customer data. Applicable data from MetalCo interviews was categorized based on the themes that were used in customer interviews. After this, cross-case analysis between customers and MetalCo data was made. Notes from MetalCo workshops were used to validate interview data.

4.2.1. Customer interviews

Customer companies are presented in figure 14. IndustCo manufactures end products, components, and ready-to-install modules for construction and infrastructure markets. They are present in both light and heavy industrial sectors. The company is represented in multiple countries worldwide. They purchase products from MetalCo, both from

service units and directly from factories. Functions in different countries are somewhat similar so that new service concepts could be copied to be used in other countries. IndustCo's customers include mostly subcontractors, construction companies and wholesalers. One theme interview was conducted with IndustCo.

SubcontCo specializes in serial production of mechanics and electronics. Typical for its products is the combination of metal processing and electronics. It is a typical subcontractor that does manufacturing for large industrial end product manufacturers. It does not make end products, but processes components to be used further in the supply chain. It has production in Finland, Estonia and India. At the moment it is independently running a project that brings some of its key suppliers and customers to the same table. Six interviews were conducted with SubcontCo. Interviewees were from various sectors of the company, including, sales, purchasing, and production. The interview frame presented in appendix 1 was used in all customer interviews.

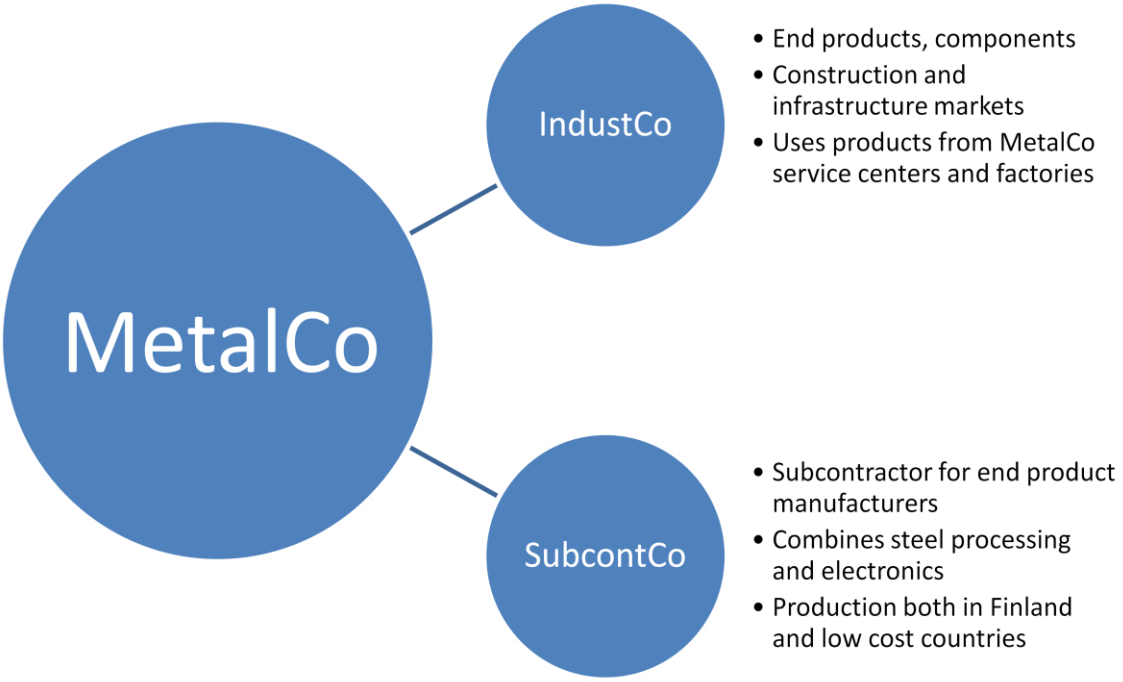

Figure 14. MetalCo and customers.

4.2.2. MetalCo interviews

The research on MetalCo was mostly based on analyzing data from three previously recorded theme interviews. The interviews were purposively selected to give input from different parts of the company. Four people were interviewed, with positions in management and business development, sales, and product line management. The interviews included the following themes: interviewee background, company

information, readiness to change, customer relations, supplier relations, and supply chain management. Applicable parts of the interviews were used in this study. To support the semi-structured interviews, one non-structured interview with a MetalCo salesperson was conducted.

4.2.3. MetalCo Workshops

MetalCo workshops were used as a support of data collection. Customer companies were selected in the first workshop based on MetalCo preferences. Another workshop was held to discuss results after the customer interviews were conducted. Key findings of the empirical research were presented in the workshop. Notes, discussion, and comments from the workshops were used as triangulation to validate and verify data that was collected throughout the research process.

5. RESULTS

Results are mostly expressed in a dyadic form where results from customer interviews are mirrored with results from MetalCo data collection. As mentioned in chapter 4.2.2., customer interviews and MetalCo interviews were conducted with different interview frames. MetalCo interviews focused more on the readiness to change and supply chain management. Because of the differences between interview frames, some information is only available from the customers' perspective.

5.1. Expectations of customers' customers

5.1.1. Customers' perspective

There were a few themes that repeatedly came up when the wants and needs of the customers' customers were discussed in the customer interviews. Short delivery times, high quality products, and co-operation with the suppliers were universally mentioned. Key issue with delivery times and co-operation seemed to be the attempt to shorten the value chain as much as possible.

Along with the aforementioned topics, price was a much discussed issue. Most customers mentioned the price being an important component in the purchase decision. However, it was generally that customers did not necessarily want need the cheapest price, but competitive, reasonable pricing considering the product quality and delivery times. Customers' customers are highly aware of global material prices, and when the price of a given metal goes down, similar change is expected in the prices they are offered. Also the pricing on the end product was seen as a key component of product pricing throughout the chain; if the end user is willing to pay a premium on his purchase, there is more money to use through the whole supply chain.

Different stock management options were discussed in the customer interviews. Suppliers taking care of the customers' stock with services such as consignment stock were mentioned. This seemed to be the case with companies in different parts of the supply chain; the end product manufacturer would like its subcontractors to take on the warehousing duties, while the subcontractor would like its own suppliers to do the same. In order to effectively operate such a stock management system requires long-term commitment from both parties. Interviews with SubcontCo revealed that consignment stock is already in use with MetalCo.

Also the desire for more refined products was brought up. Instead of receiving various different components and materials from the suppliers, customers' customers were said to aim at getting further processed entities that could directly be installed in their processes. For the suppliers and subcontractors this means that they have to dedicate resources to manufacturing and assembly that has previously been done by their customers. In most cases, because of the scarcity of resources, it means that they also have to give up some work from earlier parts of their processes. This creates changes throughout the supply chain and requires companies especially in the early phases to develop new capabilities.

Last, the ability to serve customers' business units where they conduct their business was seen important. For example, if a company manufactures their products in Estonia or India, it wants its suppliers to be able to work with and deliver components to their operations abroad. This was mentioned as one big reason for international expansion of subcontractors. Obviously, such expansion makes them subject to increased competition by the local suppliers in each of the host countries.

5.1.2. MetalCo perspective

MetalCo interviews brought up similar themes. Supplier selection and management were considered important in order to be able to provide products with short delivery times. Also improving internal co-operation between the factories and service centers was seen to have positive effects on the delivery time.

It was said that many customers do not want deeper co-operation; providing products with low prices was enough for them. Contracts are often short, which puts emphasis on pricing. In such negotiations products are often quite standardized. With long-term customer relationships it is possible to look more into the customers' operations and thus be able to better offer them beneficial services.

With warehousing, MetalCo is very much along the same lines with the customer companies. It has been noticed that customers do not want to have high stock levels. Consignment stock is currently used with some customers. Like all suppliers, MetalCo needs to prepare for producing much smaller batches in the future. In the interviews, this was said to create possible challenges with delivery times and quality.

One issue with producing more refined products is the extended delivery time if special materials are used in the product. Co-operation between service centers and factories plays a major role also in this area. Transportation through multiple processing sites takes time, which increases the delivery time to customer. Improved co-operation between service centers was seen as a major goal in the interviews and during the MetalCo workshops.

5.2. Customer complaints

5.2.1. Customers' perspective

Customer complaints were discussed in interviews with both customer companies. The most common reasons for their customers' complaints were wrong delivery quantities. This was also the most common reason for complaints towards their suppliers. Other recurring reasons from their customers included problems with coating, welding, and edging.

Some interviewees mentioned delivery times as the most common problem, both with suppliers and customers. Somewhat surprisingly this was not regarded as a reason for a claim for compensation in either case. The following quotes are taken from customer interviews:

"In principle we are supposed to claim for compensation (for that) but we have not really done that towards our suppliers, and neither have our customers towards us"

"They are just, they are delays, but not really regarded as complaints. But that would certainly be the most common reason."

It was emphasized several times that very few products with finishing problems actually make it to the customer. Internal quality control picks out most cases. Reasons behind inferior finishing were said to be virtually always human errors. Some of the finishing work in customer companies was done internally, while some was outsourced.

5.2.2. MetalCo perspective

MetalCo interviews showed that they consider themselves a fast and reliable company in most cases. When it comes to finishing services, such as coating, it was indicated that MetalCo is willing to do more of that for its customers in the future. If this can be done effectively and with high quality standards, there can be new business opportunities to MetalCo, less complaints for MetalCo's customers from their respective customers, and cost savings in each phase of the chain. If MetalCo can provide such services and integrate them into their product, it also reduces the number of intermediaries in the supply chain in the case such work was previously outsourced to another company.

5.3. Expectations towards suppliers

5.3.1. Customers' perspective

Factors behind supplier selection are in many ways similar to customer's customers' wants and needs. Price was seen as a major component in the selection; although it did not necessarily have to be the cheapest one, it had to be the most economically feasible. Quality requirements were often mentioned as the most important components in the

selection process. If they are not met, the supplier's offer will not be considered. On the other hand, it was mentioned that in some cases exceeding the minimum quality requirements is also seen as negative feature if it also means that price is higher than expected. Knowing and understanding the customers' operations and communicating with them with common terms, "same language", can help minimizing such occurrences.

Another common theme was the desire for continuous co-operation. It was said that companies do not want to constantly "shop around" for new suppliers, although they still have to keep an eye on the costs. It was noted that even in the case of well-functioning customer-supplier relationship, it is not desirable to only have one supplier. This is both a risk management issue and a tool in price negotiations.

Also a more active approach towards customers was hoped for. It was mentioned that there might be some materials or structural elements that the customers might not know how to utilize or in some cases even be aware of. In these occasions it is up to the supplier to effectively communicate such opportunities. Overall it seemed that the customers did not know how to buy integrated solutions unless something radical is directly offered to them.

Some other, more detailed things that were hoped for from suppliers include the following:

- Pre-cut metal sheets that can directly be taken to assembly
- Pipes and rods pre-perforated, cut to length, bent
- In general more processed components or pre-machined metal sheets
    - "One-stop shop" for customers
- Bulk products received as a shelving service
    - Suppliers taking care of the stock levels
- Project-based design assistance
    - Daily design operations handled in-house, other R&D from outside the company

It has to be noted that the listed things concern the interviewees' own areas of business, and cannot be copied to other companies without a grain of salt.

Also, with all the aforementioned activities the main objective is to achieve savings in total costs and improvements in efficiency. Providing activities as such should not be the goal; using them to create benefits for customers is.

5.3.2. MetalCo perspective

Interviews with MetalCo indicate that they are willing to offer services, but depending on the customer. Providing services was seen questionable if the customer is not willing

to put an effort in co-operation and commit to the relationship. It was noted by both customers and MetalCo that customers want to conduct business with companies that can provide as many products from one spot as possible and MetalCo sees one-stop service as their possible strength. One-stop service could be achieved by using subcontracting with functions such as coating, welding, or bending.

There are also plans to sell more customer-ready components from service centers. It is crucial to manage the supply chain so that it supports own processes. There were differing views on the difficulty of finding suitable subcontractors; some argued that there are many quality ones in Finland, others that ones with large enough capacity are hard to find and might have numerous customers that need their attention. There also seems to be some worries that decreasing the amount of available products might hinder the company's ability to provide such services and have an adverse effect on its sales. With such services, supply chain management is vital, but also difficult. If there are problems with suppliers in one-stop business, customers see that as MetalCo's problem.

For services such as different warehousing alternatives, especially with special products, there needs to be loyalty and long-term contracts between MetalCo and the customer. Such co-operation with customers also requires discretion from MetalCo's side; if salespeople have knowledge on customer Z, and its competitor customer W, both customers have to trust that the information about them stays confidential.

With the design aspects, MetalCo can provide technical production and product development support. In construction business they offer tools for designers; still, the volume of such services was said to be minimal compared to the more traditional business the company is conducting.

The need for activity towards customers has been acknowledged by MetalCo. They can recognize new developments in i.e. metal grades and instruct customers where, when, and how to use them. There were also mentions about the possibility of more people from service centers accompanying sales people to customer visits, using their ability to see problems and opportunities in customers' processes and suggest new products and services to them. Salespeople can guide the customers towards "right direction", but they have to know customers' business thoroughly in order to be effective. The internal information flow between service centers and salespeople is very important in this context.

Other strengths of MetalCo that were stated include a wide variety of products, technical support, and reliability. Also, long-standing relationships with customers and being a domestic company with the ability to service them in Finnish were seen as strengths. These attributes comply well with customers' future expectations of more specialized production in Finland, but might not have much influence in international expansion where the most growth is seen to become.

5.4. MetalCo offering

5.4.1. Customers' view

Based on customer interviews, MetalCo was mostly seen to manufacture bulk products, with the exception of specialty metal products. In general, metal products were considered bulk unless they are highly processed or built into something that is considered to be high tech. MetalCo was said to have very high quality products, although there did not seem to be much difference between MetalCo and its competitors on that front. The deliveries were said to be fast and reliability high. Also flexibility and product availability were credited. Price levels were seen as quite high compared to its European competitors.

A question of whether it is feasible for MetalCo to continue manufacturing bulk products or should they move more towards highly processed and specialty products was raised in the interview process. Also the room for improvement in the ability to react to global raw materials prices was mentioned. Noticeable in the interviews was that there was virtually no mention on MetalCo services. It seemed that the customers were not aware of possible service alternatives, and if they were, they were not able to directly express the need for them. There seemed to be lack of common language and understanding of what the term service actually meant for them.

5.4.2. MetalCo's view

MetalCo is along the same lines with its customers by recognizing that their products are quite similar to what their competitors offer. They also share the customers' view of them having reliable and fast deliveries, although the chance of shortening delivery times through better co-operation between service centers and factories was still seen as a possible improvement target. The same qualities with the addition of price component were seen equally important also with new service development.

It was mentioned that MetalCo is a price leader in Nordic countries, which contradicts with customer comments that had it higher priced than its direct competitors. Although MetalCo has specialty products and solutions, it is still strongly involved in bulk products. Based on interviews and workshop discussions, their current direction is towards more specialty products and services.

5.4.3. Pricing and costs

It was noted multiple times that more attention is needed towards total supply chain costs. All unnecessary processing and transportation costs that do not show in or add value to the end product should be kept to a minimum. If the costs for the end product can be held down, it benefits the whole chain. It was stated that currently MetalCo does

not put a separate price tag on services or categorize them; instead they are included in product prices and in some cases used as add-ons to win orders.

Interestingly, MetalCo interviews brought up a viewpoint that the more services are included, the more the price and costs increase. In customer interviews it was emphasized that all provided services should lower the total costs or increase the total value in the supply chain, otherwise it would not make sense to outsource anything.

Somewhat contradicting with the previous paragraph, it was also expressed in a MetalCo interview that by outsourcing some parts of operations to suppliers, companies can benefit from shorter delivery times, decreased need for major investments in machinery, and reduced downtime costs, which all lead to either increased value or reduced costs.

Looking at the big picture, there were quite a few mentions of the effect of services to costs, but there were also big discrepancies between customers' and MetalCo perspectives. Most comments from the customer side focused on keeping the total costs of the supply chain low and utilizing services in order to do so. The general impression from MetalCo was that services were seen as something that adds costs to their own operations but can be used to win orders.

5.5. Communication and information flow

Based on the customer interviews, communication between MetalCo and its customers seemed to be on an adequate level. Ability to respond quickly in matters that require such actions was widely appreciated. Comments from both MetalCo and the customers indicate that between key customers and suppliers the general contact rate is around 3-6 times year, depending on the customer and project at hand. In addition, there are contacts made based on needs, such as special deliveries or new projects. Main communication channels are email and phone conversations, with emphasis on email. Face-to-face meetings are held with key customers at least on a yearly basis. One interviewed customer provided the following quote:

"If you added any more of it, there would not be time for anything else"

Customer companies are aspiring to seek contact with their respective customers already in product development phase. That was seen as a possible point for the initial contact also with the suppliers. That way the different parts of the supply chain would become involved early in the process.

With non-personalized communication, MetalCo is seen to fare quite well. It is well represented on trade fairs, and its online materials have proven to be valuable for getting information on special materials. Physical catalogues and design aid booklets were hoped for in multiple occasions. There was also vivid discussion about the topic during

a MetalCo workshop. Arguments against such catalogues mainly included comments how because of rapid advances in technology the catalogue would be outdated by the time it is published. Arguments for the catalogue included thoughts on how such catalogue would create better relationships and commitment to MetalCo products, especially with third party demand influencers such as designers.

The information flows in the supply chain as shown in Figure 15 (SubcontCo used as an example). After the order is made by the end product manufacturer, SubcontCo's salesperson recognizes what materials are needed for the ordered batch. He either orders the materials himself or forwards the task to a purchaser. Price levels are asked from the suppliers' contact personnel that are most familiar to them. Red lines are official information channels, grey lines unofficial. Solid lines depict the most commonly used channels, dotted lines their alternatives.

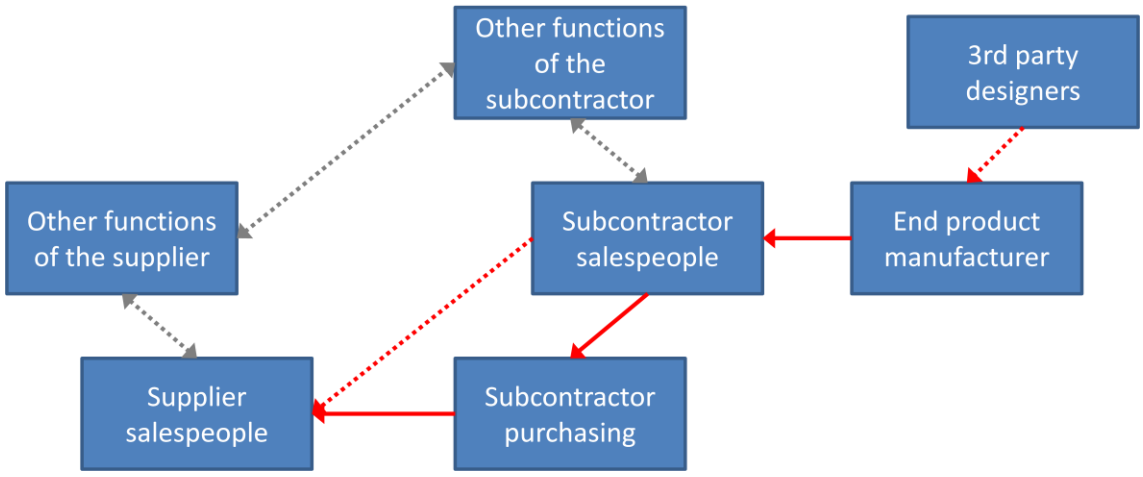

Figure 15. Information flow in product orders.

Although personal relationships do not decide the orders, they do play a key role in who to contact first with questions about the order. Things are found to progress smoothly if the familiar contact person is available. If not, "things do not happen". Sometimes customers' purchasing and production personnel can be in touch with different people at MetalCo, based on familiarity and existing relationships. The following quote expresses the dependence on those relationships and how it is not always the official information channels that are used.

"No, that is a different case. He is now working with other tasks. I have been working with John the whole time, conducted business for almost thirty years now. But still he sees our information there, and when I call him, he checks what our situation is."

5.6. Future of the customers

5.6.1. Customers' perspective

Interviewed customers had very similar viewpoints on where the industry is headed and what the future of their customers looks like. They were expecting their customers, and consequently also themselves, to become more specialized. Based on the interviews, there will be more prototype building, smaller batches of products and special products made in Finland. They require short delivery times and possibilities for customization and tailoring. Flexibility will be extremely important in the future. Prototype building for Finnish companies is best conducted close to clients because of the ease of control and ability to co-operate closely during product development phase. Because of the same reasons, also products with multiple incremental changes during their life cycle are best produced in Finland. Customers are going to expect more and more refined products from their suppliers. On the supply side, it was expected that it will become more feasible to import even smaller batches of components. Because the end product manufacturers have to become more specialized, the same will happen to all parts of the supply chain.

Customers saw the biggest growth taking place outside of Finland, mostly in low cost countries such as India. Manufacturing of bulk products will gradually move there while business units in Finland evolve to make more advanced products. Factories in low cost countries utilize local sourcing opportunities. It is also possible and even likely that later on more and more advanced manufacturing tasks move to low cost countries. The following quote represents the current evolution of low cost countries quite well:

"Chinese people have brains too, and they are surprisingly capable of, at very least, copying practices"

One opportunity for companies in various phases of the supply chain is the growing emphasis on service business. Many end product manufacturers are investing in and profiting from various services, such as maintenance and spare parts business. This can also lead to opportunities for their suppliers. The value of after-sales business can surpass the price of the initial product purchase cost by threefold in many projects.

5.6.2. MetalCo perspective

MetalCo interviews gave a slightly different view of future growth. There were comments about growth taking place close to markets, meaning that even most of the early phases of the supply chain would take place in Europe or even in Finland. The rationale behind this is that many products in industries where MetalCo is conducting business are large and thus difficult to transport, whether in the processing stage or as a final product.

There were indications that MetalCo regarded its current services competitive and on par with the business standards. They emphasized their high level knowhow with special materials, and economies of scale with machining them as things to rely on. Especially expertise with new materials that do not yet have set guidelines or practices was seen as an advantage. It was mentioned that there are not many companies that can process extremely large metal objects like MetalCo can.

5.7. Relationship between MetalCo and customers

5.7.1. Description of the relationship

Interviewed customers were asked to describe the relationship between their own company and MetalCo in relationship or dating terms. Quotes from the interviews include the following:

”Long marriage, sometimes there are arguments and sometimes not, sometimes everything goes smoothly.”

”I think we still have the same contact person as when I started working here in -88. Isn’t that quite a long marriage? [laughter]”

”Of course being married is lovely, but… you must all the time sleep around a bit too.”

”A bit like an old married couple! [laughter] Sometimes it is OK to act up a bit”

”A marriage with a couple of affairs on the side”

The basic idea was the same in all interviews. One interviewee expanded his comment in a bit more serious way:

”It is a fact that there has to be something with which we can negotiate prices with MetalCo. Nobody gives the best possible price out of the pure goodness of their heart.”

This quote explains that there has to be some leverage to help negotiate prices. As mentioned earlier, there cannot be just one supplier, and not only for reasons concenring risk management. This has also been noted by MetalCo; there were mentions in the workshops that it is sometimes mandatory for customers to have more than one supplier. There was also some concern that with service-enhanced products MetalCo could be used as a buffer – customers might simultaneously make and buy certain products, and during downswings they keep their own production but stop buying from suppliers.

5.7.2. Co-operation between MetalCo and customers

There seemed to be mutual agreement that both MetalCo and the customers have room to improve with their co-operation. Similar themes came up in both the customer

interviews and from MetalCo. Both the customers and suppliers have to become more active in that area. MetalCo needs to do a better job understanding its customers, but also the customers have to provide input about their business, needs, visions, where their markets are headed and other things of that nature. Customers were hoped to request product features that could need subcontracting or alternatively MetalCo salespeople could find the opportunities for such actions while visiting the customer. MetalCo was hoped to be able to provide materials with better delivery times and cost structure, but customers recognized that it would also need input from the customers to the suppliers.

There seems to be a strong "it has always been done this way"-attitude still prevailing in the industry. Not only are suppliers stuck with old practices but there is resistance to change also on customer side; for example customers disregarding new materials that would save money during their life cycle and using old materials instead because of lower costs up front. MetalCo expressed their ability to help customers with product life cycle assessments which could significantly help customers. Salespeople were seen vital in recognizing new opportunities and challenging the status quo, but they also need support from the rest of the organization. The benefits – and also the mere existence - of new practices have to be explained both internally and externally.

MetalCo expressed the need for contacts in various areas of customers' organization, such as purchasing, production, and R&D, and various parts of the supply chain, such as end product manufacturers, subcontractors, et cetera. Changes in customers' environment can change their needs, meaning that customers' customers can be the main influencers of demand. That is why activity towards customers' clients could improve sales; they often decide on materials to be used. MetalCo’s customers could act as gate-openers towards their own clients.

This far MetalCo has provided some training and e-learning materials to its customers and they have been well-liked. A clear need for more extensive design aids such as designers’ guide booklets was expressed in the interviews. As mentioned earlier, the concern with such printed materials was that with rapid advances in metal technology, the booklets could be outdated by the time they are published.

6. DISCUSSION OF THE RESULTS

The main research question to be answerd was stated in chapter 1.3:

How can an industrial, product-oriented company recognize and utilize opportunities for developing services that create value to their customers?

To assist in the answering process, the main question was divided into three subquestions as follows:

1. *Which are the different components of customer value with service-enhanced products in metal industry?*
2. *Who are the main influencers of demand in metal industry?*

Answering the first two subquestions directs us towards the essential parts of research, i.e. tells us what to concentrate on while moving on to subquestion number 3.

3. *How can information that supports new service opportunities be collected and analyzed?*

6.1. Subquestion 1. Components of customer value

Research indicated that, either now or in the future, the most important components of customer value, both with our interviewed customers and also their customers are delivery time, pricing, and ability to move downstream by providing more refined products.

All the components that are discussed in this chapter are very much interrelated. By developing more refined products throughout the chain it is possible to create high value end products. The results of this research support Naumann's (Naumann, 1995) arguments of three major components of customer value; in his customer value triad (Figure 8.) product quality (refined, highly processed products), service quality (short delivery times) and value-based priced (pricing), form the basis for customer value.

6.1.1. Pricing as a component of value

There were some recurring themes that came up during customer interviews. Price was a much discussed issue, both on the customers' and on MetalCo's side. Customers considered pricing important, both towards their suppliers and their own customers. Competitive, reasonable, and economically feasible were terms that were mentioned with pricing. It was mentioned that price is usually evaluated considering the product quality and delivery times when making the supplier selection. However, it seems that price is generally seen as the face value of the order, not as a cost for a larger entity of goods and services. The more the supplier is able to squeeze into a given price the better, but those additions are used as order winners, not something that naturally are included in a given price.

This viewpoint to pricing creates problems in cases where customer's requirements of sufficient product quality are not very high, or if the order requires special attention such as extremely short delivery times, high quality standards, or product modifications. In the first occasion, a company might lose the order because of high prices that include services that the customer might not need. In the latter one, the company might end up not getting a fair price on the solution they provide the customer with. Both the customer and the supplier should keep in mind that value cannot always be seen as the sum of money that is exchanged in a transaction, but as a larger entity where savings and product improvements can be passed on to other parts of the supply chain.

In either case, if the supplier company does not have a clear policy on how to price such services, they are subject to somewhat irregular pricing practices that vary from salesperson to another and customer to customer.

Somewhat surprisingly in MetalCo interviews it was mentioned that the more services are included, the more the price and costs increase. Services were seen as something that can be used to win orders while adding costs to their own operations. Obviously this is the case with direct costs to MetalCo, and that directly affects its profits if the cost of the provided service is not added to the total price. Despite increasing costs to MetalCo, by including a service such as coating to the product earlier in the supply chain can decrease the total costs of the end product and thus be more profitable. According the customer interviews, the goal for all provided services was to lower total costs or increase the total value in the supply chain. This was also acknowledged by MetalCo, so there were some contradictions in the internal interviews. It was mentioned that by outsourcing some operations to suppliers, buying companies can create shorter delivery times, reduce downtime costs, and decrease the need for major machinery investments. This is recognized by both sides, but still the actions that have been taken have been very scarce in the metal industry. It seems that either the view on the big

picture is distorted, or that there still is an “always have been done this way”- mentality dominating the industry.

Based on the research it was evident that the supplier was not even aware of the opportunities they have to provide services to their customers. Consequently, if they are not aware of the opportunities themselves, they also cannot explain those opportunities to their customers. That is the biggest issue that arose in the research process; there is interest for developing new services and co-operation on both the supplier and customer side, but unawareness of such opportunities and inability to talk about them, the lack of a “common language”, are major hindrances in the way of service development.

6.1.2. Delivery time as a component of value

Delivery times were seen as another major component of customer value, and the significance of this component will increase in the future. Interviews in companies indicated that there will be much more flexibility expected from them in the future, and this includes being able to provide products with short delivery times.

MetalCo interviews showed that the company considers supplier selection and management important concerning their ability to provide products with short delivery times. This applies to products where external subcontracting is needed or ones that include materials from other suppliers. There were differing views in MetalCo on the degree of difficulty with finding suitable suppliers; some said that there were plenty of quality suppliers in Finland, others expressed the difficulty of finding suppliers with large enough capacity to provide services on a large scale. Obviously this depends heavily on the type and extent of the subcontracting needed.

Another, more often applicable way of reducing delivery times is the improvement of internal co-operation between factories and service centers. This could also be seen as a topic of further future research. MetalCo interviews also indicated that there were plans to sell more customer-ready components from service centers, which shows that such developments have been at least thought of internally. It was also mentioned that MetalCo considers itself a fast and reliable supplier in most cases. Similar remarks about MetalCo were made by customers.

However, customer interviews showed that despite not being regarded as complaints, delays in deliveries were the most common problem, both with components coming from the suppliers and the ones shipped to customers. Although this was not directly about MetalCo but all suppliers in general, it raises a point about the importance of delivery times and the question of how they could be improved. By excelling in this area, a supplier can develop competitive advantage over its competitors.

As both the delivery time and pricing were seen as valuable components of the offering, the thought of regarding delivery time as a service comes up. If a supplier can create

value to its customers, who in turn can create value to their own customers, by decreasing the delivery time and thus providing additional benefits, it can be seen as a service and also priced as such. As have been said before, currently services are not priced separately and are considered order winners that cost money to the company. This practice contradicts with the existing literature; for example, Gattorna (Gattorna, 2006) divided customers into four categories based on the supply chain configuration they need. As our research shows, the customers are expected to require more and more flexibility from the suppliers in the future, placing them under categories of "agile" and "fully flexible". Kong (Kong, 2009) recognized that "agile" customers will need a costlier mode of transportation, and "fully flexible" even disproportionately so. According to Kong, pricing policies should be made based on the allocated transportation costs and the customer's value to the supplier. As Grönroos (Grönroos, 1997) mentioned, companies have to go beyond the simple product concept and understand how their offering creates benefits for customers. This way they can develop and manage additional services and create added value to the core solution, which in this case is the metal product.

6.1.3. More refined products as a component of value

Based on the interviews one key theme was the increasing focus on more refined products in all phases of the supply chain. Practically this means shifting the whole chain forward, with companies developing new capabilities and taking on different roles than they have had before. With the end product manufacturers concentrating more on assembly and finishing, their subcontractors are needed to produce further processed components that can be directly installed in their processes.

This shift requires suppliers in different phases to rethink their resource allocation and focus. Often they have to give up some work from earlier parts of their process. Resources are scarce, and if new tasks from further down the chain are taken on, it generally means either outsourcing some activities, acquiring new resources, allocating resources differently, or most likely a combination of the aforementioned alternatives. The same effects are felt throughout the supply chain; if a subcontractor provides more processed components, it naturally expects its suppliers to do the same to fill the resource gap.

While this creates great challenges for companies, it also presents great business opportunities. Interviews showed that there is willingness at MetalCo to take on tasks previously done by its customers, such as finishing services. Providing such services with high quality can create advantages in multiple ways:

- Less complaints from customers' customers
- Cost savings by economies of scale throughout the supply chain
- Reduced need for intermediaries in the supply chain
- Shorter delivery times

One of the most common reasons for customer complaints was defective finishing. By taking on these tasks successfully MetalCo can decrease the number of end user complaints, ensure fluent production and minimize the amount of rejected items in production. MetalCo considered itself capable of running such operations more effectively than smaller customer companies, who in many cases would have to invest in machinery that would see significant downtime.

By taking on various tasks, a company can reduce the need for intermediaries in the supply chain. This both simplifies the supply chain management and decreases delivery times if correctly executed. By doing this, company can fulfill customers' hopes for "one-stop service". All these lead to higher customer satisfaction, decreased total supply chain costs and faster deliveries to end users.

Own supply chain management is crucial in such business model. Suppliers that are used have to support company's own processes. Also internal processes have to be optimized. Transportation to multiple processing sites increases the delivery time, whether it is done by others or in-house. In MetalCo's case, co-operation between service centers and factories is vital.

The need for further processed products was seen by both MetalCo and customers. That raises a question of why there has not been more concrete actions towards reaching this goal. Challenges with such actions include the possibility of "stepping on someone's toes", i.e. eating away business from customers and becoming their competitor. That is why co-operation is essential in order to be successful in these actions.

6.2. Subquestion 2. Influencers of demand

Another theme that came up in the customer interviews and was vividly discussed in MetalCo workshops was the possibility of reaching third parties that act as influencers for the direct demand of the product. This means other subcontractors, product designers, end users and others who are involved in the process and can have a say on the materials choices that are made before the manufacturing process. Different actors are presented in figure 16. MetalCo can be thought of as the Company A, while SubcontCo and IndustCo are customers B and C in the figure.

As discussed in the results chapter, in customers' eyes MetalCo was seen to fare well with non-personal communication. It has been well represented on trade fairs and has online materials as a support for their customers. Training and e-learning materials have

been well-liked. However, such media mostly reach the people that are also otherwise in contact with MetalCo, such as purchasers for subcontractors. To be able to access other influencers of demand, things such as physical catalogues and design aid booklets were mentioned.

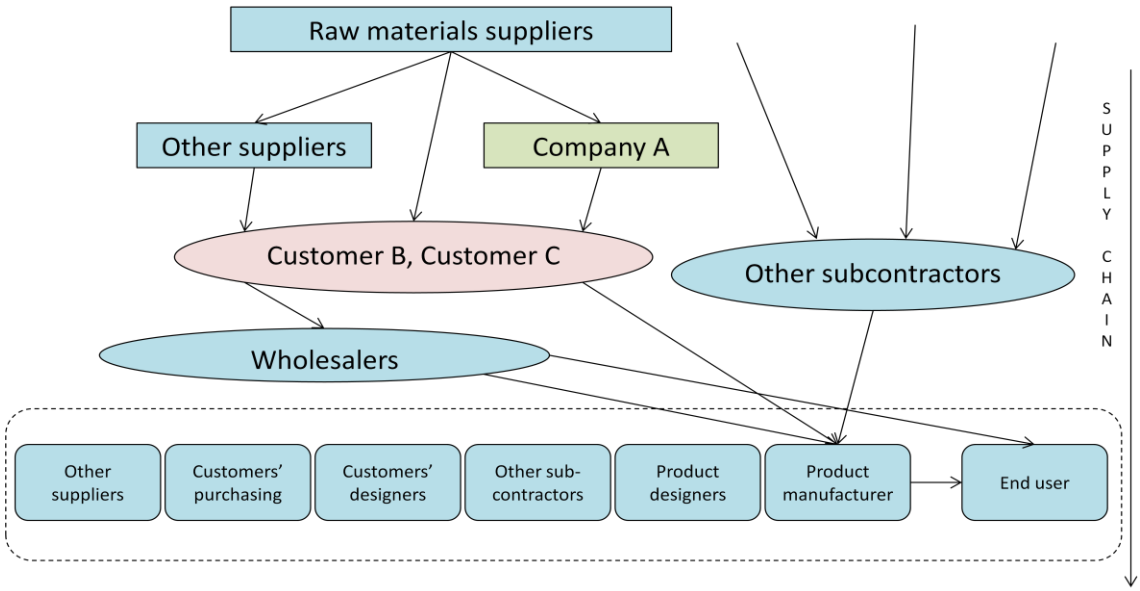

Figure 16. Demand influencers in the supply chain.

Customer interviews showed a need for such catalogues. In the workshops, there were arguments both for and against publishing them. As mentioned in results, arguments against the catalogues mainly concerned rapid advances in technology and the resulting obsolence of the catalogue data. Arguments for the catalogue focused on the chances for improved relationships with both direct customers and third party influencers.

If the customers' future needs change in the way they were expected to, co-operation with and influencing of third parties will become even more important. Especially in cases where MetalCo's customers develop highly processed components to be directly installed to their customers' products, this kind of action is vital. In deciding on the materials on highly processed components the role of the end product manufacturer is large.

MetalCo already has the ability and the knowhow to provide product development and technical production support that can be used as a tool to reach third party decision makers. The main questions now become how to access those people, and what kind of tools to use to influence their decision.

I am suggesting two alternatives to reach the third party influencers. The first one is to use MetalCo's customers, i.e. subcontractors for end product manufacturers, as "gate

openers". They could open the communication channels between multiple actors in the supply chain already in the product development phase. This way the design and materials knowhow of MetalCo could be used to ensure that appropriate and optimal materials are used in the production and simultaneously secure commitment from the customers. Such co-operation is similar to what Stevens sees as the fourth, and final, stage of supply chain integration (Stevens, 1989). In the fourth stage suppliers, internal supply chain, and customers are all linked together to maximize the companies attunement to customers' and markets' needs. The downside of this is that MetalCo is not in full control of the situation, which was hoped for in MetalCo interviews.

The other alternative is to seek direct influence on third parties by developing supporting design tools. Such tools can include for example physical product catalogues and design aid booklets. Target groups can be customers' and their respective customers' purchasers, salespeople and designers, but also co-operation with appropriate educational institutes can assist in developing commitment to MetalCo products now and in the future. If MetalCo provides the most usable catalogues and provides design support, the users are naturally inclined to use MetalCo's products that they are familiar with. This can be a very effective alternative, but the used media have to be so appealing that those that are targeted will want to utilize them.

Such influencing of third parties is directly in line with the demand chain strategy (Langabeer & Rose, 2001 in Walters & Rainbird, 2004). With supporting design tools, companies can create awareness and demand for their products and services, which fulfills the sales and marketing strategy component of the demand chain strategy. Using customers as gate openers allows companies to better know its customers and their respective customers, and simultaneously improve the information on product requirements. These are linked with the customer strategy and product and brand strategy components of the demand chain approach.

Both alternatives can, and should, be utilized simultaneously for the best results, but also one alone can bring the desired effects. Especially appealing design aids can be utilized with minimal risk while still having major long- and short-term impact on the choice of materials.

6.3. Subquestion 3. Getting information from customers

6.3.1. Current view of services

There seemed to be some confusion concerning services in most interviews. The definition of service and understanding of how services are related to the interviewees' respective businesses was not as clear as presumed of such companies. In general, it was rather difficult for people to even discuss services and their possibilities.

The general impression throughout the research was that both sides, customers and MetalCo, do not know how to talk about services. Customers were not aware of service alternatives available to them, or at least unable to directly express the need for them. This cannot be seen as surprising, considering that there was confusion of what can be offered to customers also on MetalCo's side. Still, practically all interviewed parties expressed the interest of providing and/or purchasing some kind of services, whether it was special deliveries, warehousing, or finishing services, just to name a few. There seemed to be lack of common language and inability to see services, such as the previously mentioned ones, as value-adding components of the total offering, i.e. understanding of what the term service actually meant for them.

In Arantola & Simonen's framework for developing customer understanding (Figure 12.), MetalCo is still in many ways in phase one. It is charting the means and tools of customer information collection, which includes this study. It already has information on the basic structure of its clientele and has grouped them according to their size and importance as clients.

In a way, MetalCo has also taken steps towards phase two, setting the goal of understanding the customer. The goal of the current program is to expand service business in firms such as MetalCo. However, there can be seen a somewhat resistant approach to new service development throughout the company, so in that sense phase two cannot be considered to take place yet.

It was mentioned in the workshops and interviews that MetalCo regarded its current services on par with the business standards and thus competitive. However, it was noted by both MetalCo and the customers that the tangible products themselves are quite similar to their competitors. If MetalCo products have a higher price tag than the competition, being equal in those aspects is not sufficient anymore. Currently the services that win orders for MetalCo include their flexible and fast delivery times, although these were not seen as services in the interviews, neither with MetalCo or the customers. The need for such delivery methods puts customers who require them in "agile" or "fully flexible" category. In those categories quickness of deliveries and schedule alterations are important and justify higher costs (Kong, 2009). However, these costs are not directly transferred to the customers, thus creating inefficiencies with pricing.

6.3.2. Future of services

In the future MetalCo needs to move further towards utilizing customer information and developing processes and practices that support it, i.e. moving towards phases two and three on Arantola & Simonen's framework for developing customer understanding (Figure 12). The need for activity towards customers has been acknowledged by MetalCo, and vice versa.

There can be seen a clear difference between MetalCo's bulk and specialty products. In MetalCo interviews and workshops the high level knowhow they have with special materials was emphasized multiple times. This seems interesting considering how they expressed their service level being similar with others. If properly offered for customers' benefit, such knowhow can well be turned into a service. MetalCo can recognize or create new developments in metal grades and assist customers in using them to improve the product or the process. Some intervieweed customers went as far as questioning whether it is feasible for MetalCo to provide bulk products at all and focus more on the specialty grades. However, this contradicts with the desire to get one-stop service from the suppliers. To support the utilization of special products while at the same time providing one stop service, product life cycle assessments that were mentioned in some MetalCo interviews could be emphasized. This kind of services can be used to point out benefits of using better, more costly materials that allow for cost savings in the long run or in other parts of the supply chain. Such use of specialty products can also allow for improvements in manufacturing or assembly processes and ultimately in the end products.

Another, more widely mentioned point of improvement in services is the co-operation between MetalCo service centers and factories. With more effective and efficient co-operation it is possible to improve three major components of customer value: delivery times, prices, and manufacturing more refined products. This includes the use of service centers as sales support; there were mentions on possibly accompanying salespeople with people from service centers to visit customers; it was mentioned to increase MetalCo's ability to better understand customers' processes and see problems and opportunities with them. This way new products and services that can improve their operations can be offered. In order to succeed in this, both thorough customer understanding and fluent information flow between service centers and salespeople are needed.

6.3.3. Getting to know the customers

When discussing how to improve the customer meetings with MetalCo, the need for contacts with more than only the customers' purchasers was mentioned. Contacts with production and R&D, as well as other parts of the supply chain, were seen to be important in order to be fully able to utilize MetalCo knowhow.

These kinds of comments express the need to better understand the customer. To fully understand what customers want and especially what they need, it is important to find out what attributes the customers value now and in the future, which can be done by getting access deeper into the customers' operations. As mentioned earlier, it is vital to find out about customers' customers and their goals, instead of simply asking what the customers want. If they can state their needs, the competition is about who can give the financially best offer. If suppliers such as MetalCo can recognize opportunities with the

customers they might be able to offer things such as materials or structural elements that the customers are not even aware of. In situations like that, where the buyer does not even know the existence of a solution, it is up to the supplier to sell the idea of new materials or practices.

The general theme in the customer interviews was that suppliers should be more active towards customers. It has to be kept in mind that getting to know the other party in the relationship is a two-way street. As was stated throughout the customer interviews, also the customers need become more active in that area, providing input about their business and operations. That type of co-operation, where both parties are active and share their goals, can allow for effective and profitable new service development.

The interviewed customers were relatively open for more in depth co-operation. This might not be the case with all of them. As discussed in chapter 2.3.4., Grönroos (Grönroos, 1997) divided customers into three categories based on the willingness to participate in long term relationships (Figure 9). More intense co-operation is only possible with customers that are in groups one or three, i.e. in active or passive relational modes. They are willing to accept some relationship costs in order to gain benefits of the relationships. These long term relationships allow for better access to customers' operations and consequently create the opportunity to offer mutually beneficial services for them. If such co-operation is attempted with customers who are in a non-relational mode, the results are unlikely to be good. Such customers only want transactions, and mostly go after the suppliers that can offer the lowest prices.

If both parties, MetalCo and the customers, are talking about willingness for better co-operation, then why is that not happening? There was a clear impression that the customers did not know how to buy integrated solutions unless something radical was offered to them. They were not aware of all the things, especially outside traditional products, that MetalCo could offer them. Similarly it can be said that MetalCo in general was not aware of all the things it could offer, especially with services. If the company that is supposed to sell a service to its customer does not know what it can offer, how can it explain the benefits to the customer? It has to be noted that in this context, people responsible for knowing the offering include the company in general, not just the salespeople who are in direct contact with the customer.

Also focusing on the costs of the single transaction can cause hindrances to co-operation. If buyers focus only on the price and not total supply chain or product life cycle value and costs, and simultaneously sellers only compare the sale price to production costs instead of total supply chain costs, developing services can be difficult.

To fully understand the customers, plan for future business services for them, and to be able to benefit from long-term customer relationships, companies need various types of information. There is a need for both short-term (snapshot) and long-term information.

The information should include both performance measures and more qualitative components, such as customers' outlook of the future. If all cells of Woodruff's framework of customer information analysis (Figure 6.) are filled evenly with appropriate information, the company has sufficient basis for understanding the customer (Woodruff, 1997). In figure 17, Woodruff's framework has been combined with parts of the customer information framework that was built during the research.

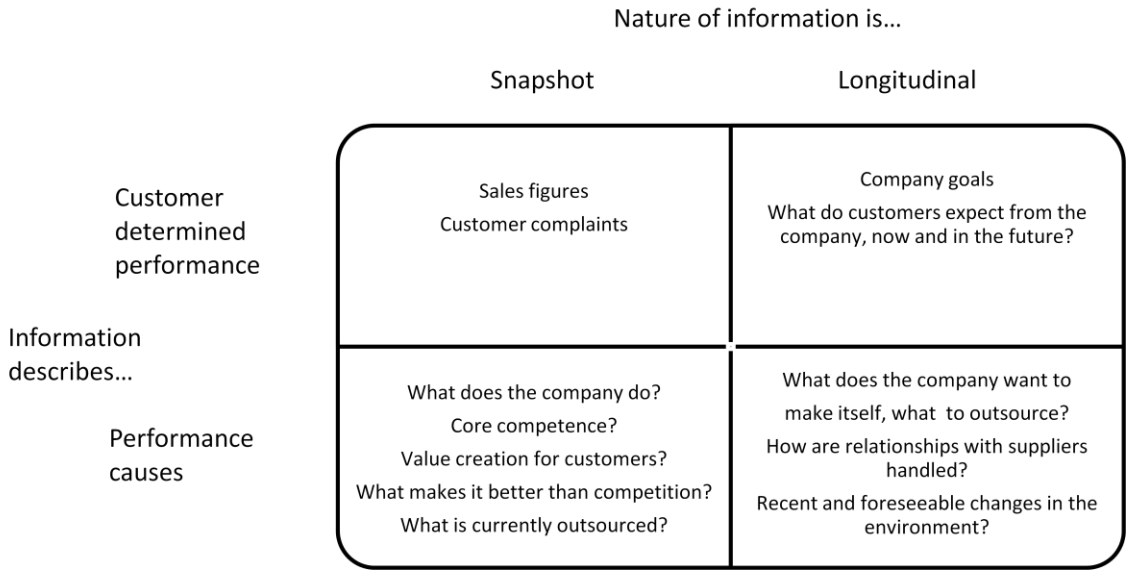

Figure 17. Customer information categories. Modified from (Woodruff, 1997) and Customer information framework (Fig. 18).

There can be various reasons that prevent better co-operation from happening. It seemed that there was no common language to talk about services. In fact, merely defining what services are and considering how they could be applied to interviewees' respective businesses was difficult. The same idea, the lack of common language, has also appeared in the literature (Woodruff, 1997, for example).

Another, more concerning reason is the actual, true, willingness for co-operation. It has to be questioned that if both sides are expressing the want for better co-operation but it is rarely happening, are the comments only pretty words without a true meaning behind them? There seems to be a very strong "always been done this way"- thinking existing in metal industry.

If suppliers, customers, and their customers can operate and communicate with common "language" and towards common goals, there are opportunities for improvements on products, services, and processes that can benefit all parties in the supply chain. That requires co-operation with different operators. Joint programs with suppliers, customers and manufacturers allow for utilizing each party's knowhow already in the early phases of the new product development process.

7. CONCLUSIONS

7.1. Managerial implications

There were three major dimensions of customer value that came up in the research; pricing, delivery time, and ability to move downstream and provide more refined products. If a company can fulfill and exceed customers' expectations with these dimensions, it will have a very strong position in the markets.

Competitive, reasonable, and economically feasible were the most important attributes of the pricing policy from customers' point of view. Price is generally evaluated against the product quality and delivery times when making the supplier selection. However, price is usually seen as the face value of the order, and the importance of the total supply chain costs are often disregarded. By emphasizing benefits throughout the supply chain and offering customers solutions for their problems, suppliers can take on downstream tasks previously conducted by their customers.

The pricing policy of MetalCo, where services are used as order winners and given away without appropriate price tag and a clear policy, can lead to pricing irregularities and ultimately to loss of revenue. If customer's requirements for the product quality are not high, they might use other suppliers because of higher face value of MetalCo products. If a customer needs short delivery times or product modifications, MetalCo might end up getting a price that is less than the value of what they provide the customer with.

It was clearly stated that customers will expect more flexibility from their suppliers in the future. This includes the ability to provide products with short delivery times. Some of the key means to achieve such deliveries were mentioned to be excellent supplier selection and management, and improved internal co-operation between factories and service centers.

Because the end product manufacturers are becoming more and more product assemblers, there is a need for a shift towards more refined products throughout the supply chain. Subcontractors are required to make components that are ready to be installed in their customers' processes. This requires the suppliers to reconsider their resource allocation, but also presents new business opportunities. By taking on new tasks, MetalCo can reduce the number of intermediaries needed and thus simplify the supply chain and speed up delivery times.

The research also showed that in addition to direct buyers, there are other parties involved that can affect the selection of suppliers and materials. For this reason, it is important to reach the third parties that act as influencers for product demand. Especially with the shift towards more refined products through the supply chain, the role of other parties increases.

There are two alternatives to reach and influence the third parties. It can happen either through the use of own customers as gate openers towards their customers, and that way increasing the co-operation of the supply chain, or with providing design tools that support the use of MetalCo materials. The first alternative allows for early involvement in product development and increases commitment, but also requires allocating resources for the co-operation. The second alternative includes for example the creation of extensive supportive product catalogues and design aids. With the second alternative, it is vital to design the media so appealing that designers and other demand influencers will want to use them. The upside of this is that the risks and investments needed for such tools are minimal. The best results can be reached by using both of these means simultaneously. However, even if used separately, they can be effective.

There is alarming inability, in both MetalCo and its customers, to talk about services. Customers were unaware of the service alternatives that were available, which is quite natural given that even MetalCo personnel seemed confused of what they can offer to customers. It also seemed that customers did not know how to buy integrated solutions, unless something was directly offered to them. Even then, there seemed to be interest on both sides to either provide or purchase more services.

A recurring theme in customer interviews was that it is not enough if the suppliers increase their activity level with services, but also the customers have to become more active towards the suppliers. That brings us the question of why better and more in depth co-operation is not happening? Both parties, MetalCo and its customers, talk about willingness for better co-operation. I recognized some key barriers for such development:

- no common language to talk about services
- lack of true willingness for co-operation
- very strong “always been done this way”- thinking in the industry
- need for control of the supply chain
- danger of “stepping on someone’s toes”; a customer can simultaneously be a supplier with some products and a competitor with others

If all parties can operate and communicate with common language and strive for goals that are shared by different members of the supply chain, there can be opportunities for development of new products and services.

7.2. Final framework

The framework was developed throughout the research process. In the final framework, the most applicable and informative components of the original framework were taken and further developed to reach the goal of a simple yet extensive tool. The parts which did not give enough or appropriate customer information were left out or modified. There are four major themes in the framework: company, network, customers, and external environment, with quantitative data used as a support across the framework. The final framework is displayed in figure 18. The number of themes was reduced from the original framework for the sake of simplicity. Some questions were moved under a theme that better corresponds with the purpose of the framework.

Besides salespeople, also other MetalCo representatives that may be in contact with customers were taken into account in the creation of the framework. Personnel from areas such as R&D who may have occasional customer contacts can utilize the parts of the framework that best apply to their context, and in the optimal case, also create customer understanding for others in the company. The framework itself does not give ready answers for new service development, but allows for the collection of appropriate customer information that can be used to support the user's own expertise in the field.

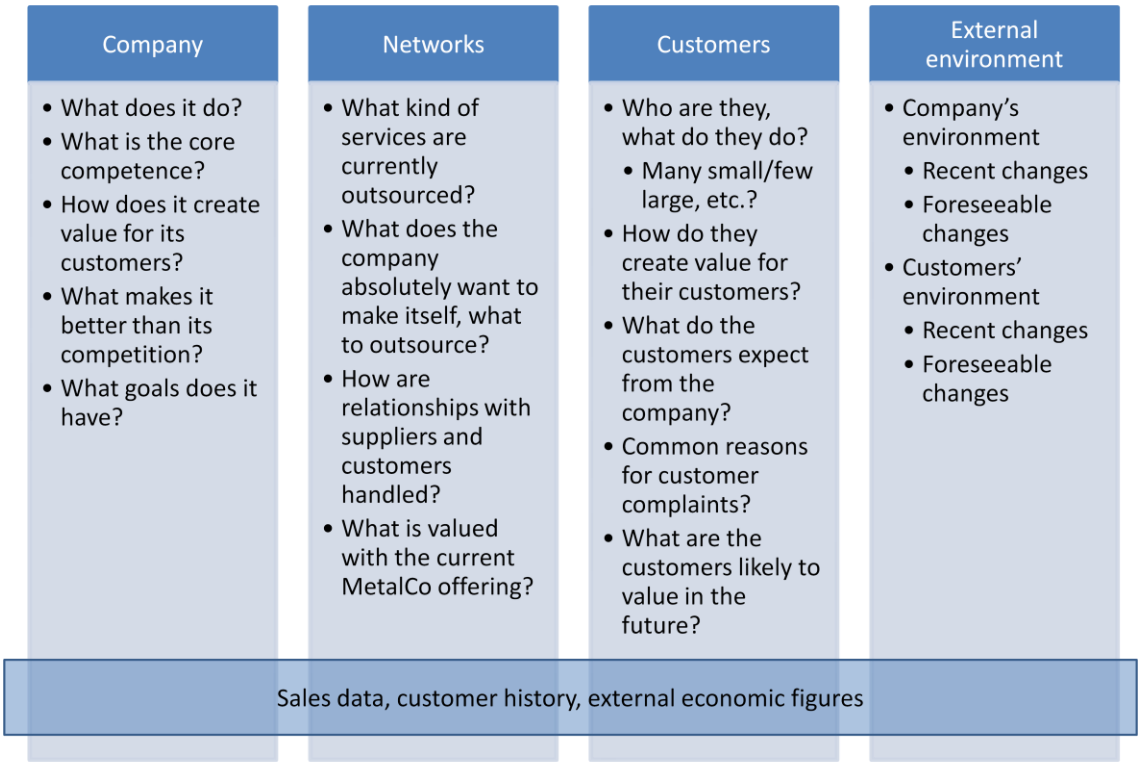

Figure 18. Customer information framework.

The first theme, company, includes basic customer company information and improves the understanding of the company. It starts with questions about the business the company conducts and its core competences. One key part of this theme is discovering

the ways how the company creates value for its customers. Questioning what makes the company better than its competitors gives more insight into how the company sees itself in the markets and extends the question of core competence. Company goals give additional information on the company future from internal viewpoint.

The second theme, networks, covers topics that concern outsourcing, make or buy-strategy, relationships with suppliers and customers, and input about current MetalCo offering. It starts with enquiries on the current outsourcing activities, followed by a question of which processes or components the company absolutely wants to make and which to buy from outside. To support the collected information on outsourcing and get a picture of the company's willingness of co-operation within the supply chain, a general question on the company's relationships with other parts of the chain is made. The company's view of current MetalCo offering rounds out the theme.

Customers of the customer company are the focus of the third theme. It is extremely important to know who they are and what they do. Knowing the structure of the clientele (e.g. many small customers or few big ones) gives additional information on the players in the network and the role of the company in it. By finding out how the company creates value for its customers, and what the customers expect from the company, it is possible to see opportunities for providing services that increase that value. Similarly, finding out about customers' complaints can offer insight into possible points of improvement that the company has not seen itself. Enquiring about what the company thinks its customers are going to value in the future also allows to see potential opportunities for service provision.

The external environment is all about how external factors, whether they are political, technological, or something else, affect the company. Major change is always an opportunity for new ideas and innovations, and in this case, service opportunities. It is important to gain the company's insight in four different areas: The respective changes that are happening now, and the ones that are going to happen in the foreseeable future, both with the company itself and also with its customers.

Quantitative sales data and external economic figures and indicators support the qualitative information that is collected across the framework. This also includes information on the customer history, such as offering history, contact history, individual transactions, payment history and different services provided to the customer. The framework itself does not go into detail on how quantitative data is collected, but emphasizes the use of it as a support of qualitative customer understanding.

7.3. Limitations of research

This research was conducted with companies in the metal industry, and the resulting framework was designed solely for that context. In this field most service opportunities

include bundling value-adding components to tangible products. Research was thus focused on services that are linked to or supportive of the physical core offering of the case company. Also after sales services and services on installed base have little importance in the research. However, this does not rule out the use of the framework in other fields of business; the process of developing customer understanding has very similar components no matter what the field of business is.

The interviewed personnel at customer companies represented a small percentage of people who are involved in business relationships with MetalCo. Thus, although they offered extensive insight into their operations and the relationships between the companies, they might not completely represent the views that their respective companies have.

The interviewed personnel at MetalCo were selected to represent various functions of the company. However, the number of interviewees was limited and there is a possibility that the interviewees' personal opinions and viewpoints, which might differ from the general opinion at MetalCo, can be overly emphasized in their responses.

The customer information framework that was created in chapter 3.1 was not tested as such, but all its parts were included in some form in the tentative framework that was used in customer interviews. The most applicable components were chosen to the final framework.

7.4. Future research topics

Future research topics that arose during this research include the following examples. Some of them are interesting especially from academic standpoint, but some can be considered to be especially important for the case company in its shift from product-centric approach to better customer-centricity.

- Supply chain management with international expansion; being able to serve customers wherever they conduct their business
- Co-operation between service centers and factories
- How to transfer information about a customer throughout the whole company?
- How can the customer understanding that is developed in co-operation with one customer be utilized and duplicated with other customers?

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APPENDIX (1 piece)

Interview frame

Starting out with a short description about the project, its objectives and the role of the interviews. A short summary of the previously sent information package about the project and interviews.

1. **Background information about the interviewee**
    a. Interviewee background and work history
    b. What is the work history with the current employer?
    c. How would you describe your current position?
    d. How is your current position related to MetalCo and its products?
2. **Information about the company**
    a. What does your company and business unit do?
    b. What is the core competence of your company?
    c. What are the main ways the company creates value?
    d. What kind of services do you currently purchase/outsource?
    e. What do relationships with other companies mean to your company?
    f. How much is the company willing to do itself and how much does it want others to do things for it?
    g. What are the steps of the buying process? Describe your own role in it.
    h. What makes you better than your competition?
3. **Understanding the company's situation**
    a. Describe the goals that the company wants to reach
    b. Current/recent changes in the company's environment?
4. **Company's customers**
    a. Who are they, what do they do?
        i. Many small customers vs. few key customers?
    b. What is their way of creating value?
    c. What do customers expect from the company?
    d. Current/recent changes in the company's customers' environment?
        i. The effect of those changes to the company?
    e. What are the most common reasons for complaints from your customers?
    f. Successful/unsuccessful cases?
5. **Relationship with MetalCo**
    a. What do you value in current MetalCo offering?
    b. How could communication and cooperation with MetalCo be improved?
6. **Outlook of the future**

a. What is the direction the company is headed?
b. Foreseeable changes in the company's environment?
c. Foreseeable changes in the company's customers' environment?
d. How will what company's customers value change in the future?

7. **Other comments about the topic or concerning the interview?**
8. **What would your company be like as a human being (in relationship terms)? Steadily married, single and independent, looking for a partner, social butterfly, etc.?** (Etsitään kevyemmällä kysymyksellä suhdetta muihin yrityksiin, alihankkijoihin, asiakkaisiin yms.)