

**Crafting service-based go-to-market and pricing strategies for a new
technology**

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IV List of abbreviations

AES	Asset Efficiency Services
C	Category
GTM	Go-To-Market
IP	Interview Partner
KPI	Key Performance Indicator
OEM	Original Equipment Manufacturer
OL	Operating Lease
PBC	Performance Based Contracting
PBP	Performance Based Pricing
PDS	Process Delegation Services
PI	Purchase Intention
PLS	Product Life-Cycle Services
PSIP	Pre-Study Interview Partner
PSS	Process Support Services
SPV	Special Purpose Vehicle
TCO	Total Cost of Ownership
WTP	Willingness to Pay

1 Abstract

Purpose

The purpose of this thesis is to shed light on how different bundling, service and pricing strategies affect the customer's willingness to pay and purchase intention of a service related to a new technology and its product-related services.

Design/Methodology

This thesis is an exploratory qualitative case study. Data was collected via expert interviews with customers and relevant managers in a large multinational company based in Switzerland. Data coding was carried out by Mayring's Qualitative Content Analysis.

Findings

Different bundling, service and pricing strategies have a great influence on the customers' purchase intention and willingness to pay. Customers are reluctant to contract simple non-value added services, which leads to a lower purchase intention when products are bundled together with this kind of services. The use of performance based contracting in go-to-market strategies has a significantly positive impact in the customers' willingness to pay. Offering IoT based, advanced value added services increases not only the willingness to pay but also the purchase intention. However, manufacturers need to undertake important changes in their sales and R&D processes in order to reach a successful and efficient service deployment. Providers must integrate services in the product's design phase and change their sales approach in order to focus on gathering data by understanding the client's needs and learning about the customers' processes. This will enable the manufacturer to successfully offer customized services that will lock-in customers to long term relationships.

Research limitations

The study is exploratory, which means that it did not quantitatively measure the results. In addition, the study focused only on one company, which makes it difficult to generalize the findings.

2 Introduction

Fierce competition in today's volatile and rapidly changing markets leads to a product's commoditization and to a company's slower growth and decreased profitability. Hence, it pushes companies towards looking for alternatives to their long-established product centered business models: in lower cost economies, providing products alone is insufficient in terms of remaining competitive.

This manufacturer's permanent search for new market opportunities as well as the customer's tendency to concentrate on core activities and to outsource an increasing part of their operations has cleared the way for suppliers to move up the supply chain and to consider offering value-added services that support their customers' products by taking over the maintenance – or even operation – responsibility. Thus, over the last few years the service sector has been experiencing constant growth while the manufacturing sector has suffered from a consistent decline. Moreover, the companies that have succeeded at transitioning from a product-centered to a service-centered business logic have made important progress in terms of differentiation and cost reduction by integrating their products and service offerings into what we nowadays call solutions.

Smartphones, smart watches, smart bands and even smart key chains have not only changed the way people interact with each other but have also changed the way people interact with technology, opening a door to all kinds of new uses. For example, it is possible to keep track of one's exercise routines and keep an automatic track of improvements, as well as to precisely quantify one's diet in order to optimize performance, all this while monitoring data about one's body. If people benefit from this technology in their personal lives, why should not companies be able to do the same by designing smart plants? The manufacturing industry is clearly moving this way by developing new machinery and offering services that raise the perceived value of the sellers' products. Yet, machinery manufacturers still face numerous challenges that hinder their capacity to offer successful solutions based on new technologies.

Additionally, driven by the need of an increased differentiation and higher operating margins, some of these companies have taken payment models to the next step: Rolls Royce offers their customers the possibility of paying only for the actual

performance delivered by their aircraft engines and printing companies like Ricoh or Xerox transitioned from selling printers to guaranteeing the availability of their products by charging their customers only for the actual number of printings. This business model is called performance based contracting (PBC), and it has raised more and more interest in research and industrial practice over the last years. Yet, is it the ideal strategy for introducing a new technology in the manufacturing industry?

2.1 Problem definition

Literature on bundled product and service selling can be traced back to 1973, when Mattson named it “systems selling” and defined it as “a combination of products and services, a fulfillment of a more extended customer need that is the case in product selling” (p.108). Currently, systems selling has evolved towards solution selling and includes more strategic forms of marketing (Davies et al., 2007).

In several different industries, countless companies have started a service transition in order to mitigate the impact of their products’ commoditization and to differentiate themselves from their competition. This process takes place gradually, and companies transition progressively from simple product oriented services to more complex and advanced process-related services and ultimately solutions.

Suppliers who carry out this transition achieve financial advantages by changing their earning logic from discrete to continuous cash flow (Kowalkowski et al., 2015). Reaching this involves changes in the relationships between suppliers and their customers, moving from merely transactional association to long-term proactive and flexible relationships.

Nevertheless, this process entails some difficulties that have to be overcome while working on the service development. Operational risk climbs sharply when offering complex and extensive systems and coordination costs follow. In addition, companies have to incur deep cultural and structural changes, focusing particularly on reformulating their sales approach by adopting a more problem-solving approach, being innovative and understanding the business implications and the drivers of value for the customers (Ulaga & Loveland, 2013; Kindström et al., 2015).

When transitioning from product selling toward service selling, manufacturers evaluate the possibility of bundling their services with the products

they are related to. Typically, sellers follow mixed bundling policies, giving their customers the possibility of choosing whether to contract a service or not. However, there is a strong market trend started by the IT industry towards the use of pure bundling as a means of extracting the highest value from the customer at the expense of a potential decrease in the clients' PI (Adams & Yellen, 1976).

Naturally, depending on the industry and on the company's context and customers, firms may find themselves having diverse roles in different stages of the product-service continuum (Hellander & Möller, 2007). According to the authors, firstly companies supply services that are directly related to its own products, therefore being only a means of maintaining and supporting the product business. In the next step, manufacturers use services as a way of gaining access to new competitive advantages, differentiating themselves from their competitors by offering customized services and integrating products, services and knowledge. Finally, customers can extend their offerings even more by taking over the operations responsibility, offering process management and continuous optimization services. Frequently, manufacturers who offer advanced services and solutions enable customers to pay only for achieved results and extracted value i.e., for the solution's performance. This pricing model is known as Power-by-the-hour, or as Performance Based Contracting.

Performance Based Contracting is a price model that attempts to reach a win-win situation for both manufacturing companies and their customers. The model forces buyer and seller to deal with another's limitations, objectives and trade-offs, making them communicate in depth with one another and encouraging a greater level of cooperation and coordination (Shapiro, 2002). When agreeing on the use of this model, the customer will pay only for the actual delivered performance, eliminating the risk of being overcharged for a product or service that does not reach its expected output. In addition, the customer's maintenance budget will be unaffected by any machinery breakdowns since everything would be included in an integrated performance based contract (Selviaridis & Norrman, 2014). On the suppliers' side, performance based contracting guarantees the seller that the more it provides, the more it gets paid, therefore leading to a greater sense of fairness for both buyer and seller (Shapiro, 2002). On the other hand, the applicability of Performance Based Contracting in the industry is limited by the products, market context and the

suppliers' capabilities, which affect the way and the extent in which performance based contracting can be used. For example, suppliers must be able to face greater price and cost risk and must not need short-term cash flow (Hünerberg & Hüttmann, 2003).

While Performance Based Contracting has had a big impact in aerospace and defense industries in the last few decades, manufacturing companies are still reluctant to provide this price concept extensively (Hypko et al., 2010). Therefore, there is scarce literature and no empirical validation of the effects of performance based contracting in the manufacturing industry, to the point where it is not clear whether a win-win situation for both providers and customers is reachable in machinery or equipment manufacturing companies.

Due to limited attention from scholars and managers, researchers have approached the subject only broadly, making propositions for future, more specific research topics that have not been covered extensively. On paper, we know that Performance Based Contracting typically involves increased willingness to pay and purchase intention, but we lack understanding on the customers' responsiveness towards these concepts. Furthermore, research on service transition and performance based contracting does not focus on the effect of these service strategies on the introduction of new technologies in conservative industries, nor does it take into account the different bundling strategies.

2.2 Aim of the research

The purpose of this study is to shed light on how different bundling, service and pricing strategies affect the customer's willingness to pay and purchase intention of a service related to a new technology and its product-related service. The research will focus on the specific case of a manufacturer that has developed an innovative technology that is ready for its release. The company has the objective of using this technology to start a new branch of services that could be extended to other existing machinery. The desired output of this master's thesis is to find the service-based go-to-market strategies that will allow the manufacturer to maximize the extracted value from this new technology by creating lock-in effects that generate long-term relationships between the supplier and its customers.

3 Definitions and literature review

3.1 Go-to-market strategies

As stated before, the output of this thesis is to find the three go-to-market strategies that maximize the value extraction for both the supplier and the customer. Therefore, the three go-to-market strategies will be the framework in which the results of the research will be presented.

“A go-to-market (GTM) strategy is an action plan that specifies how a company will reach customers and achieve competitive advantage. The purpose of a GTM strategy is to provide a blueprint for delivering a product or service to the end customer, taking into account such factors as pricing and distribution. A GTM strategy is somewhat similar to a business plan, although the latter is broader in scope and considers such factors as funding” (Rouse).

More simply explained, a GTM strategy is “a game plan for reaching and serving the right customers in the right markets, through the right channels, with the right products and the right value proposition. Hence, the purpose of a GTM strategy is to create a powerful, winning and total customer experience that will attract, win and retain the most desirable customers while driving high sales and market share growth at the lowest possible cost” (Friedman, 2002, p. 13).

3.2 Services

Given that the go-to-market strategies have to be service based, it is key to reach an understanding as to what we identify under the concept of “services”.

Although there is not any universally accepted definition for *service industry* due to the diversity of activities it includes, scholars have reached a broad agreement about the attributes of its outputs. *Services*: they are not tangible, they are consumed at the same time they are produced, they have intangible added value and they are labor intensive (Karaomerlioglu & Carlsson, 1999). However, it would be wrong to assume that these attributes apply all at once to all service industries.

Services also serve different markets: consumer markets, intermediate (producer) markets and public service markets. They also involve different production processes, including the transformation of the state of physical objects,

people or codified information (Miles, 1994). Some services that are commonly incorporated within manufacturing include design, assembly, testing, technical support, inspection, maintenance, repair, reconditioning, retrofitting, consulting, performance audits, spare parts provision, operation, consumer training, process optimization, distribution and system integration. Maintenance and after-sales repair focus the majority of the customer spending in services (Marceau & Martínez, 2002).

According to Marceau and Martínez (2002), there are two major strategies used by firms in product-service packaging.

In *product-service bundling*, the service is packaged with the product at or after the point of sale. Howells (2000) identifies and describes the trend within manufacturing industry towards bundling together their physical products and associated services while researching on how companies managed their innovation processes. He concluded that manufacturing companies were shifting their innovation balance from goods to services, often bundling them together.

In *product-service integration*, the service is incorporated through the different stages of the production process, typically involving an extra R&D input and therefore influencing the characteristics of the product itself.

On another level, *service enterprises* are firms that provide after-sales services to products manufactured by other firms in addition to the warranty period usually provided by the original manufacturer.

Product-service bundling and product-service integration have been briefly introduced in this section, but an in depth review of the bundling literature is key to understand the developments that have taken place in the industry in the last decades.

3.3 Bundling

In today's competitive environment, companies strive to increase their efficiency and productivity, which often involves looking for new ways of offering their products and services in order to increase their profits, adapting their marketing strategies to fit the customer's different preferences. Hence, firms tend to group their products and services in a single package for a special price (Guiltinan, 1987).

“Bundling does not have any consistent, universally accepted definition”, which leads to an inconsistent use of terms and ultimately to confusion in the academic literature (Stremersch & Tellis, 2002, p. 56). Adams and Yellen (1976, p.475) define bundling as “selling goods in packages.” Guiltinan (1978, p.74) defines bundling as “the practice of marketing two or more products and/or services at a single price.”

The definition that will be used in this article is the one by Stremersch and Tellis (2002, p.56), that states: “Bundling is the sale of two or more separate products in one package”, clarifying that *product* refers to both goods and services. The authors also clarify the distinction between product and price bundling, providing definitions for both terms.

Price bundling is “the sale of two or more separate products in a package at a discount, without any integration of the products” (Stremersch & Tellis, 2002, p. 57). Because there is no integration of the products, a discount must be offered to create added value product to the consumers and to motivate at least some of them to buy the bundle. *Product bundling* is “the integration and sale of two or more separate products or services at any price” (Stremersch & Tellis, 2002, p. 58).

The focus of bundling can be *product bundling*, *price bundling* or *both* (Stremersch & Tellis, 2002). It is very relevant to make a distinction between both bundling foci since these lead to different strategies and therefore to different consequences for companies: price bundling is commonly used as a short term pricing and promotional tool, whereas product bundling is mainly a long term differentiation strategy that creates value.

3.3.1 Goods bundling

Although pricing literature possibly goes back to the birth of market-based economy, bundle related pricing strategies have been mostly neglected in academy and practice (Rafiei et al., 2013). Stigler (1963) was the first one to state that it is more profitable for the company to sell bundled products than to offer them on a stand-alone basis, suggesting it as an alternative technique for price discrimination. Adams and Yellen (1976) claimed that, when the willingness to pay for two different products is negatively correlated, a company could increase its profitability by offering the possibility of purchasing its products separately, as well bundled

together, which they called mixed bundling. They also show how the consumers' willingness to pay for each has a big influence on whether it is more adequate to use a pure or mixed bundling strategy. A few years later, (Schmalensee, 1984) proved that bundling is profitable even if the WTP values are uncorrelated or positively correlated.

Johnson et al. (1999) conducted research on the effects on price bundling on the consumer evaluation of product offerings and claimed that when bundling items for sale, the company should price information in the same package. On the other hand, price discount information should be displayed individually for every item. According to the conclusions of this study, this strategy increased the customers' fairness perception and loyalty towards the brand.

Telser (1979) researched on the effect of product complementarity on bundling decisions, concluding that it augments the probabilities of the strategy being profitable. He was the first to mention the complementary product-service bundles, which adds significant value to the customers therefore significantly raising the customers' willingness to pay if compared to when products are only sold separately. Sheng and Pan (2009) confirms Telser's findings regarding the effects of product complementarity and relates bundling with the role of brand image, stating that a new product will have increased value and purchase intentions if it is launched together with a strong brand.

3.3.2 *Service bundling*

As well as with product industries, intensified competition in service industries has raised the importance of bundling as a mean to increase sales, build brand loyalty and retain customers (Owens, 2001).

Andrews et al. (2010) conducted research on the effects of mixed service bundle incentives on perceived value and switching intentions. They claim that "bundling is an effective form of promotion for service products" (Andrews et al., 2010, p. 75). Moreover, they assert the close relationship between perceived value and the billing simplicity and emphasize the importance of a correct framing of the incentives, advising practitioners to appropriately frame the incentives, accentuating the importance of savings incentives, which can lead to higher perceptions of deal value, which is critical to consumers' switching decisions.

3.3.3 Goods-service bundling

In the last three decades, companies have been experiencing a great increase in the demand of bundled products and services (Simonin & Ruth, 1995), which has motivated them to design their strategies around this kind of bundles and to adopt pricing strategies that would allow them to maximize profits.

Over the last few years there has been research on products which are bundled with their complimentary after-sales services. This concludes that the pricing strategy should be decided according to factors such as the product's lifecycle duration, remanufacturing savings and production capacity of the customer (Robotis et al., 2012). In the same line of research, Hakes and Shin (2008) study a company that sells durable products to both low-risk and high-risk customers. They conclude that by imposing a warranty, the firm will increase its profitability by bundling the product with the warranty to both customer segments: while increasing the price to the high-risk user, the firm will extract more value from the low-risk user, who will stop pretending to be a high-risk user to get discounts.

Bitran and Ferrer (2007) laid out the general problem studying the pricing strategies of a company that would offer a product alongside a complementary service on a subscription basis, proposing algorithms to pick the optimal bundle among all the offered ones. Ferrer et al. (2010) study the conditions under which it is profitable for the firm to expand its offer from one to two bundles and concludes that introducing a fee for changing from one bundle to another increases the profitability of the firm. Gal-Or (2004) stated that a company could block its competitors by offering product-service bundles. Kameshwaran et al. (2007) used a mathematical model to study the market's reaction to a bundled service and product in case of monopoly and duopoly markets, providing decision frameworks that enable manufacturing firms to craft optimum product-service bundling and pricing strategies.

At this point, it is certain that the features of the product and service that we are analyzing will lead to the necessary consideration of product-service bundling as an option. Nevertheless, in addition to an in depth review of the solutions literature, it must be made clear how companies have transitioned from offering products to including services in their portfolios, since these transitions typically involve a series

of structural changes that represent a big challenge for those who attempt to carry them out successfully.

3.4 Service transition

Fierce competition, which leads to a product's commoditization, slower growth and lower profitability, has pushed traditional manufacturers towards looking for alternatives to their long-established product centered business models (Ulaga & Reinartz, 2011). Ulaga & Eggert (2006) demonstrated that product and price are ineffective differentiation factors, while service support, personal interaction and access to know-how have become key differentiators in business relations (Vargo & Lusch, 2004; Matthysens & Vandenbempt, 2008). Gebauer and Friedli (2005) underscore that product manufacturers who offer value-added services earn the highest margins. As seen in the IMD World Competitiveness Yearbook (2012), the service sector has been experiencing constant growth while the manufacturing sector has suffered from a consistent decline.

“From a customer's perspective, servitization (service transition) represents a “Make or Buy” decision, where a customer considers whether to service (e.g. maintain) products in-house, outsource servicing to an independent service provider, or outsource servicing to an original product manufacturer provided he offers services” (Visnjic & van Looy, 2013, p. 171).

Service transition occurs when firms move forward in the product-service continuum (Figure 1) from basic, product oriented services towards more complex process-oriented ones, ultimately leading to the deployment of solutions (Oliva & Kallenberg, 2003).

When do we stop considering that a company is simply bundling a product and a service and start considering that a company is transitioning from a product-based to a service-based business logic? Fang et al. (2008) state that a company can be considered to have transitioned once the service sales have achieved a critical mass of between 20%-30% of the total firm sales.

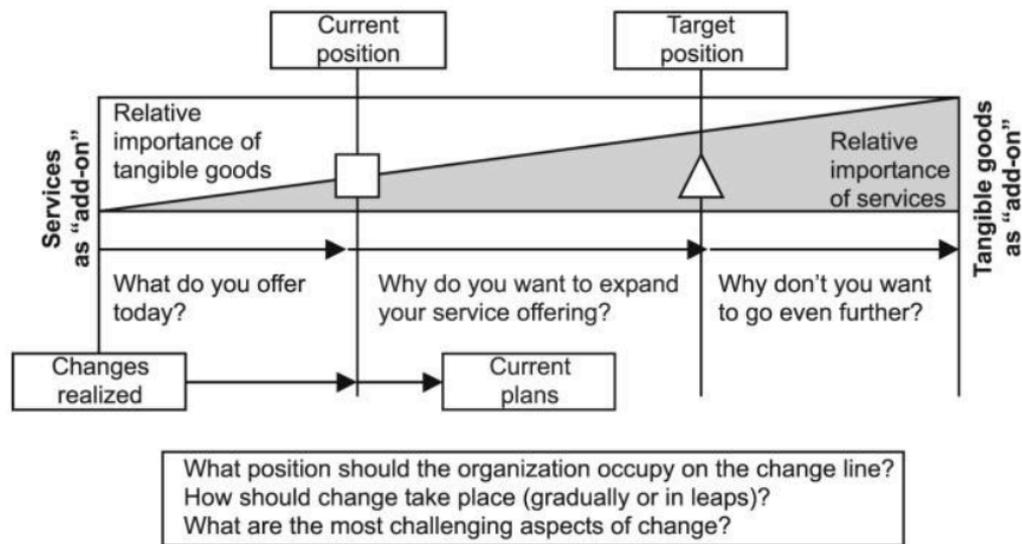


Figure 1 - The product service continuum.

(Source: Oliva & Kallenberg, 2003)

3.4.1 Service transition strategies

Kowalkowski et al. (2015) differentiate between three transition strategies, that can be (and are often) mixed together (Figure 2). Each of these strategies has some key characteristics that relate to the services dealt with in the previous section. According to the authors, balancing expansion and standardization activities as well as managing the co-existence of different roles are key to an optimal product to service transition.

Becoming an availability provider. Most manufacturers start following this strategy and focus on input-based value propositions, starting to offer simple product related services like PLS and moving towards process related services such as PSS. According to the authors, “firms do not often use beyond these bundled offerings” (p.5) and very often get stuck offering very simple PLS and never get to sell more complex ones like PSS.

Becoming a performance provider. In terms of competences and infrastructure, becoming an availability provider is the support for offering more advanced solutions such as AES and PDS. To succeed implementing this strategy, manufacturers must concentrate on creating situation-specific products for their customers and addressing long-term objectives during the sales process. It is key to

understand that even though this strategy enables manufacturers to accomplish differentiation, build strategic partnerships and achieve lock-in effects, it also has barriers like increased operational and financial risks that will keep the managers from offering this kind of services and solutions.

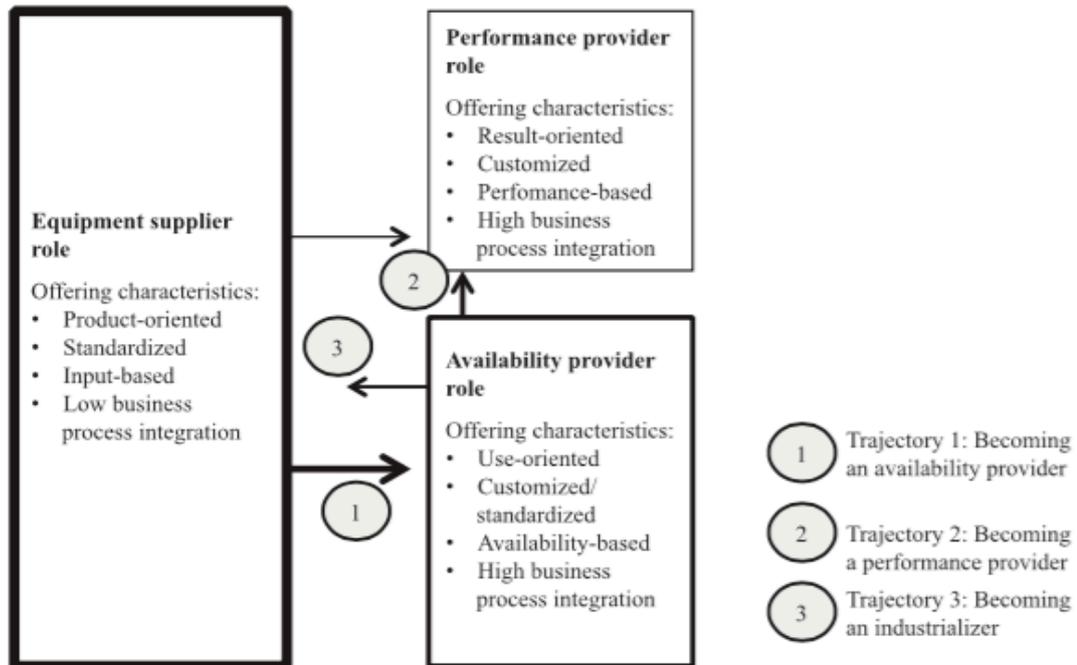


Figure 2 – System supplier roles and service growth trajectories.
(Source: Kowalkowski et al., 2015)

Becoming an industrializer might be the most challenging strategy to follow according to the authors. It departs from tailored operational solutions that firms have been offering to large customers and moves towards the “standardization of solutions in order to create the prerequisites for repeatability and scalability” (Storbacka & Pennanen, 2014, p. 14). Key drivers of these standardization process are “economies of scale, utilization of in-house knowledge and resources and the ability to address a larger customer base (p. 6) and it enables the balance of operational and strategic risks, sharing development costs with other customers. To be successful with this strategy, the firm needs to have “long-term service experience and deep knowledge of customers, product and process data” (p. 6).

3.4.2 Product-service bundle vs. Solution

In the last few years, an increasing number of researchers have focused their attention on the study of product-service bundle innovation, but there is a wide

variety of terms with which customers refer to these bundles: hybrid solutions (Ulaga & Reinartz, 2011; Shankar et al., 2009), product-service systems (Tukker, 2004; Baines et al., 2009), product-service bundles (Stremersch et al., 2001) and solutions (Matthyssens & Vandenbempt, 2008), which is the term that is going to be used throughout this thesis.

“By solutions, we refer to individualized offers for complex customer problems that are interactively designed and whose components offer an integrative added value by combining products and/or services so that the value is more than the sum of the components” (Sawhney, 2004; Evanschitzky et al., 2011).

Thus, the main difference between product-service bundles and solutions relies on the fact that solutions are, unlike simple bundles, tailored and offer an added value to the customer. Moreover, solution offering is greatly linked to a close relationship between customer and provider since the need it satisfies may continuously change over time (Evanschitzky et al., 2011).

3.4.3 Designing services and solutions

Scholars have framed different scenarios and strategies under which companies transition from products to services, often identifying key success factors for outlining and delivering solutions. Mathieu (2001), proposes a classification system that compares two types of product services: services that support the supplier's product and services that support the client's action in relation to the supplier's product. Matthyssens and Vandenbempt (2007) present a framework that proposes step-by-step strategies for making the transition from products to complex solutions and offers advice for overcoming identified barriers. Storbacka (2011) identifies sixty-four capabilities and management practices that are key for the management of solution businesses. Salonen (2011) sheds light on different service transition strategies focusing on industrial manufacturers by investigating through case studies of two global manufacturers operating in the metal engineering sector. She concluded that product related services are extremely important to achieve steady revenues in these companies.

Ulaga and Reinartz (2011) published a very detailed study based on in-depth interviews with 22 senior managers of manufacturing companies (Figure 3). They identified a number of unique resources and key capabilities that, when combined,

generate successful solutions. Because of the quality of the paper and the importance it has for this thesis, I will summarize the key concepts in the following chapters. The authors use the term “Hybrid Offering” to refer to the bundle of goods and services, but in order to keep homogeneity in the concepts, I am going to refer to them as “solutions”.

3.4.3.1 Strategic resources

The *Installed base product usage and process data* is a manufacturer’s key advantage versus consultants because it allows him exclusive access to all the detailed information related to the activity of the product, enabling the manufacturer to offer advanced value added aftermarket services, hindering other third party service providers.

Manufacturer’s *Product development and manufacturing assets* allow them to exploit synergies between manufacturing and services. Manufacturing firms are in an excellent position to use their tangible and intangible R&D assets to develop new features that grant them key competitive advantages over direct competitors in the manufacturing or service sector.

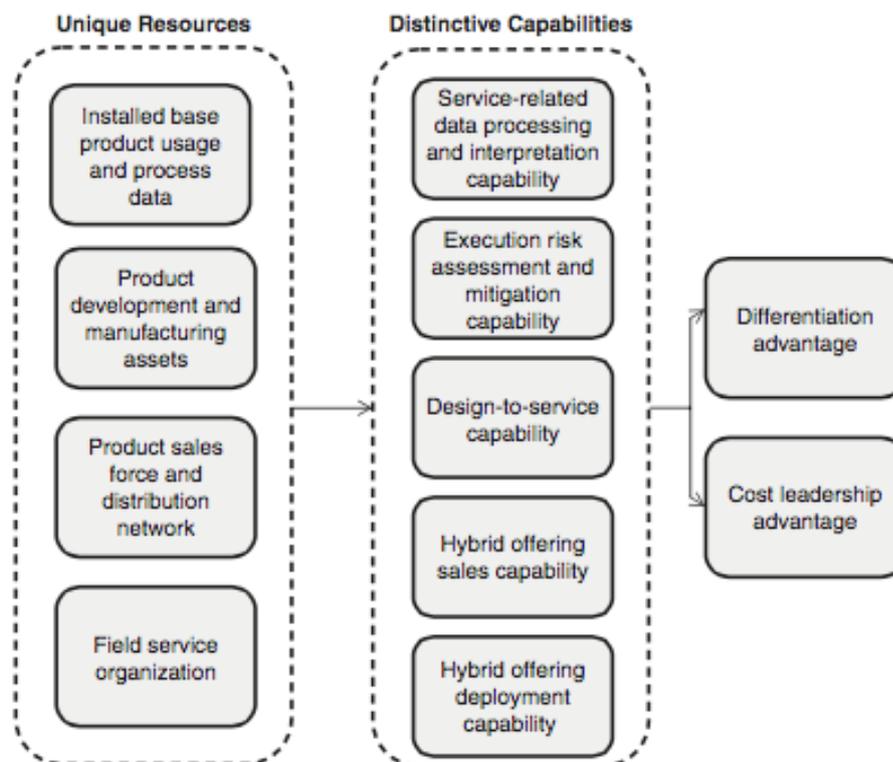


Figure 3 –Resources and capabilities for successful Solution Offerings
(Source: Reinartz & Ulaga, 2011)

The *Product sales force and distribution network* enables manufacturers to sell their products in a more direct and efficient way. Manufacturing firms with a large installed base typically have a broad, well trained sales force that will keep close contact with the customers to enhance the sales process.

Most manufacturers invest in *Field service organizations* to distribute and carry out the maintenance of their installed base. After-sales services offer much higher margins than goods selling, therefore accounting for a significant portion of manufacturer's profits. According to the authors, the participants of the study highlighted the bottleneck created by their field service organizations, which also hinders the possibility of offering new and more complex service offerings.

3.4.3.2 Strategic capabilities

Service-related data processing and interpretation capabilities are directly connected with the product usage and process data acquired from the installed base. However, collecting the data is, logically, not enough, since manufacturers have to figure out how to transform this data into a source of new value added services that grant new revenues to the firm. For example, manufacturers can use their exclusive data monitoring access to offer consulting services for a more efficient facility management or they can collect data on customer machines through sensors to gain deeper insights into their operations and design strategies to improve machine uptime and optimize the plant, thus placing the vendor far ahead from other pure service providers or consulting firms.

Execution risk assessment and mitigation capability refers to “the manufacturer's capacity to evaluate uncertainty about whether contractually agreed-on outcomes of solutions will be realized and then to design and implement safeguarding mechanisms to meet performance commitments while still maintaining internal profit targets” (p.12). To be able to carry it out successfully and hedge against negative outcomes, the company will depend on the data derived from the existing installed base. Frequently this is achieved via effectively redistributed risk across a critical customer base or through in-depth analyses and the developing of effective risk evaluation skills.

Design to service capability. Product and service elements cannot interact only in a merely additive manner; they have to interact synergistically for

maximizing value creation. Therefore, the authors conclude that “deliberately designing a component, finished goods or equipment with the ambition to unlock new service opportunities provides manufacturers with two different competitive advantages: It allows the firm to go to market with innovative new solutions enabling effective differentiation and it also allows manufacturers to identify opportunities for cost reduction when delivering solutions” (p.13).

Solution sales capability. Managers underscore the fact that selling solutions requires a very different approach than selling goods because of their more complex and longer sales process. As opposed to the goods’ sales processes, solutions require strong customer involvement to elaborate the offering and frequently involve multiple actors across both firms. These characteristics explain why salespeople require networking capabilities and moving out of their comfort zones, accessing decision makers in the customer’s organization that are often higher in the hierarchy. Specific tools that assist salespeople in communicating the value of a solution to their customers is considered a key concept of the sales process.

The *solution deployment capability* “refers to goods manufacturer’s capacity to rely on flexible offering platforms that can standardize solution production and delivery processes to achieve great levels of productivity and minimize costs, while also keeping its ability to adapt to individual customer’s needs” (p.14).

3.4.3.3 Typology of Service Offerings

How do companies transform these resources and capabilities into different kinds of services that form successful solutions? In this case, the authors differentiate between four kinds of services, classified according to the service recipient and the nature of the value proposition.

Product Life-Cycle Services (PLS) “refer to the services that facilitate the customer’s access to the manufacturer’s goods and ensure its proper functioning during all stages of its life cycle” (p.15). These services are directly oriented to the supplier’s goods and the value proposition consists of a promise to “perform a deed on behalf of the customer”. PLS are seen as a sales enabler and key requisite for expanding into value-added services. To succeed in the offering of PLS, manufacturers had to leverage their solution deployment capabilities to highly

standardize the services. In addition, design-to-service capabilities enabled them to design the machines to minimize delivery costs.

Asset Efficiency Services (AES) are defined as “the range of services suppliers provide to achieve productivity gains from assets invested by customers” (p.17). AES are directed toward the supplier’s goods as well, but unlike PLS, they commit to performance related to asset productivity, typically allowing suppliers to differentiate themselves from competition. Provided that manufacturers could persuasively communicate the potential productivity gains, customers displayed a higher willingness to pay for value-added AES. To succeed in AES, manufacturers needed to focus on service-related data processing and interpretation capabilities, as well as execution risk assessment and mitigation capabilities in order to accurately assess and manage product failure risks. Solution sales capabilities are also key to the selling process since firms have to switch to value-based selling efforts.

Process Support Services (PSS) focus on assisting the customers in improving their own business processes instead of on the customers’ goods. Although PSS are usually offered along with the manufacturer’s own goods, many firms offer these services as a standalone product. However, in most cases “the ultimate goal is to set the firm apart from competitors and open the door for a complete solution” (p.18). Therefore, this services’ value proposition is input based and focuses on “leveraging the manufacturer’s specialized competences to help customers optimize processes in their operations” (p.18). To succeed in PSS, manufacturers had to gain knowledge of customer’s processes, develop recommendations for process improvements and assist and train customer personnel in achieving improvements. In addition, new sales requirements such as building a more direct sales approach, reaching different people and using different sales arguments demand that companies need to grow their solution sales capability in order to change their sales approach and organization.

Process Delegation Services (PDS) are “the range of services a manufacturer provides when it performs processes on behalf of customers” (p.19). PDS are directed towards the customer’s process but unlike PSS, PDS are output based and go one step further, promising to achieve process performance, forming the most complex category of solutions. PDS are highly customized services and its design requires customer involvement. On top of that, customers typically require that the

manufacturers assume a certain level of the process outcome risk, being this risk transference one of the main motivations for customers to enter into such complex agreements, that will usually require the development of new key performance indicators that will be used to price and measure the success of the PDS.

Once the service transitions and service design strategies have been reviewed, one question comes to mind: How to maximize the value extraction for the supplier? Is there any way of achieving a win-win situation between supplier and customer? To answer this question, this thesis considers Performance Based Contracting as a challenging but very rewarding business opportunity for the supplier.

3.5 Performance Based Contracting in manufacturing

A logical consequence of the previously described trend, the boundaries between goods manufacturing and service providing are becoming more and more blurred. At the same time, the interest in performance-based contracting has risen amongst scholars and practitioners (Kindström & Kowalkowski, 2009).

Also known as “Power-By-The-Hour” or as “Performance Contracting”, “the basic idea of PBC is that the customer purchases performance instead of the capital goods themselves” (Hypko et al., 2010, p. 648). “A product’s price is not based anymore upon the physical value, but on the performance or valuable outcome it delivers in the form of a service. Performance based contractors are often strongly integrated into the value creation process of their customers (Gassmann, 2013). Kim et al. (2007) state that: “Performance-based contracting is reshaping service support supply chains in capital-intensive industries and aims to replace traditionally used fixed-price and cost-plus contracts to improve product availability and reduce the cost of ownership by tying a supplier’s compensation to the output value of the product generated by the customer” (p. 1843).

Even though performance based contracting (PBC) has only recently acquired importance in the academic world, the concept of contracting has been present for decades, especially in the defense and aerospace industry (Marcus, 1964). The term contracting describes “both the process of outsourcing – the search for and appointment of contractors for the provision of goods and services – and the execution of the contractual relations needed to support such activities” (Domberger, 1998). Following with the concept of contracting, the customer might incentivize the

manufacturer to provide good performance (Marcus, 1964), always overseeing the fulfillment of contracted services to guarantee the effectiveness and efficiency in the outcome. These challenges have led to a change of focus in contracting from traditional contracts to performance based contracts (Kim et al., 2007; Ng & Ding, 2010). In addition to this, there is evidence that, in comparison to traditional Time and Material contracts, PBC provides a positive and significant effect on product reliability, which is higher by 25-45% (Guajardo et al., 2012).

Unlike in defense and aerospace industries, PBC is not popular yet in less developed fields of application but it is steadily attracting the managers' attention (Spring & Araujo, 2009). Currently, many manufacturers from different industries are implementing their corresponding service strategies (Baines et al., 2009; Kowalkowski et al., 2015). However, the machinery manufacturing industry is still struggling to follow this trend and is still hesitant to offer PBC to all of its customer base. Studies and surveys show how in the last decade there has been almost no change in the amount of suppliers offering PBC in heavily industrialized countries like Germany (Hornshild et al., 2004; Seegy, 2009). Nevertheless, as stated in previous sections on service transition, manufacturers in most modern countries are already offering simple conventional services such as services and repair. Once they have reached this stage, firms have identified the need of creating new competitive advantages and are following different differentiation strategies for expanding their service offering and delivering additional support to their customers by providing them with more complex solutions in the fields of maintenance and operations (Gebauer, 2007).

In the last few years, there has been a slight increase in the number of papers on the effects of PBC in the manufacturing industry, even though research is still considered to be in its infancy (Hypko et al., 2010). Hypko et al., (2010) explored the benefits and uncertainties that this business model could have on suppliers. They stated that by implementing PBC strategies, manufacturers would increase the sales of highly innovative technologies by addressing the customers' unwillingness to take risks due to uncertain benefits. According to the authors, PBC also allows manufacturers to increase their profit by maximizing performance effectiveness and efficiency due to the diminishing importance of the purchase fee and the increased interest of the supplier in minimizing design weaknesses. After achieving an

increased profit, the alignment of the manufacturer’s and customer’s preferences to maximize performance effectiveness and efficiency as well as in terms of duration of the contract are likely to improve customer loyalty. The authors do not forget to mention that firms using PBC also face “outcome uncertainty related to economic development and are more likely to deal with uncertain revenues” (p.476). When analyzing PBC from the customer’s side, the authors underscore that “preference alignment between customers and providers in terms of performance effectiveness and efficiency will turn out in an increased performance in terms of productivity and quality” (p.477) as well as in decreased costs of performance. When facing adverse selection and moral hazard, though, customers that demand machinery or equipment output are more likely to deal with uncertain performance in terms of productivity and quality than the ones who did not choose PBC.

Hypko et al., 2010 provide a comprehensive review of the thereupon existing findings and drew them together for gathering the key aspects to PBC in manufacturing industries. Moreover, they proposed and applied a specific conceptual model that has been fundamental for framing the strategies later on in this thesis and it is based on the following 8 criteria (Figure 4).

		Options		
Criteria	Performance provider's background	Independent service provider (PBC in a <i>broader</i> sense)		Machinery or equipment manufacturer (PBC in a <i>stricter</i> sense)
	Ownership <i>during</i> the contract period	Leasing company (in the case of the OL model)		Special purpose vehicle (in the case of the SPV model)
	Ownership <i>after</i> the contract period	Leasing company (in the case of the OL model)		Special purpose vehicle (in the case of the SPV model)
	Responsibility for <i>maintenance</i> personnel	Performance provider (or rather special purpose vehicle in the case of the SPV model)		
	Responsibility for <i>operation</i> personnel	Customer		Performance provider (or rather special purpose vehicle in the case of the SPV model)
	Payment model	Pay-on-Availability	Pay-per-Unit (or Pay-on-Production/Pay-per-Use)	Pay-on-Customer's-Economic-Results (cost savings, revenues, or contribution to margin/profit)
	Location of operation	Customer's in-house	Fence-to-fence	Performance provider's in-house
	Exclusiveness of operation	Single customer		Multiple customers

Figure 4 – Conceptual model for PBC in manufacturing strategies.

(Source: Hypko et al., 2010)

Performance provider's background. The role of the customer in long term business to business relationships has been widely discussed in former research, but researchers have never agreed on the performance provider's background. Typically, customers contract the product related services to the manufacturer of the goods and benefit from his superior knowledge about its product, which would constitute PBC in a strict sense (Frauendorf et al., 2007). Nevertheless, a pure service provider can also take responsibility over the customer's machinery or equipment (Selviaridis & Norrman, 2014) if it is specialized in operating it or if the manufacturer does not offer this possibility, which would constitute PBC only in a broader sense (Frauendorf et al., 2007) (Figure 5).

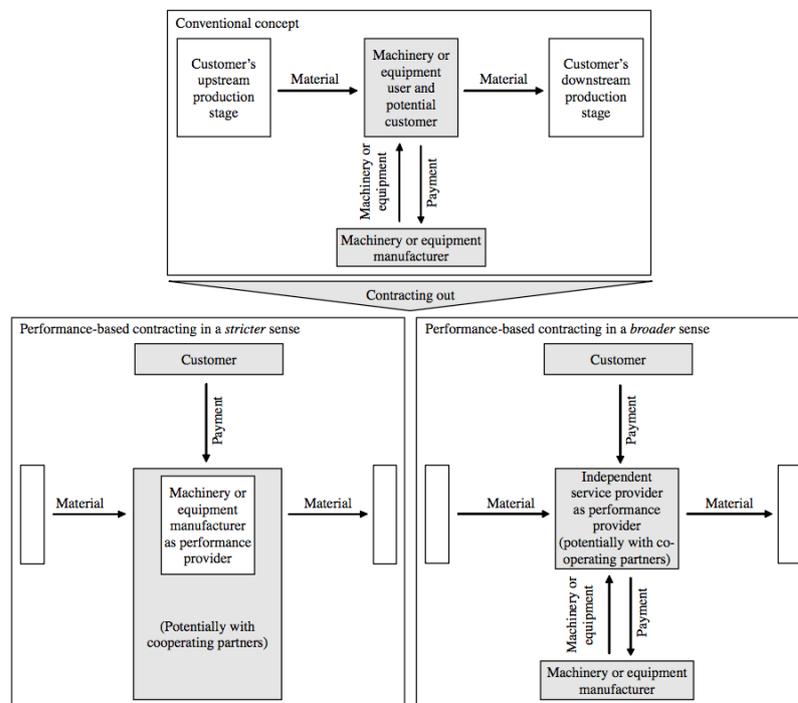


Figure 5 - Conventional concept vs. PBC models.
(Source: Hypko et al., 2010)

Ownership during the contract period. According to this review, scholars underscore the importance of the ownership when discussing PBC models since in PBC customers may no longer own the machinery and equipment they use (Cohen, et al., 2006). Instead, customers purchase performance (Markeset & Kumar, 2005). When focusing in manufacturing industries, however, it is important to have in mind that selling performance instead of selling ownership necessarily involves financing the machinery or equipment (Bullinger et al., 2004). Hypko et al. (2010) focus on the

special purpose vehicle (SPV) and the operating lease (OL) model. In the case of the SPV model, the performance provider creates a new company that will own the machinery with the purpose of balancing accounts and to operate the machinery or ensure availability. In addition to this, financial service providers are to provide additional equity to the SPV if necessary (Bullinger et al., 2004; Decker & Paesler, 2004). On the other hand, in the case of the OL model, a leasing company owns the machine and discloses the asset on its balance sheet but is not responsible for operating the machinery or ensuring availability. Unlike with the previous model, this one consists of a trilateral relationship where the customer pays a fee to the leasing company for the ownership of the machine. Simultaneously, the customer pays a service fee to the performance provider with regard to ensuring availability or operating the machinery or equipment (Bullinger et al., 2004).

Ownership after the contract period. PBC in manufacturing presents many differences with respect to PBC in other industries. While customers in other industries strive for ownership and use build-operate-transfer models (Brady et al., 2005), customers in manufacturing industries do not show any particular interest in owning the machinery for financial and operational reasons. Therefore, it is not common to transfer the ownership of the machinery or the equipment to the customer at the end of the contract when using PBC in manufacturing industries (Bullinger et al., 2004; Hornschild et al., 2004).

Responsibility for maintenance personnel. Almost all reviewed publications stress the importance of the managing of maintenance activities in PBC models as the way of ensuring availability of the capital goods (Baines et al., 2009). Scholars define the basic form of PBC as selling machinery or equipment availability by taking over all major maintenance activities (Hellander & Möller, 2007). Kim et al. (2007) states that providing spare parts is not enough: performance personnel has to be provided as well (Baines et al., 2009; Spring & Araujo, 2009). Therefore, there is a common understanding that providing the availability of the capital goods is highly associated with providing the appropriate personnel for its maintenance (Lay et al., 2009).

Responsibility for operation personnel. In addition to offering the takeover of all maintenance activities as a basic form of PBC, performance providers also offer

to manage the customer's technical operations (Hellander & Möller, 2007). Comparable to the responsibility for maintenance personnel, the main goal of this model is that the customer no longer needs any operation personnel. Thus, operation personnel will be responsibility of the performance provider (Decker & Paesler, 2004; Bullinger et al., 2004; Lay et al., 2009).

Payment model. Traditional pay-for-equipment approach is not valid anymore according to PBC models in manufacturing industries (Markeset & Kumar, 2005; Kumar & Kumar, 2004). As stated before, PBC innovates on the payment models since the customer is not buying the ownership of the product anymore, but he is paying only for performance provided on a measurable basis (Shapiro, 2002). In addition, given that the orientation toward performance leads to the payment of support services (Kumar & Kumar, 2004; Markeset & Kumar, 2005), PBC substitutes conventional fixed-price or cost-plus contracts (Kim et al., 2007). Regarding this conceptual model, the authors identify three kinds of payment models that fulfill the needs of PBC. First, the pay-on-availability approach is considered to be the basic payment model of PBC in manufacturing industries (Hünerberg & Hüttmann, 2003). In this case, the payment is based only on the provided availability of the machinery and is independent of its actual use (Lay et al., 2009; Decker & Paesler, 2004). Second, the pay-per-unit approach allows the customer to pay only for the performance that he actually demands (Lay et al., 2009; Belz & Wuensche, 2007). Also known as pay-on-production or pay per use approach, the customer pays exclusively for manufactured output (Decker & Paesler, 2004). According to Hypko et al. (2010), payments for the usage of the machinery and payments for the operation management have to be handled separately to give the customers the chance of operating the machinery by themselves. Third, there is also research on a last payment method “based on the customer's economic results based on the customer's economic results as a consequence of using the machinery or equipment” (Hypko et al., 2010, p. 642). Frequently used indicators are cost savings, increased revenues or the generated contribution to the margin/profit (Hellander & Möller, 2007).

Location of operation. Considering the different options for location of operations only makes sense if the performance provider not only sells maintenance responsibility, but extends his offer to operation responsibility (Lay et al., 2009).

Taking over maintenance responsibility makes sense only inside the customer's production plant (Decker & Paesler, 2004). Nonetheless, if the customer is willing to offer more complex service contracts, more location options are to be considered. First, the performance provider can offer to manage the customer's operations from the performance provider's site, but within a short distance from the customer (Decker & Paesler, 2004) or he can carry out the services at the site of the performance provider (Lay et al., 2009).

Exclusiveness of operation. Closely related to the location of operation, performance providers that offer per-pay-use payment models consider different approaches to this matter to become more independent and to cope with the market risk that they have to bear (Decker & Paesler, 2004; Buse et al., 2001). A performance provider who only offers maintenance management is limited to the customer's in-house approach and therefore depends on a single customer and his capital goods. On the other hand, manufacturers that take over operations responsibility can more easily offer performance delivery to multiple customers if the specificity of the machinery allows it (Garrel & Dengler, 2010; Lay et al., 2009).

3.6 Performance Based Pricing

Following on the study of payment models started by Hypko et al. (2010), this section will provide a more in depth analysis of the key characteristics that define the general model of Performance Based Pricing (PBP). Mainly, PBC almost always includes performing a service, but PBP can be applied in cases where the supplier is only providing tangible goods.

Pricing is generally a zero-sum game between a buyer and a seller in which one wins and the other loses. Scholars and practitioners state that the relieving of tensions on both sides would lead to business success and are therefore striving to move the elements of this relationship from the zero-sum game to a win-win situation (Saphiro, 2002).

Amongst the main advantages of PBP, Saphiro (2002) states that it guarantees the seller that the more it provides, the more it gets paid. On the buyer's side, when the performance of the product or service is unclear, PBP "enables the buyer to pay only for the amount of performance that is actually delivered on a measurable basis" (p.2), therefore eliminating the risk of overpaying. These two advantages naturally

“lead to a greater sense of ‘fairness’ for both buyer and seller” (p.2). Lastly, PBP forces buyer and seller to “deal with another’s limitations, objectives, and trade-offs” (p.3) therefore making them communicate in depth with one another and encouraging a greater level of cooperation and coordination. If the negotiations and discussions are handled with detail and discipline, customers will see a rise in value by only receiving and paying for what they are really interested in and the supplier can reduce costs by removing non-value added services and products (Selviaridis & Norrman, 2014).

On the other hand, there are a few downsides to PBP according to different reviews. The concept cannot be applied to every goods/service transaction: customers, products, market situations and the firm’s capabilities are key factors that influence the decision of whether to apply PBP, to what extent and what type (Hünerberg & Hüttmann, 2003). For example, it is not a suitable model for companies that need short-term cash flow since the price can only be determined after delivery and will therefore be delayed more than normal (Saphiro, 2002). With PBP both cost and price risk are transferred from the buyer’s side to the seller’s side. Therefore, firms that use performance based pricing “must accept much greater price and cost risk for added reward opportunity” (Saphiro, 2002, p.4). By committing himself, the buyer demonstrates his goodwill to the seller and underlines his capability (Hünerberg & Hüttmann, 2003, p. 719).

Concluding, Shapiro (2002) states that PBP is “a pragmatic pathway to managing risk, uncertainty, and performance for the long-term benefit of both parties” (p.3), enabling them “to shed light on the sources of the uncertainties and to illuminate new ways in which they can cooperate for their mutual benefit” (p.5).

3.6.1 Implications for buyers and sellers

Hünerberg and Hüttmann (2003) evaluate the use of performance based pricing based on the feedback collected from 131 German mechanical engineering companies which they use to test up to 13 hypotheses and to develop recommendations on how and when to apply performance based pricing. In the following chapters these key recommendations will be summarized.

3.6.1.1 Implications for buyers

There is a common understanding that PBP involves a risk transference from the buyer to the seller, but the buyer has to decide whether this offers real value to him. While buyers are generally aware of the risk reduction induced by the PBP model, the researchers could not confirm that the customers would be willing to pay a higher price for a PBP offer, observing that customers in leading positions were more open to accept higher prices than those who were lower in the hierarchy. The study recommends PBP for buyers who want to benefit from better performance rather than only reduce potential negative effects. Performance based pricing is a complex concept and buyers should invest enough time considering the advantages of this model. Even though there is no evident transaction cost advantage, there might be less evident cost reductions affected through a number of different concepts. Therefore, the publication advises the buyers to develop schemes to identify scenarios where this concept makes sense. Framing standard procedures that allow faster analyzing of these kind of offers is also considered a key requirement.

Lastly, the authors emphasize that even though PBP is considered to be the seller's marketing instrument, the buyer himself plays a very important role in providing the seller with parameters that he would like to measure and activities that he would like to realize. If the buyer gets involved in the development of a PBP strategy, it may become the buyer's own purchase marketing instrument.

3.6.1.2 Implications for sellers

It is key for the seller to first consider the buyer's implications and try to learn from them in order to influence them. The buyer's positive perception of PBP as a way of reducing uncertainty and procurement risks must lead to the seller trying to find a competitive advantage using PBP without incurring substantial risks. For this to be possible, the measurement parameters have to be under his control or he will incur higher risks, having to raise the price to compensate this fact. As stated before, there are customers who are willing to pay higher prices but they are not the majority.

The authors mention the products with low marginal production cost as a special case of interest to use performance based pricing since the risk of losing money is lower as long as the firm can reach a minimum sales volume to recover all the necessary investments. Similarly, the seller has to focus its attention on whether a

customer might be attracted by PBP. According to the research results, customers with doubts about their investment decision are especially receptive to this pricing concept. This generates a need for the manufacturer to collect data in order to define such customers. The authors underscore that flexible customers are most frequently interested in PBC and that there is a better understanding of new and complex concepts at higher management levels.

The seller has to meet certain requirements when setting performance based prices. The firm has to define the concept of price carefully, naming the parameters that will be used for measuring the performance, deciding which proportion of the price should be paid immediately and what proportion should be variable, how to deal with uncertain revenues and whether to combine the concept with other pricing instruments.

Data acquisition is a key requirement of performance based pricing since it cannot be carried out without risk management on the supplier's side. Sellers have to know about the efficiency and effectiveness of their goods in different applications, as well as about how the customer's behavior affects the goods. The seller may have to face hidden actions of the buyer such as measurement manipulations or wrong information on intensity of use, which will increase the risk and will make the supplier very dependent on the customer. To avoid this, the seller "has to develop sophisticated information and control systems as part of a risk management approach to make performance based pricing a successful business model" (Hünerberg & Hüttmann, 2003, p.729).

A service offering contributes to a long-term relationship with the customer, crucial as an instrument of customization and a way to establish and control performance parameters. Moreover, customized offers lead to higher customer value and a reduced cost of total ownership.

Lastly, another key requirement supported by academic and managerial research is an adequate communication of the price concept to the customer since it is rather new to some industries and it needs detailed explanation. Advantages have to be explained carefully using dialogue oriented communication means in order to convince the customers to join a long-term contractual relationship. This may lead to

the understanding of the advantages of the concept that are not (or only partly) perceived according to Hünenberg and Hüttmann (2003).

3.7 Predictive maintenance

Generating profit from services and solutions is not always easy, especially when taking into account the servitization paradox (Neely, 2008). At present, a large number of companies are transitioning into services and these are slowly being commoditized as well (Opresnik & Taisch, 2015). To provide another layer of differentiation and therefore deliver new competitive advantages, Opresnik & Taisch (2015) suggest Big Data exploitation as the next step in service offerings. One of the applications of Big Data in manufacturing industries can be found in Predictive maintenance.

Today's rapidly evolving markets create the need for companies to effectively improve performance by cost cutting, increasing productivity levels, quality and guaranteeing deliveries and availability of their products in order to satisfy customers (Raouf, 1994). Global competition has shifted attention from increasing profitability by achieving economies of scale to meeting market conditions by means of flexibility, delivery performance and quality (Yamashima, 1995). However, there is evidence that quality improvement strategies in organizations have not taken maintenance management into account, therefore completely neglecting maintenance as a competitive strategy (Wireman, 2004).

Maintenance's rate of return is normally perceived to be lower than any other budget item, ignoring the fact that by giving maintenance the management priority it requires, firms can reduce maintenance costs by more than 30% and improve the level of productivity (Ahuja & Khamba, 2008).

In predictive maintenance, often referred to as condition based maintenance, maintenance is carried out only reacting to a specific equipment condition or performance decrease (Vanzile & Otis, 1992). Machinery's performance and conditions such as noise, vibration, temperature, lubrication and corrosion are measured with diagnostic techniques. Hence, when one or more of these indicators reaches the previously specified tolerance limit, maintenance is carried out to restore the machine to its initial conditions (Brook, 1998). The main advantage of predictive maintenance versus preventive maintenance is that the machine is taken out of

service only when there is direct evidence that proves that wear has taken place, that is, when the need is imminent and is not only based on the passage of a specified period of time (Herbaty, 1990).

Summarizing, “the common premise of predictive maintenance is that regular monitoring of the actual crafts condition, operating efficiency, and other indicators of operating condition of machine trains and process systems provides the data required to ensure the maximum interval between repairs and minimize the number and cost of unscheduled outages created by machine train failures” (Smith & Mobley, 2007).

4 Pre-study of the context

The strategies that will be the main subject of this research are based on the concepts and theories presented in the previous sections. In this particular case, an industrial machinery manufacturing company has developed an innovative and very promising technology that has to be the trigger of a whole new family of services that will then be extended to the majority of the manufacturing machinery and equipment. Of course, many questions are raised when planning how to handle such a situation: What services should be offered? Is there room for value-added services? Should these services be bundled with the product? Is it possible to offer an innovative solution? How to sell these items? How to price the solution? What business model should be used? What would maximize value for the supplier? How to maximize value for the customer? Is it possible to extract maximum value for both, supplier and customer, at the same time? How to lock in the customers? More importantly, the customer's opinion has to be taken into account when designing the different strategy: How does the willingness to pay (WTP) evolve from one scenario to the other? How about the purchase intention? Is there any preferred strategy by the customers? Are they open to innovations in business models and pricing strategies? What is the customer's vision for the future?

In answering these questions, though, literature could provide only one part of the answer. A total of 7 expert interviews were carried out to selected managers from different business units in order to get as much input as possible and benefit from their experience in the industry and know-how in technology, sales and general customer behavior.

Carrying out an expert interview is an ideal technique for conducting semi-structured interviews since it gives a much greater importance to the interviewee's expert level of knowledge than to the actual person. Additionally, interviewees are not integrated in the study as a single case but as representing a group (Flick, 2009).

Together with the literature research and this pre-study, the goal is to find the key points that will define the preliminary scenarios that will be used as the starting point for this thesis' research.

4.1 Interview Summaries

Code	Function
PSIP 01	Key Account Manager
PSIP 02	Sales Manager
PSIP 03	Area Sales Manager
PSIP 04	Head of Business Development
PSIP 05	Head of Business Unit
PSIP 06	Head of Business Development
PSIP 07	Head of Customer Service

Table 1 - Overview of the interviewees.

(Source: Compiled by author)

PSIP 01

PSIP 01 is pessimistic regarding the acceptance that PBC might have among customers since it is a complex concept and customers are not used to it. Concerns about the monitoring and control systems are expressed, underscoring the associated risks of such a pricing scheme. There is general mistrust towards the customer since unexpected behavior can be expected, such as data manipulation and deficient maintenance of the machinery. According to PSIP 01's opinion, customers will not be willing to share useful data that would enable Bühler to supply value added services based on a high knowledge about the plant. Regarding the outsourcing of the services, PSIP 01 states that customers have confidentiality agreements with other machinery providers that prevent external personnel from accessing certain sections of plants, which hinders the take over of the maintenance responsibility. Moreover, customers are reluctant to pay for spare parts and for the visits of maintenance personnel, since there is a general understanding that the manufacturer makes enough money from the spare parts. Therefore, Bühler tends to offer discounts and only charges for the spare parts. Concluding, the services offered consist mainly in simple maintenance duties such as the inspection of the machinery and the provision of spare parts, which are considered to be very simple services with scarce added value.

PSIP 02

PSIP 02 is more optimistic than PSIP 01 regarding the customer's reaction to value added service contracts: offering a solution is a big improvement. Currently, only simple spare parts packages as well as equipment inspections are offered.

According to PSIP 02, customers would be willing to study the possibility of PBC contracts since it reduces the initial investment and this can be a key factor for increasing purchase intention at early stages. Moreover, PSIP 02 states that customers are more willing to sign service contracts in the first months after the commissioning of the machinery, since they are not yet fully confident in their capability of handling all maintenance related activities by themselves. Despite all this, it is yet to be seen whether customers would be willing to sign such a type of complex contract. On Bühler's side, PSIP 02 is much more pessimistic since he thinks that the company will incur liquidity problems by offering alternative payment models that include reduced initial investments, which will lead to the rejection of these strategies by the board members since it is in their interest to make business in the short term and not only after a few years. Furthermore, he has doubts about Bühler's capacity to offer services worldwide due to the lack of service stations in a number of regions. However, PSIP 02 considers that some European areas would be suitable for the introduction of this service. On the sales level, he expresses his concerns on customers being treated differently depending on their location, since communication between customers is the usual thing, and this could lead to customer dissatisfaction.

Apart from all the inherent benefits of the tangible product itself, PSIP 02 emphasizes the importance for the company of not depending on third party providers when offering conveyors to their customers, since third party options fail to achieve Bühler's quality standards in terms of machine performance and of the supplier's response time when spare parts are needed. Also, PSIP 02 mentions the impact it has on the customer to take it into account for new product and service pilot testing, and how it improves the customer perception of their relationship with the brand. Nevertheless, while products are in the prototype stage it is unlikely that customers will be willing to pay the total amount of its cost; therefore, innovative pricing strategies are to be introduced. However, guaranteed availability is not part of the Bühler service portfolio due to the financial risk associated with this kind of contract. If the manufacturer were to offer it, the necessary high price of this service would be unacceptable for the customers who would require it. Instead, this BU offers yearly inspections together with help for the assortment of the needed spare parts for the future maintenance of their machines. This contractual relationship,

despite being simple, has resulted in a broadly accepted service contract by the customer base and in a steady income source for Bühler. As a method of raising the customers' interest in these services, it is proposed to offer PBC or Guaranteed Availability only related to the services, consequently reducing the risk. Carrying on in the same vein, PSIP 02 proposes the idea of offering a model where the customer can return the machine after a certain amount of time if he is not satisfied.

According to PSIP 02, if Bühler managed to reduce the importance of the initial investment, customers would be open to embracing this concept. If models like PBC were offered, the customer could be convinced that Bühler has very strong confidence in its own machinery, to the point where it is willing to take over a great deal of risk from the customer.

PSIP 03

PSIP 03 has a whole different approach regarding the product and its associated services. According to him, the customer could mistrust TUBO if the company offered it bundled with services. Why oblige the customer to acquire services if the machine is reliable and it should not need them? Moreover, PSIP 03 asks himself why the customer should need to contract a service for such a simple machine when all maintenance operations could be carried out by their own maintenance crew, thus minimizing response time. PSIP 03 mentions integration as a way of turning the service offering into an interesting product for the customer: TUBO is a small accessory in a plant where machinery is very expensive. Even though there are some innovative customers, Bühler's client base is generally very conservative in this industry and customers are typically reluctant to purchase machines that have been less than 5-10 years on the market. However, PSIP 03 suggests approaching customers that are planning on building a new plant to see, based on their feedback, whether they would be interested in these types of services.

PSIP 03 rules out guaranteed availability as a business model based upon the intrinsic risks it involves: if Bühler was to pay a penalty for not reaching the agreed uptime, it could cost more than the TUBO itself.

PSIP 04

PSIP 04 is unsure whether providing a service can be linked to a product's performance. In his opinion, even though the scenario presents advantages for the customer, it would be hard to sell it since it is radically different to what customers usually deal with: in this business unit, services consist mainly of offering spare part packages at lower prices and refurbishment of existing production lines. However, customers might be receptive to predictive maintenance since it is clearly a big advance compared to the current offerings. In this case, guaranteed availability of the service is offered by assuring a short response time and a certain outcome of the services: like in other business units, production losses are not covered due to the high risks. PSIP 04 recommends approaching the customer some time after the plant has been commissioned (for example, after the warranty has expired) to offer the services.

Additionally, PSIP 04 states that it would be easier to sell the package and the service separately instead as a whole solution. As stated by PSIP 04, it is very hard to design a service package with no exact data about maintenance costs and wear cycles, which would increase the risk for Bühler. PSIP 04 highlights that customers have different needs depending on the regions they are in and these needs can only be satisfied if Bühler's service centers are within reachable distances. Moreover, PSIP 04 states that the machine is very simple, which will most likely mean that customers will not be willing to outsource its maintenance.

Just like P02, P04 underscores the importance of not depending on third party providers when selling conveyors to customers, and mentions how the Bühler brand is strong enough to convince the customers that the product they are buying is reliable. In addition, PSIP 04 is convinced that any new service offer has to take into account that the company wants to keep the service margins in the same ratio.

PSIP 05

PSIP 05 talks about a broader range of services, such as consulting, master studies and performance based offerings of parts and services. In this innovative offering, the key for success is to agree on how to measure the performance i.e. manufacturer and customer agree on the KPI that will determine whether the goals have been reached or not. It is equally important to agree on how to measure the

success of the service and in this case it is done by carrying out measurements before and after carrying out the service. The amount that the customer will have to pay will be calculated based on the gap between these measurements. This pricing model is particularly useful when refurbishing existing lines rather than when delivering new ones. Following with this argumentation, PSIP 05 maintains that customers are willing to accept innovative pricing models and solutions whenever there is a possibility of reducing costs.

When offering traditional payment models, the customer focuses only on the total cost of ownership, and it has to be proven to them that products and services will be cheaper with new strategies.

PSIP 05 mentions the strength of the brand as one of the main attractive factors for the customers, together with the reliability of its products, which are expected to work for at least 10 years. If Bühler guarantees that one product is better than its predecessor, the customer will believe it and will be more likely to buy the new product. There is a relationship of trust between Bühler and its customers, by which there is a verbal guarantee that the machine will deliver its expected performance.

According to PSIP 05, this industry is very traditional and conservative but there are customers who are looking for more service oriented business models. In Europe, there is a shift towards outsourcing maintenance because of the expensive cost of labor and due to the difficulty of finding qualified people that stay in the same company for more than a few years. Nevertheless, there is a wide variety of customers with different needs and more than one scenario has to be offered at the same time. Concluding, PSIP 05 states that even though most customers will still prefer the traditional strategy, there will be customers who are willing to consider service oriented strategies.

PSIP 06

PSIP 06 is very positive about the pricing strategies but not so about the service package. Packages of wear parts have failed to be successful in the past since the customer wanted to have the ultimate choice of what to buy at all times. Nevertheless, since wear parts are very price sensitive, a successful way of influencing the customer into buying Bühler's wear parts is to offer assistance

regarding what wear parts he is going to need along the lifecycle of its machines. This service is directly linked to preemptive maintenance, where the technician tells the customer what parts will be necessary and the customer has the possibility of buying them from the original equipment supplier or from a third party provider. However, Bühler is focusing a large amount of resources on developing new sensor applications in order to shift from preemptive to predictive maintenance which is aligned with the strategy of the company, which is focusing on developing its service offerings for the last 6 years. When introducing predictive maintenance to customers, Bühler stresses the impact of the wear on yield and revenue decrease. To make predictive maintenance possible, the machinery's sensors inform the customer through the plant control software that certain wear parts have to be changed. In the future, the company is considering offering solutions based in the Internet of Things i.e. machinery will send data to Bühler and the supplier will be aware of any abnormal activity that could lead to a break down. In addition, learning algorithms could help Bühler to find patterns between breakdowns and could also enable the manufacturer to offer optimizations for the production lines, which could be linked to PBC pricing models. In this case, the bigger the installed base, the more available data there is to learn about the machines. Important breakthroughs have been made in this direction but nowadays the manufacturer does not yet have automatic access to the machines: the customer has to allow access every time.

PSIP 06 focuses on the difference between the sales channels of products and services: while products' sales reps visit the customer only once every 1-2 years, service sellers visit the customer up to 3 times a year, creating a stronger relationship between supplier and customer. Furthermore, PSIP 06 talks about the impact that properly informing the customer about the benefits of the service and pricing model has on his purchase intention.

As stated by PSIP 05, PSIP 06 underscores the culture changes that affect many companies, leading to the loss of knowledge caused by an excessive staff turnover between firms, which motivates customers to let manufacturers take over the maintenance responsibility.

Interestingly, PSIP 06 talks about market segmentation depending on the position of the customer towards service contracts. The Solution Seekers are the most

susceptible to sign service contracts, since they are only interested in obtaining maximum output at minimal costs, not caring about the process. When selling services to customer who have their own maintenance crew, on the other hand, it is very important to know how they are managing the plant in order to provide certain services and spare parts, carrying out customer visits frequently to check up on how the customer carries out maintenance of the plant.

As possible measures for introducing our proposed service package for TUBO, PSIP 06 proposes to include the service for free during the first year in one plant as a way for the customer to realize the benefits the service provides. If the service is good, the customer will purchase it for other plants as well: service excellence is the key factor for differentiation. In order to relieve work pressure from the technicians who perform maintenance visits, an efficient remote service is key.

Performance based pricing is only to be offered if the customer is properly maintaining the plant since transparency is very important for avoiding risk. As an alternative for reducing the risk, the machine could be sold using the traditional strategy, and a guaranteed availability contract could be offered based on the service. With this option, the customer only has to pay for the service if the performance of the machine is within specifications.

PSIP 06 talks about value pricing as a viable alternative for cost plus pricing. If a machine or service is going to lead to a greater revenue increase for the customer, value pricing allows a much greater value extraction for the manufacturer.

As a final reflection, PSIP 06 expresses his doubts about offering complex solution contracts as go-to-market strategies when the product is in the early stages of its commercial life. Given the fact that there is no competition, why take risky elections and new business models?

Like PSIP 05, PSIP 06 states that there is a minority of customers, mainly in regions where labor has a high cost, who are interested in ghost plants, which includes having a reduced maintenance personnel and outsourcing the maintenance responsibility as much as possible.

PSIP 07

PSIP 07 mentions retrofitting services as the key for introducing PBP to customers, as it is stated by PSIP 06 and PSIP 05. As equally stated by PSIP 02 and PSIP 04, PSIP 07 underscores the importance of not depending on third party manufacturers when offering products to customers, and PBP based retrofitting services would be an ideal starting point to shift towards Bühler produced conveyors. However, attention has to be paid to the risks and costs of these types of systems: there is a strong need of reliable service management software that is not yet available to all business units and that needs further development in order to be able to manage customized service offerings. PSIP 07 expresses his concerns regarding how service models would be handled, since there is not enough personnel and all technicians are fully booked most of the time.

Like PSIP 04, PSIP 07 thinks that the Bühler brand is strong enough for the customers to trust its products. Therefore, the impact of the business models on this concept would be negligible.

For PSIP 07, a scenario with no initial investment would involve too much risk, since the machine cannot be disassembled and taken back to the manufacturer at a reasonable cost. Nevertheless, PSIP 07 finds it suitable for the prototype phase of the product, since the pilot customers would value the fact that their risk of paying for a non-functioning product would be significantly lower. Also, the fact that scenario two does not include any initial investment could be an advantage since companies could pay for the product only from their maintenance budget, avoiding the investment authorization process.

Total care packages are offered in this business unit but their scope is limited compared to other total care packages of other business units. All business models can be studied, but there are cultural and structural challenges. Is the company willing to take the product back if the customer is not satisfied with the machine's performance? Scenario 2 is suitable for products which still are in a prototype phase. The customer would value the fact that he does not have to assume the risk of the machine not working. The fact that the customer would pay only from the maintenance budget, should increase their purchase intention.

Like other business units, basic services are offered such as inspections and spare parts. For some customers, though, Bühler provides preemptive management through a number of yearly inspections. According to PSIP 07, these inspections do not include third party machines, which could lead to a break down if they are not properly maintained.

Like PSIP 02, PSIP 03, PSIP 04 and PSIP 06, PSIP 07 would not offer any guarantee for uptime to the customers since there are doubts as to what price model to use and it is difficult to know how much uptime the company can guarantee. Value pricing is also being considered, but this is not considered a priority and PSIP 07 is expecting to benefit from another BU's experience on the matter.

Regarding customer culture, PSIP 07 states that customers are conservative and do not adopt new technologies or business models immediately. Besides, TUBO is not considered as an essential part of the plant and there would be no acceptance for services packages that were exclusive for this conveyor. Therefore, Bühler should focus its attention towards looking for an integrated solution for the whole plant. At least, machines should be ready to be retrofitted with sensors as soon as the technology becomes available. Lastly, PSIP 07 states that a change in the sales approach must be made, since sales reps usually focus on selling the product, not giving any importance to the service.

Concept	Mentions
Monitoring & control of performance	PSIP 01, PSIP 05, PSIP 06
Financial risk	PSIP 01, PSIP 06, PSIP 07
Privacy concerns	PSIP 01
Conservative industry	PSIP 01, PSIP 02, PSIP 03, PSIP 05, PSIP 06, PSIP 07
Data Scarcity	PSIP 02, PSIP 04
Liquidity Issues	PSIP 02
Offering services after commissioning	PSIP 02, PSIP 04
Capacity of resources	PSIP 02, PSIP 04, PSIP 06
Regional differences	PSIP 02, PSIP 04, PSIP 06, PSIP 07
Guaranteed availability risk	PSIP 02, PSIP 03, PSIP 04, PSIP 06,

	PSIP 07
Preemptive maintenance	PSIP 02, PSIP 06, PSIP 07
Mistrust caused by strategy	PSIP 03
Service integration	PSIP 03, PSIP 06, PSIP 07
Refurbishment / Retrofitting	PSIP 04, PSIP 05, PSIP 06, PSIP 07
PBC and PBP	PSIP 05, PSIP 06, PSIP 07
Brand strength	PSIP 05, PSIP 07
Ghost plant	PSIP 05, PSIP 06, PSIP 07
Predictive maintenance	PSIP 06, PSIP 07
Process optimization	PSIP 06
Sales approach	PSIP 06, PSIP 07
Company's culture changes	PSIP 06, PSIP 07
Market segmentation	PSIP 06
Value pricing	PSIP 06, PSIP 07

Table 2 – Pre-Study key concepts' summary.

(Source: Compiled by author)

4.2 Provisional strategies

Literature review and interviews have been carried out simultaneously, with the purpose of complementing each other when either literature or interviewees expressed concerns about certain subjects. Therefore, we will find that most of the key concepts extracted from the interviews have been dealt with in existing literature, but there are still some gaps that need to be covered by this thesis' research in the following sections in order to come up with the definitive services and strategies.

As agreed with the stakeholders, the expected output of this thesis will consist of three service-based go-to-market strategies, that will initially be referred to as provisional strategies. After initial literature review, it was agreed that these three strategies would be scattered across the product-service continuum (Oliva & Kallenberg, 2003). According to the market segmentation mentioned by PSIP 06, the three strategies are created with these three segments in mind, in an unrestrictive way. All three of them will be associated with the same service package.

4.2.1 Service package

Designing a service package for a machine that is not yet available on the market presents limitations mainly triggered by data scarcity. As stated by PSIP 02 and PSIP 04, the lack of exact data regarding the life cycle of the parts of the machine hinders the process of designing an efficient service package. Moreover, because TUBO is going to convey a wide variety of products, parts will have different wear rates which means that customers will have different needs.

Another limitation to the services is the technological status of the machine. The presented services can be carried out at present, and proposals will be made for the future addition of new value added services.

Analyzing Bühler's current service portfolio, we observe great differences between Business Units, with some of them offering value-added solutions while other business units are at the very early stages of simple service offerings. Nevertheless, we have based this service package on the current portfolio, taking the technological limitations into account.

The idea behind this package is to enable the customer to customize his own service package, choosing from the standardized options we present.

4.2.1.1 Preemptive maintenance

As we learned from PSIP 02, PSIP 06 and PSIP 07, this is one of the most commonly offered services across the company. Typically, it consists of 1-3 annual technical inspections that are carried out by Bühler's technicians. In these visits, the technician will identify potential problems and will start the necessary maintenance operations, ordering the required spare parts and planning the next visit. During this visit, the technician can learn about the customer's plans and needs and can use this feedback to identify new business opportunities for Bühler.

4.2.1.2 Wear parts

The main wear of a TUBO system takes place in its moving parts: the tubits and the drive station. It has been calculated that tubits should be changed every 1 to 3 years depending on the conveyed product. Accordingly, an agreed amount of tubits would be provided every year. The other wear part is the drive station, the lifetime of which depends on factors like maintenance quality, rate of use and average

operational speed. Following the same strategy as with the tubits, a new drive station would be provided to the customer after an agreed period of time.

When sold together with the preemptive maintenance service, a discount on the wear parts package would be offered in order to boost the sales of both services.

4.2.1.3 *Retrofits*

Since TUBO is still being introduced to the market, it is probable that there will be developments in the machine's design. With this retrofit service, the customer has the guarantee that his TUBO will be always up to date.

4.2.1.4 *Propositions for the future*

Unfortunately, the current state of technology does not allow Bühler to offer real value added service with high lock-in potential. Nevertheless, there are other Business Units who are considering offering this kind of services in the near future. The two key value added services are predictive maintenance, remote process optimization and a fully integrated system structure. These will be analyzed in the Results and Discussion section of this thesis.

4.2.2 *Provisional strategy 1 – Do it yourself*

As mentioned by almost all interviewees, there are regional and cultural differences amongst the company's large customer base, which obliges us to take more than one strategy into account. The first strategy, designed for the most conservative customers, is based on the traditional model that has been used in the broad majority of transactions to date. The model used to price the machine is the commonly used "cost plus" model.

The machine manufacturer sells its goods asking for the 100% of the price of the machine at the commissioning date. According to PSIP 05 and PSIP 07, Bühler's powerful brand is a synonym for performance and reliability. Thus, when evaluating products, trust on the brand is outstanding and customers are willing to pay the full price of a new machine without any contractual guarantee. With this model, we rule out any financial and liquidity risks mentioned by PSIP 01, PSIP 02, PSIP 06 and PSIP 07, as well as any mistrust on the product caused by any other strategy as mentioned by PSIP 03.

Once the customer has acquired the machine, Bühler will adopt the sales approach mentioned by PSIP 06 and PSIP 07, as well as by Ulaga & Reinartz (2008) and Hypko et al. (2011). Bühler's customer service sales rep will explain in detail what the service package is about, going through the advantages with care, making sure that the customer can relate the provided services to tangible concepts such as an increased uptime, which leads to a steadier income.

In the case of this first strategy, it is yet to be seen whether customers will be interested in performance based contracting for the maintenance. Hence, there will be two different options regarding the payment model for this service: it can be sold with a fixed price or with performance based contracting, associated with a guaranteed availability contract.

With regard to the PBC option, it is an interesting alternative to the official service offering since it enables the service provider to offer a guaranteed availability contract associated only to the service, as stated by PSIP 02. This means that Bühler could guarantee the fulfillment of a series of terms such as previously agreed maximum response time and percentage of uptime. That is, the customer would not have to pay if the delivered service was to non-comply with the previously agreed terms. This way, the customer's risk of being overcharged for the service is drastically reduced and it could increase its purchase intention. At the same time, Bühler only assumes the risk of not being paid for the service, which will motivate the company to improve on one its services in order to meet its customers' expectations and on the other hand to set more realistic contractual terms.

4.2.3 Provisional strategy 2 – Service seekers

Moving forward in the product-service continuum, this strategy is a middle point between the first and third strategies, which locates it in the center of the product-service continuum. As stated by PS02 and PS03, some very conservative customers do not trust any machinery that has not been in the market for a few years and has proven its qualities. Particularly in the product's initial stage in the market, some potential customers might be reluctant to pay the whole price of the machine. With this behavior in mind, this strategy only requires the provider to pay a certain amount of the total cost of the machine at the commissioning date.

In order to avoid liquidity risks mentioned by PSIP 02, this amount would already cover the production cost of the machine, adding enough margin to guarantee the profitability of the transaction even in the worst case scenario if, as mentioned by PSIP 01, the customer never makes another payment after the commissioning date. Naturally, the characteristics of this kind of model limits its potential to only the most reliable customers.

Financial reliability is not the only thing Bühler has to look for in these potential customers, but the customer has to be trustworthy in order for a Performance Based Contract to work at its best for both sides. Because the customer would only be required to pay a certain amount of the total cost of the machine as an initial investment, the remaining amount would be paid in annual fees based on the delivered performance of the machine. Because of its advantages, the purchase and installation of a TUBO conveyor will result in a reduced operational cost, an increased operational cost or both, depending on the industry, plant, and type of conveyor it is replacing. Of course, the adoption of this pricing model involves a higher risk for the supplier since the customer will only pay if the performance provider meets the previously agreed requirements.

The percentage on the cost reduction or/and revenue increase that will be destined to pay for the performance based contract has to be agreed contractually. It is key that there is a total understanding with regard to the KPI that will enable both parts to calculate the fee. Common examples are energy consumption, yield variation and uptime rate. As stated by PSIP 01, PSIP 06 and PSIP 07, it is crucial to develop a precise monitoring and control system that is accessible to both, customer and suppliers, aiming at reaching maximum transparency. PSIP 05, PSIP 05, PSIP 06 and PSIP 07 assert that this pricing model could be ideal as a part of refurbishing/retrofitting services, since it is the most convenient scenario to measure the performance before and after carrying out the service.

With respect to the service, the approach would be similar to the PBC model used in strategy 1. In this case, though, the service could be offered bundled with the product i.e. as a solution. If the product was to be sold as a solution, the fees for the goods and the service could be merged in one value priced fee, thus extracting the maximum value from the customer.

Again it is crucial to carefully select the right sales approach. When offering complex PBC contracts, there must be a close relationship between customer and supplier. As it has been stated before, some points of the contract (KPI, fees) might vary between customers. Therefore, it is necessary to customize the contract for the customers, which will take more time than typically offering products and services as standalone products. Moreover, the supplier's personnel will have to visit the customer more often to make sure that the machine is being operated correctly, and these visits can be used to discover the customers' pains and needs.

Whereas PBC contracts for machines can be offered anywhere in the world given that the customer is trustworthy, offering PBC services might present limitations depending on the region (PSIP 02, PSIP 04, PSIP 06, PSIP 07). It is clear that clients must be at reachable distances from Bühler's service stations, and these stations must have enough capacity to carry out the services (PSIP 02, PSIP 04, PSIP 06).

4.2.4 Provisional strategy 3 – Solution seekers

Cultural changes, as stated by PSIP 06 and PSIP 07, are pushing some companies towards outsourcing activities that do not belong to the core business of the company. This of course includes handing over the maintenance responsibility to a service provider who is, in most cases, the manufacturer of the machinery. Following this trend and according to PSIP 05, PSIP 06 and PSIP 07, there is a growing minority of customers whose goal is to manage "ghost plants" i.e. to reduce the number of necessary personnel to the minimum due to its elevated labor costs. The third strategy has been designed partly with this kind of customer in mind, but also for customers who are not confident enough to invest in a new machine. The main idea behind this strategy is to enable the customer to use the conveyor for a whole year before he decides whether to keep the machine based on his gathered experience.

The key feature of strategy 3 is the absence of initial investment. In this case, customers would disburse yearly fees following the same PBC contract than in strategy 2. Of course, as noted by PSIP 01, PSIP 02, PSIP 06 and PSIP 07 the lack of initial investment means that Bühler is assuming a great deal of the operation's financial risk, which entails proportionally higher annual fees than in strategy 2. In

addition, the financial reliability requisites for being a potential customer for this offer would have to be stricter than in strategy 2.

Despite looking for financially trustworthy customers, there is always a risk of experiencing trouble when the payments are due. Hence, Bühler has to find a formula for reducing this risk, trying to cover the production cost of the machine as fast as possible. This thesis proposes that the fee after the first year should be higher than the cost of the machine in order to guarantee the sale's profitability.

As a way of further reducing the financial risk, product and service would be sold together, bundled as a solution. Like this, Bühler would always benefit from both margins instead of from only one, therefore extracting value from the transaction in a much faster way.

By bundling product and service together, Bühler would have access to the customers' plants and would be able to make sure that the machine is being operated correctly, which is essential for its proper functioning. Bühler's confidence on the correct functioning of the machine is the key for this strategy to work: since the machine and the service will meet the customer's expectations, customer's satisfaction will lead to the fulfillment of the initial contract with Bühler i.e. the customer will keep the machine and will continue using Bühler's services.

5 Empirical Part: Methodology

The term “methodology” defines the way in which we approach problems and look for their answers and solutions. In social sciences, it is applied to the way of carrying out the research (Taylor et al., 2015).

Research is a rigorous process, thorough and systematized that aims at solving problems. The nature of these problems may be the lack of knowledge (scientific research) or managerial difficulties, but in both cases the research is organized and it guarantees the production of knowledge or viable alternative solutions. (Eisenhardt & Graebner, 2007)

The object of any science is to acquire knowledge. Therefore, the election of the adequate research method that will allow us to understand reality is fundamental. Inductive methods are generally associated with qualitative research while deductive methods are linked with quantitative research. While quantitative research is that which gathers and analyzes quantitative data about variables, qualitative research avoids quantification. Qualitative researchers carry out narrative registries of the studied phenomena by means of techniques such as participant observation and non-structured interviews. Hence, quantitative research studies the association or relation between quantified variables and qualitative research does so in structural and situational contexts. Nevertheless, the using of both quantitative and qualitative methods in research would probably help to correct the typical bias of both methods. (Jick, 1979)

This research thesis starts with a qualitative pre-study that allows the framing of the main service strategy in which the main research will be based. The aim of the research is to shed light on how different bundling strategies and pricing strategies affect the customer’s willingness to pay and purchase intention of a service related to a new technology. A total of 10 interviews were carried out from the 4th of June 2015 to the 5 of August 2015 on this subject. After that, a qualitative content analysis (Mayring, 2000) follows and the thesis ends with the discussion of the mentioned results.

5.1 Exploratory research

“Any kind of polarized debate has become less than productive. And, it obscures the fact that qualitative and quantitative data are intimately related to each other. All quantitative data is based on qualitative judgments; and all qualitative data can be described and manipulated numerically” (Trochim, 2000).

The first steps of the research on this topic have to be qualitative due to the scarcity of current research about this particular case. Once the grounds of the research have been set, complementary quantitative work can be carried out as will be stated in the corresponding section of this thesis.

To obtain the desired output, this research thesis combines three sources of qualitative data: internal/external benchmarking, literature review and customer interviews. First, Bühler’s current offering of services was analyzed through informal conversations and interviews with different managers in what we call the pre-study (chapter 4). At the same time, an extensive literature review was carried out to validate the theoretical foundations of the company’s current offerings and to shed light on how to transition into selling more advanced value-added services.

After reaching this milestone, the initial intention was to carry out a large scale survey to gather as much customer feedback as possible but two factors hindered this research option. First, the subject company’s confidentiality agreements with customers made it impossible for us to contact the whole customer base and a large enough list of contactable customers was not made available for this research. Secondly, data uncertainty regarding TUBO and its necessary maintenance would have had a very negative effect on the customers’ responses since these would not have been based on an informed opinion, making them unreliable. Therefore, these answers would not have been representative enough for their use in research.

These factors led to a reconsideration of the research: it was clear that there was a clear lack of foundation on which to base any quantitative research. Therefore, research would have to be qualitative, and our theory would have to be built inductively.

Inductive theory building takes place when the researcher obtains general conclusions from particular premises. This means that a first stage of observation,

analysis and classification of the facts, the scholar can postulate a hypothesis that gives a solution to the stated problem (Eisenhardt, 1989). In this particular case, this hypothesis will be extracted from the customer feedback gathered through expert interviews.

5.1.1 *Qualitative Experiment*

As stated before, qualitative research interviews are mainly non-structured. Nevertheless, for the purpose of obtaining three specific service strategies, interviews have to be structured in order to guide the interviewee towards giving answers to particular questions that have been prepared beforehand.

The qualitative experiment, as defined by Kleining (1986) is “The intervention with relation to a (social) subject which is executed following scientific rules and towards the exploration of the subject’s structure. It is the explorative, heuristic form of an experiment” (p. 724).

This means that researchers can benefit from the advantages of quantitative research, being able to formulate experiments while still allowing the researcher to gather information through receptive observation and interviews instead of gathering only numerical information from surveys (Burkart, 2010) .

In other words, the qualitative experiment “aims to discover structures, circumstances, relations, connections and dependencies that are particular and characteristic of the subject matter under research. [...] Qualitative experiments serve to make observations deducible from our senses based on an experimental setting (not from instruments, numbers and calculations) and draw conclusions on the facts actually observed” (Ravasio et al., 20YY).

5.1.2 *Qualitative Content Analysis*

Following the Qualitative Experiment, a Qualitative Content Analysis will be performed in order to evaluate the interviewees’ answers. Like the Qualitative Experiment, Qualitative Content Analysis, tries to preserve some methodological assets of quantitative content analysis and broaden them to a concept of qualitative method (Mayring, 2000).

When performing qualitative content analysis, the material is to be analyzed step by step, dividing the material into content analytical units. Next, the interpreted

text has to be put into categories that have to be carefully founded and revised within the analysis process. Lastly, the procedure has to be inter-subjectively comprehensible. This means that it must be possible to compare results with other studies to check for reliability (Mayring, 2000).

Going back to the category development procedures, it can be inductive or deductive. In the first case, a first criterion of definition has to be formulated at the beginning of the process, and the definition will be revised while the process is developed. In the second case, explicit definitions are given at the beginning, determining exactly under what circumstances a text fragment can be coded with a category. In this thesis, the first approach will be used since it is more flexible and convenient when handling the variables of the qualitative experiment such as willingness to pay and purchase intention (Mayring, 2000).

5.2 Design of the Experiment

Resembling quantitative experiments, this qualitative experiment features different scenarios that will have an impact on the different variables that will be explained in the next section.

The experiment has two main foundations. First of all, the research question: How do different bundling, pricing and service strategies affect the customer's willingness to pay and purchase intention of new technology and its product-related service? Second, the results of the study will be the starting point from where the experiment will be carried out.

5.2.1 Scenarios

After performing internal interviews and literature review, three different pricing strategies and a service package were designed. For the purpose of this experiment, the three service strategies have to be split into six different scenarios, depending on whether the service is offered bundled with the product (price bundling), or if the customer can choose whether to contract the service as a standalone product. The purpose of the study is to choose the three preferred scenarios by the customers and design go-to-market strategies according to them. The name of each scenario can be consulted in Table 3.

	Mixed Bundling	Pure Bundling
Strategy 1	1M	1P
Strategy 2	2M	2P
Strategy 3	3M	3P

Table 3 – Scenarios

(Source: Compiled by author)

5.2.1.1 Scenario 1M

This scenario resembles strategy 1 (chapter 4.2.2). Machine and services are sold separately and with traditional payment methods where the customer has to pay the price of the machine and service upfront.

5.2.1.2 Scenario 1P

Like scenario 1M, 1P is based in strategy 1 (chapter 4.2.2) but machine and service are sold bundled together. Nevertheless, traditional payment methods still apply. Therefore, the customer has to pay for both machine and services on the commissioning date.

5.2.1.3 Scenario 2M

Like in strategy 2 (chapter 4.2.3), in scenario 2M the customer has to make the payment of 50% of the price of the machine upfront and the rest will be paid using Performance Based Contracting. In this case, service and goods are sold separately.

5.2.1.4 Scenario 2P

Based in scenario 2M (chapter 4.2.3), in scenario 2P service and goods are sold bundled together. This scenario uses Performance Based Contracting as a payment model as well.

5.2.1.5 Scenario 3M

Scenario 3 is based in strategy 3 (chapter 4.2.4). There is no initial investment and the customer pays only yearly fees with the performance based contracting method. In this case, product and service are sold separately.

5.2.1.6 Scenario 3P

In this last scenario, based in strategy 3 (chapter 4.2.4), there is no initial investment but product and service are sold together.

5.2.2 Variables of the experiment

5.2.2.1 Independent measures

The previously described bundling scenarios and pricing strategies will be used as independent measures. In the case of this study, mixed and pure bundling will be the two analyzed scenarios. Performance based contracting will be analyzed together with traditional payment models.

There is general agreement among scholars that the customers' response to different bundling scenarios depends strongly on product complementarity. Adams & Yellen (1976) state that WTP and PI increases if the client is given the possibility of purchasing products and services separately: *mixed bundling*. Nevertheless, when products show a high complementarity, WTP and PI rise when these are bundled together: *pure bundling* (Telser, 1979). Applied to this study, this means that if product and service are integrated and create synergies, offering easily provable advantages, the customer will be more willing to purchase a whole solution than separate product and services.

Performance Based Contracting and *Performance Based Pricing*, as stated in chapters 3.5 and 3.6, change the sales approach and the relationship between manufacturer and customer. When using PBC, the manufacturer's revenue depends directly on its capacity to deliver performance, thus eliminating the risk of overpaying on the customers' side (Shapiro, 2002). This leads to an increased perceived fairness for both customers and manufacturers, therefore raising the clients' purchase intention. Additionally, by paying only for what they receive, customers see a rise in value which can lead to a higher WTP (Selviaridis & Norrman, 2014).

5.2.2.2 Dependent measures.

Bühler's interest resides mainly on the customer's reaction to the different pricing strategies and bundling scenarios, as well as on its value extraction potential. Therefore, concepts like Willingness to Pay, Purchase Intention will be studied and subsequently linked to the value extraction potential of every scenario in order to choose the most suitable strategies.

Willingness to pay (WTP) or "reservation price" is defined as the maximum price a given consumer accepts to pay for a product or service" (Le Gall-Ely, 2009, p.

93). When the customer is informed properly about the advantages of contracting solutions (Hypko et al., 2010; Ulaga & Loveland, 2013), an increase in WTP is expected (Ulaga & Reinartz, 2011; Storbacka & Pennanen, 2014). Lower WTP increases are additionally linked to the decrease in risk perception from the customer's side (Hypko et al., 2010). Lastly, increases are also expected when offering integrated, value-added turnkey solutions (Hypko et al., 2010). In other words, WTP is expected to be higher for scenario 3 than for scenarios 2 and 1. At the same time, WTP for scenario 2 is expected to be higher than the one for scenario 1. For scenario 3, customers' WTP could increase when offering a solution instead of separate products and services. Nevertheless, it should not have any influence on scenario 2 and no influence at all on scenario 1.

Purchase Intention is defined as an "individual's readiness and willingness to purchase a certain product or service" (Ajzen & Fishbein, 1980). According to the literature review, mixed bundling should have a positive impact on the PI compared to the impact of price bundling (Adams & Yellen, 1976). On the other hand, Hypko et al. (2010) state that the PI should increase proportionally to the complexity of the solution or value-added services.

5.2.2.3 Control variables.

To improve the interpretation of the interviews I will control the position and background of the interviewed manager, since the position of the interviewee in the company's hierarchy has a strong influence on the answers when talking about advanced and complex pricing models (Saphiro, 2002). Moreover, it has to be taken into account whether the company outsources any of its activities, with special attention to the ones related to maintenance. It is essential to know to what extent they depend on external services since this will limit the company's positive responsiveness to new service contracts. Furthermore, it is important to compare the customer's current installed technologies with the ones that are being presented in order to approximate the performance gap and calculate the value extraction potential for the customer. Lastly, the difference between industries and regions have to be taken into account since the perceived brand image and the consumers' attitude may vary.

5.2.3 *Description of the case company*

Bühler AG provides industrial process technologies and solutions mainly in the food sector, making substantial contribution to the production and processing of flour, rice, pasta, chocolate and cereals. Moreover, the company is a leading solution provider of die-casting, wet grinding and surface coating technologies with a focus on applications in the automotive, optics, electronics, printing, packaging, and glass technologies. Based in Uzwil, Switzerland, Bühler employs 10,600 people at more than 140 sites and generates sales of CHF 2.3 billion.

5.2.4 *Description of the sample*

When selecting the most appropriate customers for the interviews, the author first contacted sales managers of different business units in order to contact open minded, innovative customers that would give the most useful feedback. As stated by Saphiro (2002), it is important to carry out the interview with a senior manager since employees in higher positions are more open minded towards complex solution offerings and will therefore be the contact person if the sales rep wants to sell this kind of solution in the future. Furthermore, there is at least one customer belonging to each one of the more representatives Business Units where the product is going to be sold.

Geographically, the sample focuses on European customers since this is going to be the pilot market where services are to be sold, following recommendations of the employees interviewed in the pre-study (chapter 4). Nevertheless, cultural differences within the same region are explored by selecting customers from two different countries like Spain and Switzerland. According to the company, Spanish customers tend to be more reticent to contract services than Swiss customers, since the perceived value of the services is significantly lower.

Code	Industry	Country	Function
IP 01	Industrial Milling	France	Management
IP 02	Industrial Milling	Spain	Management
IP 03	Feed Milling	Spain	Management
IP 04	Coffee	Spain	Management
IP 05	Rice	Spain	Management
IP 06	Pasta	Switzerland	Management

IP 07	Flour Milling	Switzerland	Head Milling
IP 08	Flour Milling	Switzerland	Head Milling
IP 09	Nuts	Spain	Management
IP 10	Flour Milling	Switzerland	Head Milling

Table 4 - Interviewed Sample.

(Source: Compiled by author)

5.2.5 Questionnaire

The interviews were designed to be carried out as semi structured interviews i.e. the first priority was to let the customer talk freely but always about the desired subject. The average length of the interview has been of 90 minutes approximately. The full questionnaire can be found in the appendix A.

Warm up questions

- What is the relationship of your company with Bühler?
- Is there any innovation that you wish Bühler could offer?
- How do you carry out the maintenance of the plant?
- Could you tell me about the kinds of conveyors that you are working with?

The first section of the interview had the goal of setting the control variables for each interviewee. Questions about the position of the interviewee at the company were asked, as well as about the customer's relationship with Bühler in order to get information about their interest in services and to find out whether customers were satisfied with the quality of the currently offered services. Hereafter, it is very important to gather information about the maintenance of the plant: knowing if the customer takes over the full maintenance responsibility or if he outsources some maintenance related activities will have a great impact on the interpretation of his answers. Lastly, a question is asked about the kind of conveyors that are currently in use in order to have a reference about the approximate value that TUBO will have for the customer by calculating a rough performance gap.

Body questions

- What are the main advantages and disadvantages of this scenario?
- State a price for this machine that you would consider "fair".
- State a price for this service that you would consider "fair".
- Evaluate your interest in purchasing in the machine.
- Evaluate your interest in purchasing in the service.
- Evaluate this pricing strategy.

Before carrying on with the questions, a short presentation of TUBO is carried out, highlighting its specific advantages for each Business Unit and talking about its general wear cycles and maintenance needs. This part is key to the interview process since the customer has to have a minimum of information in order to give reasoned answers. Attempts of interviews without any product presentation were conducted but the lack of information hindered the development of the interview to the point where the interviewee would not be willing to reply to abstract questions without any foundation.

The main body of questions are the ones referred to in every individual scenario, that will have to be presented in detail to the customer before starting with the questions for each one of them, making sure all details are understood. Initially, the interviewee will be asked to state advantages and disadvantages of the different scenarios. There will be common questions to each scenario, such as the ones related to the price fairness and to the product and service evaluation. Questions asking about fairness are directly linked to the willingness to pay of the customer. Nevertheless, more specific questions about this subject are asked. When asking the customer to evaluate the product, service and solutions, the interviewer gathers data about the customer's purchase intention of the product. Lastly, the customer is asked to evaluate the presented strategy as a whole in order to determine the customers' preferred strategy.

However, there are specific questions that will help to understand the customers' response to each of the 6 presented scenarios. For example, after presenting the traditional strategy, the interviewer asks the customer about the possibility of introducing performance based pricing in order to test the customer's predisposition to face substantial changes in its business model. When dealing with the questions about strategies 2 and 3, question about risk perception will be asked in order to identify its impact on the dependent variables.

General questions

- What is your opinion on the service package?
- After going through all the scenarios, would you change any of the grades?
- Which scenario would you choose, if given the possibility?
- Were you familiar with the term "predictive maintenance"?

- When planning a new plant, would a bundled maintenance service solution be more convenient than a sum of individual services for different machines?
- What is your opinion on sharing production data with your equipment manufacturer if that would lead to an optimized process and increased yield?

The next step is to ask general questions regarding all scenarios at the same time. It is important to know the difference between these answers and the previous ones, since the customer will now know about all the scenarios. Introductory questions about the service package are asked in order to look for improvements that could make it more attractive for the customers. Following on, the customer will be asked to re-evaluate any of the previous scenarios after having heard all of them. The customer is expected to be conservative and to evaluate the traditional scenarios very positively at the beginning. Nevertheless, the impact of the following scenarios on the evaluation of the first one is of great interest for this study. The interviewee is then asked to choose one of the given scenarios as a way of identifying the preferred scenario. However, the scarcity of information regarding prices makes this answer certainly unreliable. Lastly, questions about future value-added services are asked, involving “predictive maintenance”, integration of services and production data sharing.

Final questions

- How do you see the future of the productive processes?
- Has your vision changed in any way after this interview? How?

To end the interview, the interviewer aims for the future and asks the customer about the future of productive processes. Customers’ replies could lead to the development of new machinery and/or services. In order to evaluate the impact of the interview and the product and strategies’ presentation, the last question asks the customer whether this interview has produced a change in his vision of maintenance services and pricing models.

5.3 Qualitative content analysis

As stated in chapter 5.1.2, a qualitative content analysis will be carried out in order to interpret the data gathered in the interviews. The qualitative content analysis will be performed following Mayring’s (2007) model, which is highly structured and each step is clearly defined.

Determination of the material

In this section, the authors must carefully gather and select the material that will be used for the purposed analysis i.e. limiting the material selection to the required one for answering the research question (Mayring, 2007). In this particular case, the material consists of a total of ten interviews which have been considered to be valid and reliable for this research. Nevertheless, only the text that is relevant for this research purpose will be selected and analyzed.

Analysis of the situation in which the text originated

This section describes the environment under which the material was gathered. This includes who it was gathered by, where it was collected, who was the supplier of the material and how it was mustered (Mayring, 2007). In this case, the interviews were carried out by the author of the thesis to customers' senior managers at the customers' sites and recorded with a mobile telephone.

Formal characterization of the material

Lastly, it is important to describe the form in which the material is available. Furthermore, a qualitative content analysis requires a written version of the material as a foundation (Mayring, 2007). In this case, the audio of the interviews was recorded on a mobile phone and was then transcribed using transcription software before carrying out the qualitative content analysis itself. The results and discussion of the interpretation can be found in chapters 6.2 and 7 respectively.

Determination of the direction of the analysis

At this point, Mayring (2007) requires that the author ask himself what he wants to obtain from this research work i.e. what is supposed to come out of the interpretation of the interviews. This leads to the research question of this thesis, the purpose of which is to shed light on how different bundling, service and pricing strategies affect the customer's willingness to pay and purchase intention of a service related to a new technology and its product-related service.

Theoretically informed differentiation of questions to be answered

According to Mayring (2007), the research question must be defined clearly with anticipation and must be based in the published literature on the researched subject. If necessary, this question must be able to be subdivided into sub-questions

that can be answered individually. In this case, extensive literature review on subjects like services, bundling, service transition and performance based contracting has been conducted in chapter 2. Moreover, this literature review is complemented with a pre-study composed from the data collected after seven interviews with internal managers of the company.

Selection of the analytical techniques

Mayring (2007) presents three different analytical procedures which may be carried out either independently or in combination, depending on the research question: summary, explication and structuring. In our case, we choose the summary technique since it attempts to reduce the material in such a way that it preserves the essential content and therefore creates a manageable body of information which still reflects the original material (Mayring, 2007).

Definition of the unit of analysis

According to the selected analytical technique chosen, only specific parts of the interviews will be selected. Next, these will be condensed into compact units that will contain the information for answering the research question (Mayring, 2007).

Analysis of the material

According to the selected analytical technique selected, the parts of the transcribed interviews will be paraphrased, generalized and reduced (Mayring, 2007). This means that after recording the interviews, these will be transcribed using transcription software. Next, only the parts of the interviews which are relevant will be selected for further analysis. These parts will be shortened and generalized in order to find patterns between the data of different interviewees. This process is iterative and must therefore be carried out repeatedly until reaching the final result. The qualitative content analysis data as well as the list of categories are located in the Appendix D and B of this thesis.

Interpretation

The interpretation of the Summary, as well as the development of the categories takes place in chapter 6.

6 Results

6.1 Qualitative content analysis: category development

In the following chapters, the author classifies the different categories obtained in the qualitative content analysis in different groups aiming at a higher data clarity. The full qualitative content analysis and the list of categories can be found in Appendixes D and B.

6.1.1 *Current customer-manufacturer relationship*

Firstly, control measures are analyzed in order to provide a reference point that will allow the researcher to carry out a more precise interpretation of the data. These control measures are focused on the extent of the current consumer-manufacturer relationship e.g. if the interviewee is a long term customer, if he is satisfied with the brand or if he usually contracts any kind of services either with manufacturers or third-party service providers.

All interviewees except one (IP 04) are part of companies whose majoritarian supplier is Bühler (C1). IP 04 is not a customer from Bühler, but as well as every other interviewee, he has a very good image of the Bühler brand, which is linked to the customer having high expectations about the quality of the brand's products and services (C28). As a consequence, some customers (IP 04, IP 05) have verbalized that this quality difference between Bühler and its competition raises their willingness to pay i.e. they are willing to pay proportionally higher prices for Bühler machinery (C48). However, IP 01 complains that Bühler has sometimes released products that were still in their testing phase, which would mean that their quality would not quite meet the brand's standards (C2).

Only IP 01 outsources most of its maintenance (C15), while the rest take over the maintenance responsibility of their machinery with the exceptions of complex machines, whose maintenance is typically carried out by specialized personnel working for the machinery manufacturer (C19). IP 08 and IP 10, use the manufacturer's software for planning and optimizing their maintenance, which they carry out themselves (C70). According to IP 08 this software is a first step towards contracting a service since the customer pays yearly licenses for its use.

Typically, customers only contract non-maintenance related services (C20). For example, IP 02 talks about the technical services which are included in the commissioning process of the plant which comprise the plant's design, machinery installation and personnel training. In addition, every interviewed customer uses other simple services such as the provision of spare parts. Even though most customers show indifference when asked about their satisfaction with the service offerings, IP 02 and IP 05 explicitly say that they are satisfied with Bühler's service quality (C35).

On the other hand, there are less satisfied customers that choose to purchase spare parts from third party providers (C21) since these companies offer a faster response rate at a much lower cost than the original manufacturers (IP 02, IP 03, IP 05). However, customers like IP 05 reveal that third party providers' quality standards are very low and it can be counterproductive to acquire non OEM spare parts (C54). Nevertheless, these generally smaller, local companies offer all kinds of services immediately, providing great flexibility to their customers (C36; IP 03).

On another level, IP 03 mentions third party service providers such as software providers who currently offer services that are in direct competition with services that are offered with Bühler as well and that create a lock-in effect between buyer and seller (C46). Because these services are remotely operated, e.g. remote plant process monitoring, the distance does not play an important role and Bühler would have the same conditions.

Lastly, IP 02 thinks that the handbooks and training provided at the beginning of the machine's life are insufficient in order for the customer's crew to carry out the maintenance of all the machines (C25). In this case, the customer is not willing to have to outsource the maintenance of complex machinery since that causes longer production downtimes. In the opinion of this customer, manufacturers should provide basic training so that the customer could maintain or temporarily fix the machine until the arrival of the manufacturer's specialist.

6.1.2 Strategy 1

In this chapter the author summarizes the customers' opinion on the first strategy, defined in chapter 4.2.2.

All customers without exception highlight their satisfaction with the traditional strategy and consider it the optimal strategy before being presented with the rest of the strategy (C17). Even though some of them change their mind when being introduced to PBC strategies (as we will see in next chapters), most of them would still choose the first strategy if it was available (IP 01, IP 02, IP 04, IP 06, IP 07, IP 08). IP 02 expresses his dissatisfaction with the fact that the manufacturer would want to keep the economic benefits caused by the customer contracting a new service or purchasing a new machine.

Some of these customers have had experience working with other payment strategies when working with Bühler's prototypes but are more specific and state that strategy 1 is the best and most convenient strategy when dealing with finished and reliable products (C4; IP 01, IP 02, IP 07, IP 08).

6.1.3 Strategy 2

In this chapter the author summarizes the customers' opinion on the first strategy, defined in chapter 4.2.3.

When presenting strategy 2 to IP 04, the customer immediately established a relationship between this kind of strategy and a leasing contract (C50). In this case, leasing contracts are always associated to paying a larger amount of money than the original price of the leased product which is why the customer initially rejects the strategy. IP 05 and IP 08 join IP 04 in the opinion that they are not willing to pay additional money for strategy 2.

Nevertheless, some customers change their mind when telling them that strategy 1 would not be available anymore. In this case IP 05, considers that strategy 2 would be very attractive (C56). Moreover, IP 07, IP 08 and IP 10 consider that strategy 2 is very interesting in a context where the customer is not yet familiarized with the machinery since it reduces the risk of making an investment in a product that does not have any market references (C67).

6.1.4 Strategy 3

In this chapter the author summarizes the customers' opinion on the first strategy, defined in chapter 4.2.4.

To IP 03, IP 08 and IP 10, strategy 3 is attractive to the customer since it allows him to test the machine before making the full investment (C40). It especially useful when dealing with new machines where the customer is uncertain whether the manufacturer will be able to deliver the promised performance.

For IP 03, removing the initial investment from the payment terms would be an interesting advantage since the company is currently undergoing a period where it has difficulties obtaining finance for new investments (C42). Furthermore, some customers would be willing to pay proportionally more for strategy 3 than for strategy 2 and the traditional strategy (C59) since they understand that there is a risk transference from the customer to the manufacturer that needs to be compensated by a price increase in the product and the service (IP 05, IP 06, IP 08, IP 09).

Other customers such as IP 01 and IP 02 are not easily persuaded as the previously presented ones, since they would only consider strategy 3 to be the best if it did not involve any cost increase (C13). Generally, this opinion is motivated by a poor understanding of the advantages of PBC strategies and by the economical situation of the customer, which may reduce its interest in alternative services or payment models. For this last group of customers, together with IP 06, the inclusion of the machine's cost in the maintenance budget would not produce any advantage since they either would not have any problem obtaining the finance for paying for the machine upfront or they simply are not in the position to raise the maintenance budget.

Lastly, IP 04 asserts his lack of confidence in this kind of strategy ever being a reality (C53). This interviewee considers that the risk for the manufacturer would be too large and that would hinder the viability of the strategy. Nevertheless, this opinion is linked with a potential interest of the customer in this strategy since he evaluates positively that the risk has transitioned towards the manufacturer.

6.1.5 Performance Based Contracting Strategies

In this chapter, the author summarizes the interviewees' inputs that affect strategies 2 and 3. In addition, opinions regarding PBC in general are also dealt with in the following lines.

When introduced to the PBC pricing model, despite some initial rejection, customers' answer is significantly homogeneous: they all agree that PBC is a very attractive model for machines since it forces the manufacturer to provide a good performance, acting as a kind of guaranteed performance contract (C27).

Yet, since PBC is an innovative concept in the manufacturing industry, customers have expressed their doubts regarding the advantages of the concept. First, when talking about PBC in strategies 2 and especially in strategy 3, IP 01, IP 02 and IP 05 directly link PBC with the traditional option of financing the investment of new machines (C10). Customers like especially IP 01 but also IP 06 and IP 07 are reluctant to pay any additional money for any new strategy (C5), which can be caused by the customer not having the need to recur to any kind of alternative payment models in order to purchase a new machine (C60; IP 06, IP 10). Nevertheless, there are customers who are not undergoing any financial difficulties but are very interested in PBC since it is a strategy that establishes a more positive relationship for both customers and manufacturers.

Customers who are reluctant to believe in the economic advantages of PBC strategies such as IP 01 and IP 02 claim they could change their minds if the offered services would produce any real tangible benefits (C11). This is supported by IP 02, IP 03, IP 04 and IP 09 who also think that by offering alternative payment methods, Bühler gives the impression of being unsure regarding the performance reliability of the machine and the services (C29). As indicated by the customers, a different approach must be used when talking to customers about PBC, emphasizing the manufacturer's confidence in its machine and services before going into detail with the advantages of the PBC strategies.

IP 02 and IP 10 would only study using PBC strategies if the traditional strategy was not available (C30). This means that even after presenting the advantages of PBC strategies, some customers are not interested in a performance guarantee provided via PBC since they consider that the brand is enough performance guarantee and they are willing to keep the risk on their side.

IP 04, IP 05 and IP 07 express their doubts as to how the machine manufacturer will measure the advantages resulting from the installation of the machine and the performance of the services. The customers emphasize that this

would not be easy to do since plants are very complex machine mixes and there are many factors that could have an impact on the plant's yield or energy consumption (C51). Likewise, IP 04 states the importance of being aware that this strategy cannot be applied everywhere since some customers could manipulate the measurements in order to pay less than the agreed amounts (C52). In order to avoid this kind of situation, IP 04 recommends evaluating the customers before offering PBC strategies. In extreme cases, PBC cases should only be offered by long term customers with which Bühler already has a close relationship.

In the same line than the previous clients, IP 03 and IP 10 affirm that before applying any kind of PBC strategies, the manufacturer needs to gather a large amount of field experience (C38). Nowadays, the manufacturer does not have enough information about the machine in order to design the correct services or to define precise performance parameters, elevating the risk for both the manufacturer and the customer.

Customers IP 02, IP 04 and IP 10, find strategy 2 and 3 equally attractive since their interest does not reside in each individual strategy but in a PBC strategy that had the potential of offering real advantages to both customer and manufacturers (C41).

Even though PBC strategies are attractive to some customer's customers, IP 06 reminds us that payment terms are not enough to win a project, but that the quality of the product and the service has to be outstanding as well (C61). As stated by IP 09, besides the economic advantages comprised in PBC strategies, there is another factor that could be a decisive factor for the customer's decision to contract a PBC strategy: the risk transference from the customer towards the manufacturer (C72). The risk transference is, however, not that important for customers like IP 02, who considers that the risk is low and it is not worth it to pay an additional amount of money in order to have access to PBC (C32).

The most repeated commentary by all the interviewees was that it was very difficult to evaluate the services or the strategies since the information they had was insufficient (C9). For research purposes, the author could not go into detail with regard to prices, which caused confusion in the interviewees since the price of the machine and different services and strategies would have influenced their opinion

completely. Lastly, the author would like to emphasize that the nationality of the customer does not have any significant influence on the interviewees' answers.

6.1.6 Product

In this chapter, the author summarizes the interviewees' inputs regarding TUBO, Bühler's new promising new conveyor technology which is the pivotal point of this thesis.

As stated throughout this thesis, the manufacturing industry is a very conservative one, especially when dealing with new products. In keeping with this line, IP 03, IP 08 and IP 10 underscore the importance that success stories have when a customer has to decide whether he will invest in a new machine or not (C39). However, these customers are not the majority since other customers consider that the Bühler brand is a synonym for reliability and their trust in the brand is guarantee enough that the machine will perform as expected.

When asked about the fair price of the machine, IP 03 asserts that the new conveyor should ideally cost the same or less than the one it is substituting (C37). Nevertheless, the customer understands that any innovative machine can have a higher price, particularly if it offers measurable economic benefits compared to the replaced machine.

We must remember that most customers carry out all maintenance duties themselves and only outsource the maintenance of their complex machines. Therefore, IP 01, IP 02, IP 04, IP 05, IP 09 and IP 10 state that such a simple machine does not require the customer to contract specific services for them (C16). In addition, it must be mentioned that a conveyor is only a mere accessory in the customer's production line and therefore it should not merit an individual service contract (C49; IP 04, IP 07).

6.1.7 Services

In this chapter, the author will summarize the customers' inputs regarding the proposed service package and strategies, as well as the customer's propositions in terms of new services.

All interviewees agree that a quick response time is one of the most important decisive factors for the customer to contract a service (C3). This is the reason behind

customers constantly contracting services to lower quality smaller local third party service providers. Customers are willing to give up on quality in order to gain in flexibility and response time. Throughout the interviews, we are constantly reminded about how important it is to reduce down time in these industries due to the high cost it implies for the customers.

Another generalized opinion among the interviewees is that pure bundled products are less attractive than independent products and services, this meaning that the customers' willingness to pay would decrease if they did not have the option of choosing between contracting the service or not (C31; IP 02, IP 06, IP 07, IP 09). Still, IP 03 and IP 08 mention that by offering adequately priced integrated solutions combined with a PBC strategy, the manufacturer would be able to raise the customer's purchase intention in contracting services (C44). The reality is still that customers are not willing to outsource services that they could carry out internally, no matter the kind of bundle or payment method. These services are perceived to be high priced and the customer is not willing to contract them since it may lead to the creation of dependence of the manufacturer (C24; IP 02). IP 02 and IP 07 emphasize the fact that customers are aware of the lock-in effects of these kind of services (C22), but also highlights that customers can identify cases where the manufacturer is trying to forcefully tie the customer. Lastly, IP 02 and IP 06 state that customers would be interested in the offered services if their price was adequate (C26).

When asked about why a customer would choose Bühler on top of any other competitor, IP 06 points at the manufacturer services' reliability as a key decisive factor (C63). The fact that a manufacturer can provide services in the customers' native language helps establishing a much closer relationship that leads to a win-win situation for both of them. However, almost every customer mentions that there are some aspects about the offered services that could be improved, even though only IP 03 and IP 10 express clearly that the quality of the services should be higher bearing in mind the image of the brand (C43). IP 06 and IP 10 draw attention to the unavailability of the technicians as one of the causes for the negative feedback of the services, therefore recommending Bühler to hire more specialists that are sufficiently well trained to perform complex duties (C65).

Customers like IP 06 and IP 07 are careful when contracting services since they worry about being in a situation where they have to pay for large quantities of services. When having such a large portfolio of contracted services, customers lose awareness of what they have contracted and there is very little efficiency in their service management protocols. Therefore, if customers were given the possibility of contracting exactly what they need, it would enable them to improve the efficiency of their service spending (C64).

As a way of simplifying the relationship between manufacturer and customer, IP 03 and IP 05 suggest that the manufacturer could offer turnkey solutions to its customers i.e. closed systems with highly technological machines the performance of which is guaranteed and the maintenance of which cannot be carried out by the internal crew, leading to an increased willingness to outsource the maintenance to the manufacturer (C45). IP 03 reminds the interviewer that the business for the manufacturer resides in creating a long lasting business relationship with the customer, in order to raise the confidence and the degree of collaboration between both sides (C47). Though IP 07 and IP 09 argue that today's production plants are composed of many different kinds of machines and that including all of them in the service contract would be counterproductive if our intention was to reach a high maintenance service efficiency since it would include very simple machines that would not need to be maintained by a third party service provider (C68).

When presenting the advantages of advanced services and solutions to IP 01, the customer highlighted the importance of not forgetting about offering a warranty that was independent from any service (C12). The brand has always been a synonym of good quality and commitment to the warranty and too much focus on the services could put these aspects in jeopardy.

IP 06 and IP 07 present similar proposals to the manufacturing company that are in the same line with the efficiency increases previously explained. IP 06 would like to have software that would help him manage the spare parts throughout all his plants. A centralized system would enable the customer to know exactly what spare parts are in each plant in order to access spare parts of another plant in case of need, which would lead to shorter down time periods (C62). IP 07, on another hand, suggests that, when outsourcing the maintenance of complex machines, the company

replaces parts which are not yet worn enough to be replaced (C66), which brings us to telling the customer about advanced services such as predictive maintenance and remote advanced services.

6.1.8 Predictive maintenance

In this chapter, the author summarizes the interviewees' contributions regarding predictive maintenance, a new service proposal that aims at raising the customers' purchase intention and willingness to pay.

IP 05, IP 06, IP 08 and IP 09 express their interest in predictive maintenance (C58). Customers understand the advantages of predictive maintenance and are attracted by the potential decrease in down time and the increase in maintenance and spare parts efficiency even though some of them can think of different uses for this sensor based service. IP 02 and IP 09, are even installing sensors on the machines by themselves as a retrofit in order to gather information about the current status of the machines aiming at improving the maintenance period planning (C23).

As it happens with the machine, some customers are reluctant to trust a new service that they are not familiar with (C6; IP 01, IP 06, IP 07, IP 10) underlining the difference between what a company tries to achieve on paper and how it looks in reality. Moreover, IP 01, IP 02, IP 03, IP 07 and IP 09 consider that this is a very simple machine that could break for any reason, therefore believing that predictive maintenance would not be effective with this particular product (C7). IP 05 suggests that he could be willing to invest in predictive maintenance in a few years, when Bühler has gathered experience with early adopters and there are already success stories that support Bühler's expectations for the service (C57).

6.1.9 Remote advanced services and sensor related technologies

Following on from the previous chapter, the author summarizes the interviewees' contributions regarding every kind of sensor related technologies that can be used to perform remote advanced services.

The majority of interviewed customers have shown positive reactions when being asked about potential remote advanced services that could be carry out using sensor related technologies (C59; IP 02, IP 05, IP 06, IP 08, IP 09). IP 06 is working actively towards having an intelligent plant, dedicating large amounts of economic resources to transform its plants. These customers agree the future of their industries

resides in embracing and integrating technologies such as Internet of Things in order to gather data from their machinery and processes in order to optimize its performance. Generally, customers show predisposition to share data with Bühler over the internet in order to improve their productive processes (C18). Some of them, however, would have to study each case since some information about their processes is confidential and they would not be allowed to share it with any partner (IP 06, IP 07). IP 02, IP 04 and IP 08 agree that if they had access to this kind of services, customers would be more open to contracting new services and they would be willing to pay more accordingly with the provided advantages (C34).

Lastly, though, IP 07 and IP 10 show their disbelief in the feasibility of these types of services (C69). According to them, even though these services look very well on paper, plants are very complex and the service manufacturer would need to gather too much information in order to carry out an effective process optimization. According to these customers, plants are very complex and there are many factors influencing their yield an output, hindering a potential remote optimization of its processes.

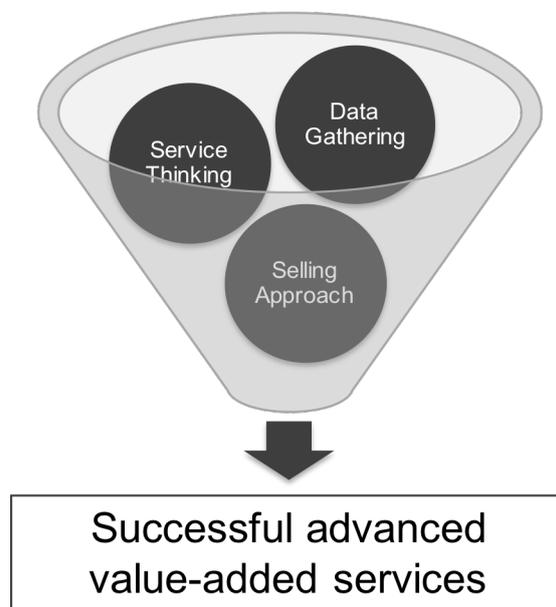


Figure 6 - Key requirements for successful service designing.
(Source: Compiled by Author)

7 Discussion

This thesis aims at investigating effective ways for a product-centered company to deliver successful product related services to its customers with the purpose of achieving the highest value extraction rates both for the manufacturer and the consumer.

7.1 PBC and services

Despite the initial reluctance of some of the salespeople interviewed in the pre-study found in chapter 4, the main study of this thesis shows how a correct approach can change the customer's mind and raise his interest for alternative payment methods and machine-related services.

When approaching PBC from the economic point of view, the customer immediately links PBC to another way of financing the product, focusing on comparisons with banking financing products and aiming his attention at concepts such as the interest rates and time periods. Moreover, the customer is lead to believe that the reason behind offering these alternative payment models is that the manufacturer is not confident enough in the machine's performance and that the machine and services fail to offer enough advantages by themselves. Therefore, according to the customer, the manufacturer would have to make up for that situation offering special payment conditions for its customers.

When approaching this concept in a different way, however, emphasizing on the performance guarantee which is directly linked with the PBC concept, the customer's reaction to this new payment model changes noticeably. There is evidence that, in comparison to traditional Time and Material contracts, PBC provides a positive and significant effect on product reliability, which is higher by 25-45% (Guajardo et al., 2012).

PBC is especially effective when dealing with machines that may have an uncertain performance, therefore being ideal for this particular case since TUBO is a new innovative system in an industry that has remained unchanged in the last 50 years. Additionally, any PBC strategy makes up for the lack of market references and success stories inevitably caused by the newness of the machine, this being a key decisive factor for customers when having to invest in new machinery for the first

time. In other words, when offered a PBC strategy with the right approach, the customer is very likely to acknowledge the advantage of being able to share risks with the manufacturer since the payment of the machine depends directly on its delivered performance. Furthermore, scholars agree that products with low marginal production costs are a special case of interest to use performance based pricing since the risk of losing money is lower as long as the firm can reach a minimum sales volume to recover all the necessary investments.

Bühler is a very strong brand and the studied companies, customers or not, have a particularly good image of this performance provider. This situation, while usually a strong advantage when selling machinery, turns out to be a handicap when trying to use performance based pricing models. The customer assumes that the manufacturer always deploys high quality products that deliver the expected performance. In addition, customers are aware that PBC involves an increased margin for the manufacturer and some are not willing to be locked-in with a service contract. Therefore, they are generally reluctant to pay additional money in exchange for the benefits offered by PBC strategies if any traditional strategy is at hand.

As stated throughout this thesis, PBC can be implemented when selling machinery and equipment but for the purpose of this study the author has conducted research on how to implement it in the sale of services and solutions. In contrast to the situation encountered while trying to introduce PBC while aiming at selling hardware, the customers' perception of the brand's services is remarkably different. Customers are only partially satisfied with the provided services and state that these can be vastly improved. The quality difference between the manufacturer's service and services offered by the competition is small, which creates an enabling scenario for incentivizing the service contracting using PBC.

Interviewed customers assert that innovative advantageous payment terms are not going to make any customer contract any kind of service if these fail to add value and to offer the expected quality. Customers mention the service cost and response time as the two main factors that push them towards working with local third party service providers albeit giving up on the OEM's higher quality. Furthermore, the manufacturer's current service portfolio consists of simple non value-added services that are either not attractive for the customers or very simple, which would lead local

competitors to offer the exact same services at a lower price and with a higher flexibility.

Yet, the main handicap when trying to sell product-related services relies on the fact that the machine which is the object of this study is considered by the customers to be a very simple machine, which means that its maintenance related activities can be carried out internally. In fact, the company's salespeople even use this as leverage when trying to sell the machine, which automatically restricts them from selling any kind of maintenance related service. The author sees the customers' general reluctance towards hiring these types of services in every interview, thus confirming that customers are not interested in outsourcing services that they can carry out themselves.

Literature and interviewees emphasize the need of more advanced, value-added services that generate tangible advantages for the customers and the complexity of which prevents third party service providers from offering them. Because service transition is a general trend in the industry, more and more companies are offering services, consequently leading toward an incipient service commoditization. In order to benefit from this situation, manufacturers must achieve differentiation through the offering of advanced services that signify an important competitive advantage over the competition.

The changes in service offerings have a relevant impact on customers as well. The investment needed to contract new advanced and complex services is hard to justify without a performance guarantee. Thus, manufacturers make up for the lack of field experience by implementing PBC with their services in order to raise the customers' PI and WTP. Additionally, and as a proof of trust in the manufacturers' own products, scholars and interviewees suggest that services can be offered free of charge for a determined period of time in order to convince customers. Lastly, since the customer has to get involved in the development of a PBP strategy by providing the manufacturer with the KPI that he wants to have measured as performance references, the PBC strategy may become the buyer's own purchase marketing instrument.

Inherently, the development of this kind of services involves a big change in the relationships between the customer and the manufacturer as well as major

organizational challenges that have to be confronted by the service seller which will be dealt with in chapter 7.4.

7.2 Go-to-Market Strategies

The desired output of this master's thesis is to find the service-based go-to-market strategies that will allow the manufacturer to maximize the extracted value from this new technology by creating lock-in effects that generate long-term relationships between the supplier and its customers. Three provisional strategies were initially mentioned in chapter 4.2 of the Pre-Study, and the author considers that after interviewing customers, the provisional strategies fulfill the study's requirements and can therefore remain unchanged. Nevertheless, it is important to have the customers' feedback in mind when designing the Go-To-Market strategies.

Strategy 1

As some customers expressed during the interviews, there are different kinds of customers and the manufacturer must have more than one strategy in order to satisfy their needs. The manufacturing industry has been traditionally very conservative, which means that there are customers who will not show any interest in PBC or any kind of services and who will only purchase the product if offered with strategy 1. However, these would not be the only group of customers that would require the first strategy to keep being available.

Logically, PBC is based on the delivery of a certain performance. It is relatively easy to measure the performance gap when performing retrofitting services in a plant, but it is more difficult when one has no reference to compare it with. Moreover, it is possible that the machine which the customer is replacing presents similar characteristics to the new one, thus providing negligible advantage. In these situations, one alternative is to offer the traditional cost-plus strategy (Strategy 1) to the customer. However, aiming at a long term relationship with the customer, the manufacturer has the possibility of offering a guaranteed performance service, linked to the original customizable service package described in chapter 4.2.1. The offering of these types of services opens the door to performance based pricing strategies except for the fact that the lack of performance gap will significantly reduce the margin and therefore increase the risk for the manufacturer. In other words, there is a

possibility of selling the machine using the traditional strategy together with a performance based priced service.

When presented to PBC strategies, customers focus on the fact that they might have to pay larger amounts of money for the machine and the services instead of focusing in the potential cost reduction or revenue increase. This leads to customers preferring scenario 1M over the performance based strategies 2 and 3. Yet, the customers' position changes when they are presented with a scenario where strategy 1 is not available anymore. In this new scenario, customers cannot compare the value priced to the "cost-plus" priced amount which enables them to focus on the value extraction potential of PBC strategies rather than only on the costs.

A few interviewed customers mention their good financial situation or their easy access to money as a reason for being uninterested in PBC strategies. Far from meaning that these customers will never access to study the viability of PBC, some of these customers have the largest value extraction potential from the sample since the modernization of the plants and machinery is handled as a top priority by the management, which inevitably makes them more inclined towards acquiring new machines and raises their interest towards value-added services.

Strategy 2

The fact that we are dealing with a new technology enables the author to highlight the benefits from PBC to the customer. When approached correctly, some customers show a great interest towards scenario 2M and others express their willingness to study it, which is understandable since their interest in the strategy would depend on the total of the fees that they would have to pay.

After understanding the PBC concept, customers appreciate that it is a model that aims at maximizing the benefit for both customer and manufacturer, therefore reducing the customer's risk of being overcharged and raising the client's fairness perception. Hence, the author can confirm that the strategy succeeds in raising the customers' willingness to pay.

As stated in chapter 7.1, when trying to include the aforementioned service package in the equation, customers generally show reluctance. The machine is

considered to be very simple and it does not create the need to outsource its maintenance, which is generally linked to higher costs.

Moreover, the customers' purchase intention drops substantially when discussing the option of only offering both products and services together (2P), confirming Allan & Yellen's (1976) theory that states that mixed bundling is the best option when bundling products. Nevertheless, customers acknowledge that they would still study the acquisition of a performance based solution if it still provides enough cost savings of revenue increases.

Strategy 3

The customers' feedback about strategy 3 is a magnified version of the one received for strategy 2. The advantages of PBC are more evident since the customer does not have to cope with any initial investments before becoming familiarized with the machine, thus generally raising the PI of the customers.

However, customers express their concerns about the price of this last scenario (3M), since some of them would not be willing to pay an additional amount of money for strategy 3 and would rather choose strategy 2. The main reason behind it is the same that pushed customers to reject strategy 2 in favor of strategy 1: they consider that a company with such a strong brand will always deliver high quality products that will meet the promised performance and therefore the risk transference towards the manufacturer is not seen as a key advantage. Though, there are receptive customers who would be willing to pay slightly higher prices for strategy 3. They believe that an adequately priced strategy 3 would pave the way for the purchase of new machinery by giving customers the possibility of testing the machine before having to make major investments. Customers who are interested in this strategy propose its extension to other machinery provided by the same manufacturer.

When presenting a price bundling scenario (3P) where customers would not have the possibility of acquiring uniquely the product, clients assert discontentment which logically leads to a decrease in their purchase intention, similarly to the situation with scenario 2P.

Regarding the customers' general feedback for all strategies, it is important to underscore that no information regarding price has been shared with them, which may have led to increase the uncertainty of the interviewees' replies.

Go-to-market strategy

Facing a scenario of almost complete lack of field experience which is related to a lack of information about the machine's behavior, the go-to-market strategy has to focus on enlarging the customer's base aiming at gathering large amounts of field experience and information about the machine with the goal of being able to offer efficient and effective services that meet the specific customers' needs. The machine is the first one of its kind penetrating the market and there are not any competitors in a position of offering the same product yet, which is a very big advantage for the manufacturer since it does not yet have to cope with a commoditized product yet.

Ideally, the manufacturer should first approach customers with existing plants where there is a large performance gap between old and new machines in order to ensure a high margin and to reduce the risk. Making sure that the customer keeps part of the economic benefits, the manufacturer should then try to bundle the machine with the service while being conservative with the guaranteed performance parameters in order to reduce the risk also on the service side. Following these steps, the manufacturer will not only enlarge its customer base but will also learn from the machine's performance and service details in order to offer more efficient services, reducing uncertainty and service deployment costs and enabling future customers to benefit from more adequately priced solutions.

Ultimately, the gathered information will enable the manufacturer to improve the machine and deliver more advanced and complex services. There is clear customer feedback that their WTP and PI for services would increase significantly if the manufacturer would offer advanced services linked with PBC.

When conducting this study, two advanced service proposals have been offered to the customers: predictive maintenance and remote process optimization. Both services are knowledge intensive and require a high degree of collaboration between manufacturer and customer, presenting organizational challenges that will be dealt with in chapter 7.3. The customer's predisposition to collaborate with the manufacturer in order to facilitate the deployment of these services was almost total:

every customer agreed on sharing data about their machinery and their processes to a certain extent with the goal of raising their machine's maintenance efficiency and improving their production processes.

Some customers go one step further and state that manufacturers need to offer turnkey solutions with a high integration level. If the manufacturer provided complex machinery equipped with sensors and with proprietary plant control software, together with a portfolio of adequate maintenance services, all wrapped up in performance based contracting, the customer would not be left with any choice but to depend on the manufacturer for any kind of activity while enjoying the performance guarantee and low risk inherent in PBC.

Different customers, different strategies

As stated before, the heterogeneity of the customer base makes it impossible to choose only one strategy. Every business unit has different characteristics and even different customers in the same business unit may have different needs, which means that the seller will have to analyze every case individually. Therefore, the author divides the customer base into two main groups of customers according to the financial risk they represent to the performance provider.

High Risk Customers are those who will not be able measure the performance gap after purchasing TUBO and one of its related services, either because this gap does not exist or because it is very hard to measure. For example, the author includes customers who are installing a new plant and do not have any reference from which to measure any performance gap and customers whose replaced old machines delivered a similar performance to the new machine. In this case, PBC cannot be applied based on the customer's economic results, as determined in chapter 4.2. Manufacturers will have to select a pay-on-availability approach based on the availability of the machine and completely independent from the machine's use, as explained in chapter 3.5. This way, the manufacturer can still offer a service to the customer -guaranteed availability- based on a KPI that is easy to measure.

In this group we can also find the very high risk customers, formed by customers who are not eligible for any kind of PBC variant, either because their location impossibilitates the successful deployment of any kind of service, because the manufacturer has reasons to believe that the customer could damage or misuse

the machinery and take advantage of the offered services or because the customer is not in a good financial situation. These customers involve a very high risk and can therefore only be offered the traditional payment model from strategy 1 explained in chapter 4.2.2.

Low Risk Customers are those who do not belong to the aforementioned customer group and therefore present ideal characteristics that enable the manufacturer to offer innovative services and payment methods. For example, well known existing customers interested in retrofitting a line with a new product, which will result in an easily measurable performance gap; customers who are located close to the company's service stations which allows the performance provider to reduce the response time or trustable customers who, even though they are building a new plant and no performance gap can be measured, are interested in contracting the manufacturer's services since PBC offers them the extra confidence they were seeking. Even though strategies 2 and 3 can be offered to this kind of customer, the manufacturer must not forget to keep treating each customer as an individual case by negotiating every detail of the performance based contract such as the election of monitored KPI, the duration of the contract and the features of the service package.

7.3 Scientific implications

As a first contribution, this thesis concludes that customers' purchase intention for solution based strategies increases along with the complexity and the level of integration of the offered service. Through customer interviews, the author confirms that the customers' level of interest in acquiring services increases rapidly when the complexity of the service disqualifies its own crew from carrying it out themselves, reaching its peak when they are presented with scenarios where advanced machinery requires the help of complex services in order to achieve large yield increases. Telser (1979) stated that the chance of pure pricing strategies of being successful increased when two products have a high complementarity, and this study shows its validity when talking about goods and services too. Moreover, customers are reluctant to acquire solutions that include simple services, thus providing empirical evidence of Adams & Yellen's (1976) theory which states that customers prefer having the possibility of purchasing unbundled goods and services.

Secondly, digitalization of plants immediately raises the customers' interest in contracting new services. Opresnik & Taisch (2015) suggest a link between using knowledge advanced products and services and a higher customers' PI. This study brings empirical evidence that the current technological environment, which surrounds us with all kind of interconnected devices, customers are aware of the benefits of equipping machinery with sensors, which would potentially allow remote services to be carried out. This is also proof of the significant impact that the customers' understanding about the offered services has on their purchase intention and willingness to pay.

Thirdly, the author's findings confirm that companies need to undertake internal changes in order to succeed in offering complex value-added services. Ulaga & Loveland (2003) mention the need of establishing a new sales approach, which is supported by Kindström et al. (2015) who conduct exploratory research on the changes that need to be made at the sales level when aiming at successful service deployment. This study brings empirical evidence that customers are ready to engage in closer relationships with manufacturers. At the same time these customers are looking for manufacturers that have the adequate infrastructure to offer advanced services.

Fourthly, agreeing with Shapiro (2002), Hypko et al. (2010) and Andrews et al. (2010), this study shows the impact that a correct strategy approach has on the customers' first impression. When focusing only on its value creation potential, as hypothesized by Hünenberg & Hüttmann (2003), customers show a higher PI and WTP and are willing to study new PBC related innovative sales strategies. Nevertheless, when the company's salesperson focuses on economical details, customers fail to see the big picture and are not receptive enough when being introduced to the potential advantages of the strategy.

7.4 Managerial implications

Taking the studied company as a reference for the manufacturing industry, we find that even though the company is clearly aiming towards expanding and improving its service portfolio, managers need to face challenges which currently hinder the successful deployment of services with a high value extraction potential.

Currently services are considered to be an added complement to the product but they need to be seen as an integral part of the product from the very early stages of its design. When developed together, the synergy between product and services will raise the customers' purchase intention of solutions (Ulaga & Reinartz, 2011). Thinking of offering a solution rather than only a product from the very beginning enables the manufacturer to no longer base the development of a new machine on its retail price, but focus on raising the quality and durability of the product in order to reduce the service deployment costs while offering a more reliable and attractive product to its customers. This would lead to a big increase in service sales as well as to larger margins.

As mentioned in the literature review (chapter 3), the sales approach needs to undergo important changes when transitioning towards offering services. Advanced services are very knowledge intensive, which means that there needs to be a lot of data gathering carried out by the manufacturer (Opresnik & Taisch, 2015). Most of this data gathering can be performed automatically with sensors but it is crucial that the manufacturer's sales force invests more time and resources observing and understanding the customers' processes in order to identify potential needs by adopting a problem solving approach. Given that today's plants are very complex, internal collaboration may be necessary as well in order to form a cross-functional team that can carry out these tasks more efficiently. The sales team will have to focus their attention on making sure that the customer understands the offered services and their inherent advantages, focusing always on the value and not on the product. Additionally, a more frequent interaction between manufacturer and customer will reinforce their relationship.

An outdated product-sale-oriented incentive system hinders the sale of services (Kindström, Kowalkovski, & Alejandro, 2015). Salespeople tend to focus only on selling the product since it reports them an immediate reward and the company receives a large amount of money in the short term. Moreover, services are viewed as low capital intensive products instead of acknowledging that the repeatability of the fees over the years may have more value extraction potential than the sale of the product itself.

Scholars mention the importance of involving senior management in the negotiation processes of advanced services (Ulaga & Loveland, 2013). In this study we confirm that the customers' interest in new service strategies, as well as in alternative payment methods is proportional to the interviewee's position in the company's hierarchy.

Literature agrees that an increase in customer base and service offering comes at a predictable cost: the manufacturer needs to invest in a highly specialized work force that can meet the increasing demand of services. Likewise, some customers have stated that the brand already struggles coping with the current demand, thus hindering a fast service delivery and therefore discouraging customers to contract new services.

Until these challenges have been overcome and companies reach a position where they can offer advanced services that can be sold integrated with their products, manufacturers must be cautious when offering solutions to their customers since it could have a negative effect on their purchase intention. Therefore, it is best to study each case individually to see if the current services can offer large enough performance increases for every customer before being bundled together with products. A mixed bundling approach shows to be the optimal way of testing both products and services in order to gather field experience and move towards high quality, effective and efficient solutions.

7.4.1 Future actions

The natural continuation of a qualitative study is to complement it with a quantitative study that will provide much more reliable data. If the company was interested in getting feedback from a broader customer base, it could use its customer data base to conduct a large scale survey in order to identify the customers' preferences with more precision. Moreover, if this large scale survey were to be conducted once Bühler had more information about the machine that it is now introducing in the market, the customers' answers could be more precise and exact data regarding willingness to pay and purchase intention could be obtained. Naturally, without the geographical limitations of this research paper, feedback of customers located in other regions could be gathered in order to design a global service strategy that could be deployed later on in the life of the product.

As stated in the results and discussion chapters, customers' responsiveness to integrated service solutions is very positive. Bühler should orientate future market research towards finding the best strategies for introducing integrated solution offerings in its different business units. There is a great value extraction potential for the manufacturer that would motivate the board to look into this subject, which would also become a major competitive advantage and great differentiation tool.

7.5 Research limitations

The main research limitations of this research thesis are the known downsides of choosing to carry out qualitative research. A foundation for future research has been made available but the interviewed sample is not large enough for it to be statistically representative in order to test hypothesis. Furthermore, the main limitation resides on focusing on only one company, since obtained results may vary substantially when performing a similar study in other companies with different characteristics, even if both were to belong in the same industry. Geographical limitations are to be underscored as well, since only customers in Switzerland and Spain have been interviewed. These two groups of customers are meant to represent the two main cultures found in Europe, but the study ignores other regions that represent a big percentage of the company's sales such as Asia, Africa and America.

7.6 Propositions for future research

This study provides empirical evidence of customers willing to pay larger amounts of money when offered advanced services but it does not carry out a more detailed quantitative study that researches the relation between the price of the service and the effective increase in the purchase intention and willingness to pay. Large scale surveys could be used for providing more precise information on the exact rates of increase in order to find the optimal prize for a maintenance related service in the manufacturing industry.

One of the main challenges caused by the creation of complex solutions linked with the introduction of price models such as performance based contracting is the adaptation of the sales teams (Ulaga & Loveland, 2013). This process cannot be ignored since the right sales approach is key for the success of the new business model (Shapiro, 2002). Since the relationship between seller and customer will become closer, it is advisable for both manufacturers and buyers to define the most

convenient strategy that will enable both parties to maximize efficiency in their relations. Scholars could therefore carry out research in order to identify the most effective communication channels and techniques that would ease the data gathering, leading to a faster and more efficient service deployment.

Another challenge that emerges from the results section is the management of an efficient maintenance network that enables the manufacturer to offer its service to the largest possible number of customers. Research on how to improve its performance in terms of response time and availability of spare parts seems key in order to gain customers' confidence and to boost its service sales.

8 Conclusions

Goods markets' saturation has pushed traditional manufacturing companies towards offering services as a means of differentiation from the competition. Nevertheless, such an important change involves very significant challenges for the companies that engage in this so called service transition.

With help of an extensive literature review on the subjects of services, bundling, service transition and performance based contracting, together with a pre-study consisting of internal interviews with sales people from different business areas of the same company, the author defines a proposal for a customizable service package and three different go-to-market strategies that will be the foundation of the main study of this thesis. These performance-based strategies are on both sides as well as at the center of the product-service continuum, therefore aiming at providing the customer with a broader portfolio of different innovative strategies.

The next step of the thesis has been a qualitative content analysis of ten interviews carried out to a group of different customers in three different countries. Following Mayring's (2000) procedure, the author determines a strong correlation between the results of the literature review, the internal interviews and the qualitative content analysis. As stated by Shapiro (2002), the author finds evidence that the use of PBC leads to a greater sense of fairness for both the customer and the manufacturer. As stated by Hypko et al. (2010) and Hünenberg & Hüttmann (2003), this work gathers empirical evidence that there is a relationship between the customers' WTP and PI and the solution's level of integration and complexity. However, as the internal interviews suggested, and as confirmed by the customers, the manufacturer is not yet ready for offering value-added services that manage to attract the customers' interest.

The inputs of the interviewees have been key in the process of determining which one of the three proposed strategies would be the one that showed the largest value extraction potential for both customer and manufacturer. Nevertheless, customers' heterogeneity does not allow the author to make such choice. However, the author gives guidelines in order to use different strategies when dealing with specific types of customers.

The proposed service package, very similar to other service packages currently offered in this industry, failed to be attractive enough to the customers for them to be willing to purchase integrated solutions. In other words, even though clients showed a significant interest in purchasing the product and on innovative pricing models like PBC, they were reluctant to acquire services that they could carry out themselves with their own personnel, confirming that Telser (1979) also applies to bundles between products and services. This should motivate manufacturers to develop more advanced services that result more attractive for their customers.

Lastly, customers express their concerns about manufacturers being able to present important technological breakthroughs in terms of integrated solutions and are also skeptical about manufacturers being able to cope with an increased demand for services, expressing their wishes about the manufacturer first achieving excellence in offering simple services before moving towards the developing of more advanced offerings as asserted by Ulaga & Reinartz (2011). In order to better navigate the service transition, manufacturers have to undertake major changes in their sales and R&D processes, which will empower them to design and deploy attractive, more complex services.

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Appendix

A Questionnaire

Introduction

- Brief introduction of myself: Name, Studies, reason for carrying out the thesis in Switzerland, info about thesis, etc. -> OPENING UP
- Please, state your full name, company, and describe your position in this company.

Warm up questions

- What is the relationship of your company with Bühler?
- Is there any innovation that you wish Bühler could offer?
- How do you carry out the maintenance of the plant?
- Could you tell me about the kinds of conveyors that you are working with?

Body questions

- **Presentation of the Strategy 0**
- What are the main advantages and disadvantages of this scenario?
- State a price for this machine that you would consider “fair”.
- State a price for this service that you would consider “fair”.
- Evaluate your interest purchasing in the machine. (PI)
- Evaluate your interest purchasing in the service. (PI)
- Evaluate this pricing strategy.
- Would you consider paying a variable number depending on the benefits it brings to your plant?

- **Presentation of the Strategy 1**
- What are the main advantages and disadvantages of this scenario?
- State a price for this solution that you would consider “fair”.
- Given a yield increase of 100 monetary units per year, what percentage on the yield would you be willing to pay for this solution? (WTP)
- Evaluate your interest purchasing in the machine. (PI)
- Evaluate your interest in purchasing the service. (PI)
- Evaluate your interest in purchasing the solution. (PI)
- Evaluate this pricing strategy based on PBC.
- Would you be willing to pay more if the risk on your side decreased? (WTP)

- **Presentation of the Strategy 2**
- What are the main advantages and disadvantages of this scenario?
- State a price for this solution that you would consider “fair”.
- Given a yield increase of 100 monetary units per year, what percentage on the yield would you be willing to pay for this solution? (WTP)

- Evaluate your interest purchasing in the machine. (PI)
- Evaluate your interest in purchasing the service. (PI)
- Evaluate your interest in purchasing the solution. (PI)
- Evaluate this pricing strategy based on PBC.
- Would the possibility of bypassing the internal process for asking for investment money result advantageous?
- Would you be willing to pay proportionally higher annual fees than with strategy 1 in order to have these advantages? How much?

General questions

- What is your opinion on the service package?
- Were you familiar with the term “predictive maintenance”?
- After going through all the scenarios, would you change any of the grades?
- Which scenario would you choose, if given the possibility?
- When planning a new plant, is a bundled maintenance service solution more convenient than a sum of individual services?
- Would you agree to share production data with your equipment manufacturer if that would lead to an optimized process and increased yield.

Final questions

- How do you see the future of the productive processes?
- Has your vision changed in any way after this interview? How?
- What is your opinion on sharing information about your plant’s processes with your equipment supplier in order to optimize your productive process?
Smart-plants

Appendix - TUBO

- Describe TUBO more in detail
- Which of the features of TUBO do you find the most interesting?
- Would you change the “fair” price stated before or any other answers?

B Qualitative Content Analysis's Categories

Current customer-manufacturer relationship (control measures)

- C1: Bühler is the manufacturer of all the customer's products.
- C28: The customer has full trust in Bühler as a brand.
- C48: The customer is willing to pay more money for Bühler equipment
- C2: Bühler releases products that are still in testing phase.
- C15: The customer outsources most of its maintenance.
- C19: The customer does not outsource general maintenance activities.
- C70: The customer uses Bühler's maintenance management software.
- C20: The customer contracts non-maintenance related services.
- C35: The customer has had a good experience with Bühler provided services.
- C21: The customer relies on third party providers for spare parts.
- C36: Third party providers offer immediate services.
- C46: Third party service providers have locked-in Bühler customers.
- C54: Third party provider parts' quality is much lower than Bühler's.
- C25: The customer would like more information and training in order to carry out the maintenance of its machines.

Strategy 1

- C17: Strategy 1 is the customer's preferred one.
- C4: Strategy 1 is good and convenient for finished products.

Strategy 2

- C50: The customer thinks that Strategy 2 is like a leasing contract.
- C55: The customer is not willing to pay additional money for strategy 2.
- C56: Strategy 2 would be very attractive if strategy 1 was not available.
- C67: Strategy 2 is interesting in a context where the customer is not familiarized with the machine.

Strategy 3

- C40: Strategy 3 is interesting to the customer since it allows him to test the machine before making a full investment.
- C42: Removing the initial investment would be an advantage.
- C59: The customer would be willing to pay more for strategy 3.
- C13: Strategy 3 would be the best if it did not involve a cost increase.
- C14: The inclusion of the machine's cost in the maintenance budget would not be an advantage.
- C53: Strategy 3 is too risky and it is unlikely that Bühler will implement it.

Performance Based Contracting Strategies

- C27: PBC is an attractive pricing model for the customer.
- C8: PBC is very similar to financing the product.
- C10: Financing the product in a bank could be cheaper than using a PBC model.
- C5: The customer is not willing to pay additional money for any new strategy.

C60: The customer has enough money and does not need to finance new machinery.

C11: The customer would only be interested in the PBC model if the service would offer real tangible advantages.

C29: By offering alternative payment methods, Bühler gives the impression of being uncertain regarding the performance that can be delivered by the machine.

C30: The customer would study PBC strategies only if strategy 1 was not available.

C51: The customer is uncertain as to how the PBC advantages would be measured.

C52: The customer voices his concern that measurements could be manipulated.

C38: Offering PBC based services requires previous field experience.

C33: Strategies 2 and 3 are equally attractive for the customer.

C41: The customer is willing to pay additional money for strategies 2 and 3.

C61: Payment terms are not enough to win a project. The quality of the service has to be good as well.

C72: Risk transference is acknowledged as a benefit for the customer.

C32: Risk is not a decisive factor for the customer.

C9: There is not enough information available for the customer to evaluate the services or strategies.

Product

C39: Success stories are key for raising the customers' interest in products and services.

C37: A fair price for the machine would be the same price than the substituted machine.

C16: The customer states that such a simple machine does not require a service.

C49: The conveyor is a mere accessory in the customer's production line and therefore should not get an individual service contract.

Services

C3: A quick response time is the most important decisive factor for the customer to contract a service.

C31: Pure bundled products are less attractive than independent products and services.

C44: Adequately priced integrated solutions combined with PBC would raise the customers' interest in contracting services.

C24: The customer is reluctant to sign high priced service contracts that create dependence from the manufacturer.

C26: The customer would be interested in the services if the price was adequate.

C22: The customer is aware of the lock-in effects of this kind of services.

C63: Reliability is a key decisive factor when contracting Bühler's services.

C43: The customer thinks that Bühler's service should be of a higher quality.

C65: Bühler needs more specialists that perform complex duties.

C64: The customer would like customized services to improve the efficiency.

C45: The offering of turnkey solutions would lead to an increased willingness to outsource maintenance to the manufacturer.

C47: The business resides in creating a long lasting business relationship.

C68: An integrated service contract would not be detailed enough for meeting the needs of a complex plant.

C12: The customer requires a warranty that is independent from any service contract.

C62: The customer would like Bühler to improve the spare parts management.

C66: The customer would like to make the maintenance more efficient.

Predictive maintenance

C58: The customer is very interested in predictive maintenance.

C23: The customer carries out preemptive maintenance.

C57: Success stories would be key for the customer to believe in predictive maintenance.

C6: The customer does not believe that maintenance is not feasible in the short term.

C7: The customer believes that predictive maintenance would not be effective with this product.

Remote advanced services and sensor related technologies

C59: The customer is very interested in sensor related technology

C18: The customer is willing to share production data over the internet.

C34: The customers' interest in contracting services would grow with more advanced services.

C69: The customer is uncertain about the feasibility of remote process optimization.

Digital Appendix

C Interview Audio Files

The audio files of the 10 conducted interviews are located in the folder *Interviews' Audio Files* in the enclosed memory stick *Master's Thesis Monserrate*.

D Qualitative Content Analysis

The Qualitative Content Analysis of the 10 conducted interviews are located in the folder *QCA* in the enclosed memory stick *Master's Thesis Monserrate*.



Declaration of originality

The signed declaration of originality is a component of every semester paper, Bachelor’s thesis, Master’s thesis and any other degree paper undertaken during the course of studies, including the respective electronic versions.

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