Master's Thesis

Industrial Service Innovation in Upper Austrian companies - methods and techniques

Master’s Thesis
to attain the academic degree of
Master of Science (MSc)
in the Master Program General Management

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Linz, June 2015
Sworn Declaration
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Stieber Florian, June 2015
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Industrial Service Innovations are nowadays an important factor for becoming and staying competitive in the industrial sector and Upper Austria, as a well-known and strong industrial region in Austria, has to concentrate on this development as well. Client’s firms are demanding highly elaborated services which can ease the process of purchasing, using, understanding or disposing the tangible goods and service innovation processes in order to convince the customer firms with highly professional services are vital for manufacturing enterprises. The decisive points to find in the course of this master thesis were the most important determinants for successful industrial service innovations with respect to the relevant trends in Upper Austria. A literature research on various service innovation models which were containing the different success factors was the basic precondition before surveying experts in the industrial service field about their opinion regarding the most essential determinants facing the relevant trends. The most important facts after the profound secondary research and qualitative expert interviews are in general that a customer analysis, customer integration, service culture, employee empowerment, service clarity and a service system can be perceived as the most relevant determinants for successful industrial service innovation processes. The integration of customers was mentioned by all of the experts when choosing the most important success factors and the customer analysis together with the service culture were perceived crucial as well when rating the determinants. This fact displays, that service innovations should be closely linked to the customer needs and wants which makes this process rather complex since the customer firms’ preferences need to be understood and analyzed in detail, transformed into actual services with the support of potential clients and in the end integrated in the culture of a firm in order to make the innovations marketable for a wide customer base. In contrast to tangible goods, the success of such innovations is therefore not that dependent on financial, technical or economic advantages, but on the detection and realization of the customer firms’ requirements. The clarity of the offered innovations, the empowerment of frontline employees in order to get first hand client’s information and a service culture embedding a service
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...system for efficient innovation processes are then the subsequent and basic points for future successful industrial service innovations.
1. INTRODUCTION

“A silent revolution is taking place within the manufacturing industry – an increasing proportion of sales volumes and profit margins are being generated by services”.\(^1\)

The term “industrial services” has become popular in the last decades and the companies with an industrial focus in the worldwide economic system are constantly putting effort into the development of services. Especially the manufacturing companies have changed their point of view and these kinds of businesses are integrating more and more service offerings into their product portfolio. The fact that the customer requirements and demands have become very challenging and individual and that the products are constantly moving towards customization and commoditization forces the companies to modify their strategy. The simple sale of products is not enough and the adaptation of service offerings should strengthen the position in the competitive environment.\(^2\)

This evolution has in general led to the “servitization of business” which explains the innovative and tighter cooperation between firms and customers and the offering of market packages that consist not only of goods but also of an individual treatment and support.\(^3\)

This kind of development in the industry also leads to the fact that the product is often not the most important center of attention anymore in the various business strategies as the individual service strategies are nowadays often of prime importance.

The difficult aspects regarding this shift of the strategic focus are then the managerial tasks as the management areas have to alter their fields of expertise and capabilities. The producing firms in the industrial sector have had their strengths in the field of manufacturing and building up products and the integration of services changes the corporate culture and orientation.\(^4\)

This challenge can then also lead to a business strategy that consists of two logistics alignments where one part of the company dedicates itself to the service provision whereas the other departments still focus on the manufacturing area. The transition from products to services has therefore to be managed carefully.\(^5\)

However when the shift towards industrial services is completed or in progress the competitive advantage in a certain sector can be promising. Major companies and

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\(^1\) Gremyr/Löfberg/Witell (2010), p. 161
\(^2\) cf. Kindström/Kowalkowski (2009), p. 156
\(^3\) cf. Vandermerwe/Rada (1988), p. 1
\(^5\) cf. Gebauer et al. (2005), p. 14
multi-corporate enterprises are continuously outsourcing certain tasks as for example maintenance work, logistics, finance, repair or the firms in the industrial sector demand as a matter of fact already well-developed turnkey solutions and so the companies cannot neglect the implementation of industrial services.\(^6\) The following paper will therefore now deal with different models, key determinants and trends that influence successful future industrial service innovations.

1.1 Problem Definition

Upper Austria is one of the most powerful industry regions in Austria and even Europe in general and it is the aim of this sector to further strengthen the position and secure the high income levels. This is realized among other things via industrial service innovation in order to be one of the top industry centers in the upcoming years. Especially in these times of economic downturns the services can provide extra benefits for a company since they affect the cash flows and influence the revenue streams positively.\(^7\)

One of the aims for the future is the adoption of international research and development innovations in the Upper Austrian industry and service innovations in the industrial service sector can play a crucial role in this process.\(^8\)

The implementation and integration of industrial services in the product portfolio of manufacturing companies is widely accepted and in progress for many years now. The chairman of Daimler AG and head of Mercedes Benz, Dieter Zetsche, has announced in an interview already in 1999 that the brand of a producing company needs to be strengthened and pushed with the use of service offerings. The pure product is not enough anymore and the enterprises need to offer the customer also an excellent service portfolio as this kind of proposition is of big importance.\(^9\)

The challenge and problem for the companies which are focusing more and more on services is that this is a complex target. The management levels have to deal with a set of different activities and the success of service innovations depends on systematic and effective management capabilities.

\(^{6}\) cf. Kowalkowski et al. (2009), p. 42
\(^{7}\) cf. Eggert/Hogreve/Ulaga/Muenkhoff (2011), p. 661
\(^{9}\) cf. Beyer (2006), p. 10ff
The firms which are offering services nowadays are therefore challenged by different consumer wants and needs, globalization, innovative and complex technology developments and a dense network of competing companies.\textsuperscript{10}

In order to overcome these complex hurdles and requirements the following master thesis will provide the reader with information regarding successful industrial service innovations.

1.2 \textbf{OBJECTIVE OF THESIS}

The main aim of the following master thesis is to present the reader an overview about the most relevant key determinants that affect the success of an industrial service innovation and additionally which of these are targeting the trends for the future industrial service landscape. All of these listed key determinants are part of various service innovation models by different authors which are also presented in the conceptual part.

Subsequent to these chapters a general guidance will be derived from the conceptual and empirical findings which should present the reader a compact view about the main factors for successful industrial service innovations in Upper Austria.

As it is stated in the problem definition the service innovation process is rather complicated and influenced by a lot of external factors and in order to illustrate an understandable image of this whole process the conceptual part will deal with the listing of different industrial service innovation models as well as service innovation models in general. Several authors have dedicated their work in the last few years to the development of such models and the master thesis will highlight the recent and most important ones as it is essential to know the different approaches with their similarities. Additionally the determinants that influence the success of the individual service innovation models will be searched and analyzed as there are a number of success factors that affect the efficient development of service innovations.

All these models and determinants are as a consequence exposed to external factors that influence and determine the functioning and success of service innovation processes. To be more specific these external forces are trends which form the future industrial service landscape and they are in an interdependent relationship with these

\textsuperscript{10} cf. Ottenbacher/Harrington (2010), p. 1
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success factors. In order to gather the most relevant trends and external factors that affect the service innovation models, some scientific papers which deal with this topic will be read and analyzed in order to provide the reader with a comprehensive structure.

After these service innovation models with influencing determinants are listed and opposed to the most important industrial service landscape trends the empirical part should direct the focus to the Upper Austrian industry as experts in this field will be asked about their opinion concerning the importance of the various key determinants. The research question which should be answered via conceptual and empirical findings is therefore the following:

What are the main determinants with respect to the relevant trends for successful industrial service innovation in Upper Austria?

After the experts have stated in the interviews which determinants are important and why they are targeting the relevant trends, the master thesis will provide the reader with a comprising framework guideline that integrates the most important key success factors for service innovations.

1.3 Course of action

This chapter should now shortly explain how the master thesis will be structured and how the different chapters will lead to the answer of the research question. First of all the term “industrial services” is explained and defined in order to provide the reader with information about this industry sector. Hereby different definitions are gathered and the different classifications but also characteristics of industrial services are listed.

After this first introducing chapter the transition process of an organization towards industrial services is presented. This is essential as the concentration and focus on the industrial service innovation process can only be realized when a company integrates the service orientation into the firm’s strategy, structure and climate. The core chapter in the conceptual part will then as a next step highlight different service innovation methods from the literature. These listed models will show the reader various steps that are necessary when a firm wants to design, apply and
implement (industrial) service innovations. In addition to these models the most relevant key determinants which influence the success of the service innovation models are illustrated as these success factors need to be respected when it comes to service innovation processes.

As a last step in the conceptual part some trends of different authors are gathered which influence and affect the industrial service landscape in the future and therefore innovation efforts in this direction.

The empirical part will then be built on the findings of the conceptual part as the thesis will present in the beginning of the empirical chapters a matrix that opposes the most important key determinants for successful industrial service innovations with the most relevant and influencing trends for future industrial service innovations. The deduction of the most important factors for this matrix will be shown in detail.

The main aim of the matrix is to have a compact view on the factors and to have a basic guideline for the expert interviews. These interviews will be realized with insiders of industrial services in Upper Austria and the interview partners will be asked questions in two different steps. First of all the gathered essential key determinants are shown to the experts via informative cards and they should then state which of them are the most supportive and essential ones for industrial service innovation processes. In a second step the most influential trends are read out and the interviewees have to answer why the previously mentioned most important key determinants for service innovations could be so significant and vital for targeting the trends.

After all the interviews are conducted the information from the contact persons will be integrated into the matrix and the reader will be provided with the basic framework that highlights the most essential factors for industrial service innovation methods. The research question should now then be answered successfully.

### 2. DEFINITION OF INDUSTRIAL SERVICES

The first chapter in the conceptual part will deal with a definition of industrial services. As the master thesis is about industrial service innovation and the research question is focusing on key determinants of successful industrial service innovation processes it is essential to provide the reader with an understanding of the basic characteristics of such industrial services. Therefore some specifics of these services are mentioned
before stating various definitions of industrial services which are gathered from different scientific papers.

2.1 CHARACTERISTICS OF INDUSTRIAL SERVICES

“Industrial services are services which are provided by an industrial goods manufacturer in addition to a producer tangible good and for the purpose of boosting its sales. They can also be offered separately to a manufacturer’s good but the service offer is closely linked to the core output.”¹¹ This is the deciding fact about industrial services and to further define them they can either make the use of products possible and happen in the first place or increase the benefit and usability of a product as a further step.¹²

A term which is more and more used in this context is the concept of system selling or product-service bundles. This means that customers are buying specific packages of services and products that contribute to the resolving of industrial consumer problems.¹³

“Furthermore industrial services can be offered by pure service companies but the sales market has to be the industrial sector and the service needs to be linked to the production, marketing or usage of industrial goods.”¹⁴

The industrial services in general can then be further classified into various characteristics as there are on the one hand investment-related and on the other hand consumption-related industrial services. The first type explains that the purchasing party is a company which uses the service as a further production unit. The consumption related industrial service is characteristic for companies that use the service as an end consumer for themselves.

The literature is then also describing industrial services or services in general with two basic characteristic features:

Immateriality:
Services which are part of larger processes or activities cannot be quantified and

¹¹ Möller/Schultze (2014), p. 58
¹⁴ Möller/Schultze (2014), p. 8
evaluated like tangible goods. This fact requires the companies to apply different methods to evaluate the productivity and measure the success of a service method. Furthermore the purchasing party is also not able to assess the service like a durable good which leads to the fact that consumers of services are relying on details like the perceived competency of the providing company’s employees or the appearance in certain media platforms. The consumers become more sensitive for soft facts and this makes it challenging for companies in the industrial service sector.

An aspect which also needs to be mentioned is that services are not storable. The offer and consumption of a service are occurring at the same time which forces companies to prepare professionally as mistakes and failures cannot be corrected in advance.

The sales market also needs to be measured carefully as an increased demand cannot be satisfied by stored products like in the goods market. The service offer is realized by employees and they need to adapt to demand fluctuations and market changes.\(^\text{15}\)

**Integrative characteristic:**

The purchaser of an industrial service is not just the end consumer but he is also acting as a co-creator in the service provision process. This means that the demand for a certain service triggers the co-production process as the customers are influencing the service via information inputs, resources and collaboration.

The tight cooperation in this service development process leads to the fact that the customers get detailed insights into the quality of such service provisions. The integration of end consumers is therefore a challenging and complex matter that needs to be handled with care.

It needs to be mentioned that the immateriality and integrative characteristic of such services is valid for services in general but these two basic important characteristics describe the challenging initial starting point for future industrial service innovations.\(^\text{16}\)

\(^\text{15}\) cf. Möller/Schultze (2014), p. 59
\(^\text{16}\) cf. ibid, p. 60
2.2 **DIFFERENT CLASSIFICATIONS OF INDUSTRIAL SERVICES**

The following subchapter will provide the reader of this thesis with various definitions and characterizations of industrial services from recent years by different authors. After reading through the different descriptions it will become clear that industrial services can occur in different forms. Some authors are stating that industrial services are closely linked to hardware products whereas others mention that industrial services can also be offered independently.

The following master thesis will just mention the term “industrial service” in the following chapters about industrial service innovation which includes both the product-service bundles but also the independently offered service packages.

The first definition which is presented was found in a paper by Oliva/Kallenberg from 2003:

\[
\begin{align*}
\text{Services do not have to be linked and combined with products. Industrial services can constitute all different kinds of services that support the functionality of a customer’s process.} \\
\text{Furthermore the company which is providing the service does not have to be a product manufacturer. All sorts of companies as for example end-users’ maintenance units, components producers or independent service provision firms can constitute industrial service providers.} \\
\text{The customers which are consuming the service in the end do not have to be industrial firms. Customer relation services are also part of an industrial service portfolio.}^{17}
\end{align*}
\]

The second characterization stems from 2005:

\[
\begin{align*}
\text{Industrial services are in general investment-related services which are consumed by external customers. These services are characterized by its hardware relatedness and the industrial service offering has to be accompanied by the basic tangible core product of the company.}^{18}
\end{align*}
\]

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18 cf. Busse (2005), p. 25
The next definition of industrial services is the following and it is different to the previous one as it is again not focusing on the tight product relatedness:

*Industrial services are characterized by a high degree of immateriality and an integrative character.*

*Additionally they are offered by an industrial goods producer or an external service provider either for processes within the consuming company or an end consumer but always with the purpose of an investment-related usage.*

*The relatedness to hardware products depends and the service can be linked closely or also more or less independently to the core industrial good.*\(^1^\)

This definition from Malleret is focusing on the value for the customers:

*The industrial services are offered in addition to a tangible product and the focus hereby is on the increased value for the customer and the improved use of the product.*\(^2^\)

The last definition that is given is mentioned in a paper from 2009:

*Industrial services are offered by companies or organizations for the further process of performance provisions. They are not connected solely to end consumer purposes and the main characteristic of such industrial services is its immateriality.*

*They can also be offered in combination with industrial goods or isolated.*\(^3^\)

## 2.3 Dimensions of Service Offerings

As a complementary part in the chapter about the definition of industrial services the four main dimensions of industrial services or product-service bundles in the industry are mentioned. This is essential to explain because the basic dimensions of such a service offering influence later on possible industrial service innovations and therefore the reader gets to know the four elements:

**Potential dimension:**

When a company wants to focus on product-service bundles the preconditions have to match the aim of the firm. This means that the infrastructure and facility of a

\(^{1}\) cf. Engelhardt/Reckenfelderbäumer (2006), p. 225
\(^{3}\) cf. Niederauer (2009), p. 29
company have to be adapted to the industrial service offering as the smooth procedure of service offers has to be guaranteed.\textsuperscript{22}

**Process dimension:**
This dimension is very important in the case of industrial service offerings as the demanding and providing parties of a transaction have to work together closely in order to adapt the offering to the customer’s preferences. The more individual certain processes are the more essential is a well-coordinated process of a service development.\textsuperscript{23}

**Result dimension:**
Customers value the process of a service offering but also the long lasting result out of these services. The challenge hereby is that industrial service providing firms need to focus on some kind of standardization in order to generate economies of scale and to offer a clear service portfolio. The purchasing firms however require efficient individual adaptations of a service offering and this is difficult to manage with the standardization approach.

**Market dimension:**
Industrial service providers need to have a clear image of the potential sales market and potential buyers. The service offerings are much more dependent on individual wants and the use of simulations and prototypes can support a company in matching the buyers' preferences.\textsuperscript{24}

### 2.4 Categorization of Industrial Services

This next chapter deals with the different possible characteristics of industrial services and the categorization of these various services is a crucial part. Modern industrial companies are increasing the share of industrial services and as written before the success of a company depends not only on a well-structured product portfolio but also on various services. This “servitization” challenge is forcing the companies more and more to shift into the service market and this requires the management of an organization to adapt to a structured service categorization model which has various advantages:

\textsuperscript{22} cf. Becker/Beverungen/Knackstedt (2009), p. 45
\textsuperscript{23} cf. Bullinger/Schreiner (2006), p. 59f
\textsuperscript{24} cf. ibid, p. 60ff
A well-structured service categorization model is supporting a company to define a clear terminology through the whole firm as it is important to coordinate the product oriented and service providing units in an organization towards a clearly defined service classification.

The model can present an understandable image of all the industrial services which are offered by different units. These units may be interdependent and work together closely but various services may be not popular. This model can support a better understanding of the various industrial services.

A well-elaborated service categorization can build the basis for future service innovations as there evolve new ideas or perceptions when having the services visible.

The communicated service categorization is able to align different departments towards a common goal and the coordination between marketing, sales and customer contacts can be improved.

Furthermore a clear structure of the services is supporting a detailed competitor analysis as the firms know where to look for benchmarks for example and the growth of a firm’s profitability or sales can be promoted.\textsuperscript{25}

The difficulty hereby is to develop such a classification that allows an analysis, communication and comparison of the offered services and the following chapter will provide the reader with a theory-based but also management oriented framework that categorizes different types of industrial services. This is important as it is crucial to have an overview about the different industrial services before dealing with service innovations in this field.

This model now is based on empirical findings of some European industrial companies and various service categorization schemes.

The offered services were included in the different categorization models and the following new service categorization model (Table 1) did evolve:

\textsuperscript{25} cf. Lehtonen/Kostama (2014), p. 8f
Customer Interface Services | Improvement services
--- | ---
Information availability services | Research and development services
Administrative services | Knowledge based services
Financing services | Technical enhancement services
Sales services | Optimization services

Operative services
- Basic operative lifecycle services for the installed base
- End of product lifecycle services
- Supply management and warehousing
- Maintenance services

Network services
- Project based customer supplier network services
- Long-term relationship based supplier network services
- Integrator focused supplier network services
- Platform-based network services

Table 1: Categorization of industrial services

**Customer Interface Services:**
These types of industrial services are normally happening in the phase before an actual sale happens or during the sale’s phase. Normally this kind of service is not directly bound to an industrial good as it is more accompanying the process of bringing the good to the market.

Furthermore these types of services are normally free as the customers are using these services as supportive benefits but for this reason the level of individual adaptations is rather low.

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The first subcategory which presents the information availability services is mostly represented by a firm's webpage where general information is displayed. Ordering systems or help-providing features are additionally found in this category and these types of customer support are therefore not directly seen as cash generating units but they are crucial as they provide potential competitive advantages and indirect sales.

The second subcategory which is represented by the administrative services is also characterized by a rather low level of individualization whereas the financing services are the most customized type of industrial service in this classification. The different financing possibilities are closely linked to the tangible products of a manufacturing firm and the customers can receive individually financed product-service bundles which can constitute strong competitive advantages. This is reasonable as special warranties and insurances can persuade potential customers if a product is affordable or not.

The sales services as a last point in this dimension are then again more standardized and usually free of charge as they just provide clients with additional information or more insurance levels.\(^{27}\)

**Operative services:**

These special types of industrial services are different to the first category as they can contain a tangible part and are closely linked to the tangible industrial goods which are offered to the clients.

The operative services have the general aim to provide the clients with products which are functioning over the period of usage and this means that services which guarantee the lifecycle of a bought product have to be executed.

The first subcategory which is the basic operative lifecycle service is embodied in manuals, installation services, repair services, inspections or spare part deliveries. These types of offerings can be free of charge as the customer expects the well-functioning of the products.

The end of product lifecycle services are then one important part of the whole lifecycle. There are certain firms which are focusing its efforts totally on this part of the industry when it comes to recycling, picking up old and used products or cleaning.

\(^{27}\) cf. Lehtonen/Kostama (2014), p. 23
The supply management and logistics services as the third subcategory represent a type of industrial service that aims at a long term focus. The providing firm is here not only offering the product but also the storage and transportation as well as the planning of the whole tangible portfolio.

The maintenance services as a last point are then focusing on the repair offerings which can happen either preventively, spontaneously or through continuously performed remote services which are supervising the correct functioning of a product.

**Improvement services:**

The improvement services are focusing as the name says on the optimization, development and improvement of offered industrial services. These types of services are an essential part of the service portfolio as the company needs to have detailed information concerning the clients’ products and processes. Without proper knowledge about the customers’ business, an optimization won’t be successful. The application of these services normally happens in advance of a sale of a certain service or after a tangible product is sold. Especially the pre sales phase can be important as specific research and development actions for improved services can guarantee improved industrial services and are sometimes the base for successful industrial service innovations. The first subcategory is therefore a service-part that cannot be neglected.

The knowledge based services aim at a special training or consulting of a customer concerning certain tangible assets. The service providing firm can influence the improved usage of such products via such trainings and this becomes more and more important.\(^{28}\)

The technical enhancement services as the third subgroup can then be seen as the traditional improvement actions as the engineering and development departments constantly work on new technical features that allows the customers to work with certain tools more efficiently.

The optimization services as a last point in this category can support a client with improved and optimized energy usages, process times or waste amounts. These parts are just little mosaics of a complex and big system but can result in competitive advantages.\(^ {29}\)

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\(^{29}\) cf. ibid, p. 24f
Network services:
The last category of the new industrial service classification is the network dimension of such services.
These services include amongst others the whole handling of projects, outsourcing strategies or platforms that bring customers and suppliers together to work on a certain task. Furthermore the duration of such network provisions can fluctuate and the provided service infrastructure can be based on a project or on a long-term contract over years.
Besides a manufacturing company can also start an integration into other manufacturers process to start a pure supplier network as the industrial services are not bound to final end products which has been mentioned already in chapter 2.2 where classifications of industrial services where explained.\(^\text{30}\)

2.5 Importance of industrial services in Austria

The following chapter should show how the actual industrial service landscape looks like and some statistics should prove the existing relevance of product-service packages and innovations towards this direction in Austria.
A study from 2009 was investigating the importance and structure of service-product packages in Austria and 309 companies were taking part for gathering results.
Figure 1 will present the range of industrial services which are accompanying tangible goods in the different industrial sectors.

\(^{30}\text{ cf. Lehtonen/Kostama (2014), p. 28f}\)
Figure 1: Distribution of industrial services

On the bottom of Figure 1 the 8 different industrial branches are mentioned which were analyzed during the study. The Y axis presents the percentage of businesses which are having industrial services included in their portfolio and which are offering services for accompanying the products.

It is evident that the last bar which describes the industry of machine and car manufacturers is highly influenced by services. 94 percent of the companies in this branch are integrating industrial services in their portfolio and 82% out of these 94% are representing 4 to 8 different product accompanying services.

The first bar of this graph however shows an industrial sector which is not that dependent on services. The industry of food, beverages and semiluxury food is characterized by only 50% of companies which are offering product-service packages. Furthermore only a small percentage of companies out of these 50 percent part are integrating 4 to 8 service offerings.

This graph generally highlights that industrial services are widespread in the various industries and that the importance of such services in the portfolio cannot be neglected.

Figure 2 depicts how the opinion towards innovations and services looks like in Austria. The question to the companies was how important several factors are in their regard with respect to standing out against the competition. The x axis represents the success factors for competing against the businesses in the branch and the y axis shows the percentage of companies which were rating these determinants as important or very important.

Services are with respect to this study from 2009 still not a very relevant factor for realizing a competitive advantage against the other businesses. Only 14% of the responding producing companies in Austria are rating services as a competitive factor as very important or important. Innovative products however are rated with twice as much percentage points which reflects that the core view is probably still on the tangible products. This is also supported by the fact that 75% of the companies are valuing product quality as a very important or important factor for generating success.

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A graph which is now presented however shows that the orientation towards service innovations in the industrial sector can be promising. As it is stated in the previous chapters the importance of services is growing and service innovations are an inherent part for competing with other industrial businesses. The results of the study from 2009 by the Austrian Institute of Technology highlight the effect of innovations on turnover developments.

The x axis represents the status of the innovation orientation which is represented by a non-innovator, product innovator and service/product innovator. The y axis shows the development of the turnover in percentage between 2005 and 2008.

**Figure 3: Effect of innovations on turnover**

Figure 3 demonstrates that the innovation orientation towards products is not sufficient in modern times and in such a complex surrounding in the industrial sector. The turnover of companies which were focusing on product and also service innovations was increasing more than twice as much than the one of the pure product innovators. A 56 percent rise is an impressive number emphasizing the relevance of industrial service innovations in Austria.

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A short look on a study by the Upper Austrian Federal Economic Chamber from 2013 should complete this chapter by having an outlook on the future relevance of product-service packages in the industrial sector.

It becomes evident when analyzing Figure 4 that the importance of such product-service holistic packages becomes highly essential in the future.

![Figure 4: Relevance of product-service solutions](image)

When including the size of the companies and the perceived relevance of such service packages the importance of this development is further supported (Figure 5). The GU (big companies), MU (middle sized companies) and KU (small companies) all ascribe increasing value to product-service solutions.

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34 cf. Fragner (2013), p. 74
Industrial Service Innovation in Upper Austrian companies

3. TRANSITION FROM GOODS TO SERVICES WITH FOCUS ON SERVICE INNOVATION

The following chapter will show how a company is developing on an organizational level in order to become a service providing company where service innovations can be performed and where the importance of services is further developed.

The first subchapter will therefore deal with the steps of the organizational transformation towards a product and service provider. Afterwards the benefits and structure of an industrial service offering firm which works with additional strategic service partners in order to fulfill all the customer wants is explained.

In the end of this chapter the main aims and orientations of a new service provider with the focus of service innovation are mentioned before the reader gets to know in the end how an organizational climate should look like that supports service innovation processes.

The orientation towards services and a resulting increased profitability is the impetus for such a transition and a study from 2009 has dealt with this topic and could prove the connection:

![Figure 5: Link between size of company and service relevance](image)

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35 cf. Fragner (2013), p. 74
As can be seen in Figure 6 a transition towards a service orientated business can be promising and if a company is able to integrate factors for supporting such an orientation like articulating the new service offerings, visualizing the intangible developments or integrating the customers it can succeed.\textsuperscript{37}

The following chapters will explain the transition process in detail.

3.1 \textbf{Organizational Steps of Becoming an Industrial Service Provider}

The industrial service landscape has developed in the past decades as it is stated in the introduction chapter. The services are not just an additional requisite or effort but a source of competitive advantage as products are most often directly bundled with well-elaborated services. Figure 7 roughly indicates this development.

\textsuperscript{36} cf. Gebauer (2009), p. 92
\textsuperscript{37} cf. Kindström (2010), p. 483
This understanding of industrial services and its growing importance in the organizational portfolio has caused a change in organizational thinking and the adaptations to this challenge are reported below.

When a company decides to integrate a well-structured and broad portfolio of industrial services into its offerings it normally passes through four organizational development stages. The service providing units are becoming more and more independent and visible as the industrial service offers are not just seen as an attached competency anymore but as a core unit for generating profits. This organizational development towards a service focus is the basis for future successful industrial service innovations.

1) Fragmented service function
The manufacturing companies have concentrated their efforts in the past on selling its tangible products and fulfilling the customer needs with high quality goods. The services were mainly linked to after sales customer services which should subsequently secure the functioning of the product.

The development and sale of certain service offerings is integrated into different departments without having an own area of responsibility and this leads to the fact

\[38\text{ cf. Meier/Uhlmann (2012), p. 4}\]
that customers but also employees do not know how to find contact persons concerning services.

One advantage of this organizational form is that the product and service units are linked together closely as there is no clear separation between industrial service departments and tangible product related departments and managers refuse to change this easier form of coordination. However the benefits of well-elaborated industrial services for competitive advantages remain unexploited.\footnote{cf. Geissbauer/Griesmeier/Feldmann/Toepert (2012), p. 129f}

\section*{2) Consolidated service function}

When a company is realizing the importance and impact of industrial services it will install an independent area for services which is led by its own executive board. This board has competencies over the whole industrial service portfolio, the realization of the service offerings and the management of the services including the handling of the service logistics, the administrative parts, the customer services or the calculation of spare parts installations.

This service business unit should also integrate its own controlling system and the own individual income statement for this special unit to highlight its independency and importance.

One complex challenge of such a new consolidated industrial service function is the new type of communication and coordination. The industrial service department has to manage the structural organizational linkages with the product management departments, sales departments and development departments. An essential task hereby is also the close integration of service providing units into the market introduction phase of new products as the service offerings have to be well-informed in order to guarantee a professional customer service.

The disadvantage of such a consolidated industrial service unit is still its inflexibility and minor importance in relation to the product departments. The consolidated service department is most often reporting to the product development department or sales department and the active sale of new industrial services is hindered by the dominance of product departments’ concessions.\footnote{cf. ibid, p. 131ff}
3) **Equitable service function**

This organization development stage is the further progression of the consolidated unit as it integrating for example its own budget management to work on an industrial service portfolio. The competencies also include the human resource management to hire people for successful industrial service management goals and the product departments are also now strictly separated from the service providing units. The service employees are part of product development processes to provide detailed information concerning new consumer insights and the service and product departments are represented through account teams. What is more is that this equitable service function can now take over full service packages for customers and the industrial service offering is not bound to a tangible product anymore.\(^{42}\)

4) **Independent service function**

As soon as a company is offering its industrial service portfolio to other companies without bundling it directly to the sold products it can be seen as an independent service function. The connection to its product departments is realized through holdings in some cases and the service offerings can be directed at the realization of whole customer processes.\(^{43}\)

3.2 **Strategic industrial service networks**

After a company has decided and accomplished to become an industrial service provider it is essential to have a portfolio that fulfills a wide range and complex composition of services to satisfy customer needs. This can sometimes only be realized via strategic collaborations and networks with other service partners who are complementing certain deficits of the company with their core competencies. The benefits can be the following:\(^{44}\)

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\(^{43}\) cf. Ibid, p. 137

\(^{44}\) cf. Ibid, p. 153
• Strategic service partners can support an industrial service provider by offering and adding specific services that the offering company is not capable of providing or where the economic efficiency is not promising enough when developing it on its own

• Service partners can cover demand peaks during major projects where staff of the industrial service provider can be implemented otherwise

• When an industrial service provider is offering its portfolio worldwide a service partner can take over operations in B or C regions which complements the offerings’ firm services for customers

• Together with an industrial service partner a service package can be offered for competitor’s equipment and goods and the realization of upstream or downstream functions is realized even if the core product is not from the own installed base

• A partner can connect an industrial service firm via cooperation potentially with its own customer base which can increase the turnover or profitability by adding more future clients

Figure 8 illustrates the benefits of such a service partner network diamond.
3.3 AIMS OF COMPANIES CONCENTRATING ON INDUSTRIAL SERVICE INNOVATIONS

When a company is focusing its efforts not only on its manufactured goods but also on industrial services it is the major aim to fulfill customer needs more efficiently and to increase its competitive position by winning the customers’ loyalty through the adaptation to customers’ wishes. This can be done successfully when concentrating on certain service innovation processes and this chapter will lead the reader now to the main three goals of service innovations in the industrial service industry.

1) Customers get more jobs done

When service innovations evolve a customer can potentially get more jobs done as there may exist solutions for problems that haven’t been identified. An organization has a lot of duties and jobs in order to compete nowadays on the economic landscape and each firm has its own levels of expertise or branches. When a firm is shifting its focus from providing customers’ businesses with tangible

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**Figure 8: Service partner benefits**

[Image of the figure showing service partner benefits]

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45 Geissbauer/Griesmeier/Feldmann/Toepert (2012), p. 153f
products to additional industrial services then a service providing company has to analyze which jobs a customer wants to have accomplished or get done. When having a detailed look at a customer’s firm projects or processes an industrial service provider may develop new solutions for these problems and these discoveries can form the base for industrial service innovations.

There are certain questions that can be asked when trying to identify new service possibilities and customers may then realize that there are service innovations that can help before, during or after specific products are transformed. Examples would be:

- What are you trying to accomplish in this certain process of the production or in this specific time period?
- What are your specific aims within this strategy?
- What problems are you trying to circumvent or are there any areas of the project/product where obstacles can evolve?
- Is there an optimal solution that could help you in your business plans?

When an industrial service provider is working together closely with customers’ businesses and when such questions can be asked new solutions to unknown difficulties can result in more jobs that a client gets done.

2) Customers get a focal job done better

When a company is providing certain clients’ firms with industrial services or products it covers a range of jobs. However when an industrial service provider is focusing on a service innovation, he needs to concentrate on a specific focal job that can be done better. This means that one core part of a process can be realized more effectively, cheaper, faster, reliably or comfortably for the client. The reason why the focus is put on the focal job is that the main aim of a client’s company is already supported with certain tangible products and additive services but there is a constant pressure to improve the service offer to make the core capabilities more effectively.

The way how such service innovations for focal jobs are discovered is to map all the different jobs of the customer that are supported already with services or products.

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47 cf. ibid, p. 278f
Afterwards it is analyzed what resources are needed to fulfill these job requirements, the goals and steps of the jobs are defined, the specific inputs are weighted and adjustments are tested. This is done with each job in order to see where focal jobs exist and how they can be improved via service innovations. After such a focal core job is detected the company will ask specific questions to the client’s firm in order to know which criteria the customers are using to determine the successful execution of the job. This means that the industrial service provider needs to know which steps of the job are important in the eye of the client and how they are rated.

Questions for finding out such criteria could be:

- What makes the steps of this focal job time-consuming or too slow-paced? Are there any parts of this job that influence the efficacy or convenience?
- Are there any features during the realization of the job that cause obstacles or problems? What are the reasons for disrupting the effective process?
- What could be the reason for an unwanted result and is there a clear definition of an optimal result that is preferred in order to define the discrepancy?

When finding out the value criteria of a core job through asking these questions, solutions can be developed through the process of industrial service innovations.  

3) Customers get jobs done which are related to product usage or consumption

An industrial service providing company can of course not only concentrate on the focal jobs of a client’s company but it needs also to support a client during its consumption chain jobs. The customers’ business is dependent on the use of tangible products in order to keep the organization running. This use of such products can be linked to difficulties as there may occur problems during the consumption of such products and the total value of such products is not exploited and therefore wasted as a consequence.

The normal process of such jobs related to product usage is the following:

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The company has to define in the beginning which specific product should be bought. After that the firm has to buy and install the new product in order to have it integrated in the business’ supply chain. The difficulty hereby is then to learn how the product is used in the most efficient way and how it can be handled in order to get the optimum out of it. Besides the complex products which are used in the industrial sector have to be serviced, enhanced and after a while disposed correctly.

At each step of this process industrial service innovations can improve the customer’s process and the aim of such service providers is to detect the right part of the process where innovations should be performed.

The questions for detecting possible spots for service innovations should be asked to the employees who are instructed to the consumption chain jobs. They are the best contact persons in order to analyze gaps for a more efficient product consumption. After the product usage chain is analyzed successfully and a step is improved it can lead to a more cost efficient maintenance interval for example as the firm is now avoiding unnecessary servicing actions and this leads in total to an improved firm performance.\(^{49}\)

3.4 ORGANIZATIONAL CHARACTERISTICS SUPPORTING SERVICE INNOVATIONS

The last subchapter here deals with the preconditions and climates which should exist in organizational structures in order to support the development of service innovation processes.

It is important to include this chapter as the process of industrial service innovations has to be supported by a specific organization climate and when companies are too narrow-minded or non-supportive for new ways then the success of such service innovations is inhibited from the beginning on.

Businesses which are able to develop innovations are supporting climates in the organization which favor innovation processes. This means that such businesses are able to acknowledge and deploy innovations. Furthermore they are having more ideas regarding innovation projects and as a consequence they are in the position to develop marketable products or services out of these ideas.

It is important to state that the organizational climate cannot be put on a level with the organizational culture as the climate deals more with the actual sharing and

happening of values or norms and the perception of these basic rules by the employees.

The culture on the other hand deals more with the question why such norms and values are grounded in a business structure and describes the shared amount of specific values and norms.\(^{50}\)

The following table shows the densification of some innovation supportive dimensions which were gathered from 4 different instruments which are measuring innovation fostering climates. These 4 instruments are\(^{51}\):

- **SOQ**: The Situational Outlook Questionnaire is measuring the climate for creativity and innovation and it is in total investigating 9 climate dimensions.
- **KEYS**: Assessing the Climate for Creativity – an instrument that also puts the focus on measuring the climate for creativity in organizations which mainly influences the first phase of an innovation process.
- **INNO**: A German interview guideline for detecting innovation climates in firms. It is based on the center of excellence approach.
- **TKI**: The team climate inventory instrument is concentrating on the work atmosphere and is measuring innovation climates on a team basis.

After the six dimensions are listed in Table 2 they are explained more in detail in order to show what is meant by each of them.

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\(^{50}\) cf. Carell/Herrmann/Kleinbeck (2007), p. 101
\(^{51}\) cf. ibid, 103ff
### 4 climate measuring instruments

<table>
<thead>
<tr>
<th>Climate Dimensions</th>
<th>SOQ (Ekvall 1996)</th>
<th>KEYS (Amabile et. al 1996)</th>
<th>TKI (Brodbeck 2000)</th>
<th>INNO (Kauffeld et. al 2000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Support</td>
<td>Support for Innovations / Security</td>
<td>Encouragement / sufficient resources</td>
<td>Support and time for ideas</td>
<td>Activating leadership</td>
</tr>
<tr>
<td>2. Challenge, Commitment and Integration</td>
<td>Encouragement and Engagement</td>
<td>Challenging work</td>
<td>Vision and focus on duties</td>
<td>Continuous reflection</td>
</tr>
<tr>
<td>3. Exchange of knowledge and ideas</td>
<td>Support for ideas, trust and discussions</td>
<td>Encouragement</td>
<td>Participative security</td>
<td>Professional documentation and continuous reflection</td>
</tr>
<tr>
<td>4. Scope of actions and decisions</td>
<td>Time and openness for ideas</td>
<td>Autonomy</td>
<td>Participative Security</td>
<td>X</td>
</tr>
<tr>
<td>5. Openness</td>
<td>Risk-taking propensity</td>
<td>Encouragement</td>
<td>Security</td>
<td>Consistent implementation</td>
</tr>
<tr>
<td>6. Conflicts (obstructive)</td>
<td>Conflicts</td>
<td>Organizational conflicts</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Table 2: Climate dimensions⁵²

The six climate dimensions which are influencing the service innovation process are the following. It needs to be mentioned additionally that these dimensions are influenced by an inner and outer surface as the relationship between frontline employees with clients' employees but also the relationship between frontline employees and the co-workers of the same company are essential for the climate.

**1) Support**
When ideas concerning innovations are brought up by clients as they know where improvements can be realized it is essential that the frontline employees support

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these external ideas and value them. Furthermore the clients should be informed continuously how the ideas are incorporated or handled by the providing company as the customers need to have the feeling that their inputs are taken seriously. Regarding the inner relationship between frontline employees and the management levels it is crucial that the ideas of the customer-service staff are valued with feedback. When top levels of a company are disregarding frontline employees’ ideas the motivation and willingness to bring in ideas will decrease which will influence the flow of ideas and inputs of ideas.

(2) Challenge/Commitment and Integration
The organizational climate concerning innovation processes is positively influenced when the frontline employees and clients’ staff have the feeling that they are working together on the solution of a certain problem. These involved parties have to be assured that their input is relevant and substantial for the progress of a project. The collaboration of frontline employees with internal and external co-workers is on top of this strengthened when there is a certain pressure of time and costs. They should have the feeling that there is a specific limit and timeframe for the project. However, when the time and predefined expenses are too scarce a creative and expedient workflow is hindered.\(^{53}\)

(3) Scope of actions and decisions
When the room for maneuver and exchange of ideas is set too narrow then the development of innovations is hindered. The process of idea generations and increase of knowledge has to be incorporated into the business plan and there has to be a broad acceptance for creative processes. The definition of the scope of actions is therefore an essential task for management levels.

(4) Idea and knowledge transfer / Openness
The frontline employees and clients’ employees have to be willing for open conversations and intensive requests as this can form the base for a trustful atmosphere that allows innovation developments. The further advantage of such a positive environment that favors an organizational culture towards innovation is that

the conversations and discussions are not just about the transactional elements of an actual customer-client relationship but also about additional features that can improve or positively affect the business relation. This kind of atmosphere needs to be installed also between the frontline employees of the service providing firm as they can support each other in the gathering of solutions or ideas.

(5) Conflicts
This kind of dimension is seen as impeding for innovation supporting climates in an organization. A tense atmosphere and confrontational attitude of customers and frontline employees can lead to conflicts and as a consequence the main focus is put on the rebuilding of a positive work relationship instead of gathering ideas and inputs.  

4. SERVICE INNOVATION MODELS AND KEY DETERMINANTS

This chapter number 4 will present the core of this master thesis as it is presenting the reader the different service innovation models for developing service innovations in companies which are extracted from the literature, the key determinants which are affecting the success of the various service innovation processes and in the end the trends which are occurring in the industrial service sector. These theoretical inputs of chapter number 4 will later on be tested in the empirical part if they are also relevant for the Upper Austrian industry. The first subchapter will therefore highlight now the 9 models which were found in the literature about industrial service innovation processes.

4.1 MODELS AND CORRESPONDING KEY DETERMINANTS

The models which are presented now in the chapters below are mainly focusing on the process of a service innovation. Some models are directly focused on industrial service innovation whereas some other frameworks like the first one are directed at

service innovation in general in order to present the reader in the beginning a general understanding of the different steps of a service innovation process.

4.1.1 First Service Innovation Model

The first model that is shown in this proposal deals with a design thinking approach that puts the focus on the process of service innovation. 6 steps are describing the interdependent stages that have to be followed. This model was developed by the Stanford University and it is communicating scientists this economically viable and user friendly service innovation process. The steps are listed below before dealing with the main influencing determinants.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Understand</td>
</tr>
<tr>
<td>2</td>
<td>Observe</td>
</tr>
<tr>
<td>3</td>
<td>Define the perspective</td>
</tr>
<tr>
<td>4</td>
<td>Finding ideas</td>
</tr>
<tr>
<td>5</td>
<td>Develop prototypes</td>
</tr>
<tr>
<td>6</td>
<td>Testing</td>
</tr>
</tbody>
</table>

This approach is highly iterative and the focus hereby is on the continuous service innovation.

The specific characteristics of this model are that a situation is observed before a problem can occur and that the focus is always on the customers’ preferences as

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they form the base for the service innovation. Furthermore the integration of customers in the idea generation process can result in customer loyalty which includes advantages for both sides. Finally the competitors are also an important factor for service innovation as they can act as rivals but also as a source of inspiration.

After the first steps of this model are accomplished some prototypes can be developed.

A prototype has to fulfill some basic requirements in order to be able to test the outcome of a specific industrial service innovation.

First of all it has to contain the core and added benefits in order to present the clients a realistic version of the finished version. Furthermore it has to be complete as the total portfolio of a certain prototype service is also important for the employees to get accustomed to the new service offering.

The prototype also has to be appropriate for testing which means that it should not be too individualized for one special client because in this case a general guidance cannot be derived. What is more is that the prototype has to consist of some kind of possible varieties as the price or level of service quality.

The validity is then the last characteristic that should be existent as the prototypes need to test these details, that are later on crucial for the real version.\(^{57}\)

The four possible ways of testing an innovation via prototypes are described in Table 3.

<table>
<thead>
<tr>
<th>Client integration</th>
<th>Including clients</th>
<th>Without clients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Realization of the Service offering</td>
<td>Prototype 1</td>
<td>Prototype 3</td>
</tr>
<tr>
<td>Real</td>
<td>Testing the real service with an initial batch and selected customers. The best way of getting realistic results for the implementation.</td>
<td>This prototype does not involve customers and the main application of this prototype is connected to the testing of basic material for the final service</td>
</tr>
<tr>
<td>Simulation</td>
<td>Prototype 2</td>
<td>Prototype 4</td>
</tr>
<tr>
<td></td>
<td>Simulating the service with selected real customers. The offering is only explained and the future customer has to value the service offering. This is often used when individualized service innovations are developed.</td>
<td>Innovative services which consist of a higher grade of automatism are tested this way. Logistics firms are testing their process chains and calculate scenarios. The disadvantage is that the market success cannot be predicted as clients are not involved.</td>
</tr>
</tbody>
</table>

Table 3: Prototype testing

In the end of this first service innovation model the results will be evaluated and the test phase will again provide inputs for a new perspective definition that will influence again the idea finding process.

The first two phases here are therefore the most essential ones as the units who need to understand and observe the customer needs regarding services are challenged in being creative. The companies are sometimes supporting these
processes with interdisciplinary teams and special room modifications in order to support the most suited service innovation ideas.

The next pages will now show the main influencing determinants for success of this service innovation model that is mentioned in the book by Schweiger et al.\textsuperscript{58}

\begin{center}
\textbf{b. Main determinants}\textsuperscript{59}
\end{center}

The following determinants are key success factors that influence the performance of this first specific service innovation model and the success of the service innovation depends on the adaptation to these key requirements.

The listed factors are connected to fields of the customers, employees and the business itself.

- Customer focus and Service Mindset:
  The culture and focus of a business that wants to deal with service innovation has to dedicate its efforts to the desires of the customers and their loyalty. The clients are therefore taken into the process of service innovation or even co-creating the new service with the offering firm. This strategy requires a top management commitment in order to develop a common communication and vision that aims at customer's desires.

- Services as Products
  When working on service innovations it is crucial to integrate the classic product management, supply chain management and product development departments as the services need to be handled as products when bringing them to the market. The customers need to know the different service-levels, the different customized service offers and the price of the individual service offerings. The pricing is thereby one of the most important factors as service offerings that have been costless in the past can now be priced via value pricing and the customers but also the firm know exactly what a specific service can generate regarding costs or benefits.

- Documentation of the installed base

\textsuperscript{58} cf. Schweiger/Dressel/Pfeiffer (2011), p. 62
\textsuperscript{59} cf. ibid, p. 53
A firm which is working on service innovation needs to know in detail the capability of its installed base as it is of high value when a company knows what the customer preferences look like and that the offering of the firm can be adapted to the client’s habits. This only works with a broad database and understanding of the data that exists.\textsuperscript{60} The exact information regarding the competencies and resources is then affecting the decision making processes and dynamic growth and so this determinant needs to be treated carefully.\textsuperscript{61}

- **Serviceability**
  
  This determinant should secure that the whole process of a service offer can be optimized with respect to a comfortable handling and cost reductions. When a client is provided with a service that accompanies a good from the buying process until the end the different steps should be managed very efficiently.

  Some factors that support the serviceability are mentioned shortly:\textsuperscript{62}

  - Installing a Service mindset and vision in the whole company
  - Services should be integrated into product development processes at an early stage in order to highlight the importance of the service but also to adapt it to the product features
  - Standardized service requirements for products in order to improve them with matching services
  - Standardized platforms and remote controls
  - Documentation and analysis of the products with a service centric view
  - Ability of migration of the products
  - Consideration of the whole product lifecycle and its total costs of ownership

- **Management Commitment and Strategy**

  The top management levels have to accept the incorporation of high value service offerings and also need to communicate this to the employees. In a highly service oriented business the guiding principle can be linked to services to implement a service vision in the minds of the people.

\textsuperscript{60} cf. Schweiger/Dressel/Pfeiffer (2011), p. 53
\textsuperscript{61} cf. Froehle/Roth (2007), p. 174
\textsuperscript{62} cf. Schweiger/Dressel/Pfeiffer (2011), p. 55
In order to professionally show the service oriented management commitment it is crucial to make these competencies and strategies towards services visible for the whole firm.

- **Install a service system**
  The producing units are the employees when it comes to service offerings and the customer relationship management, product lifecycle management and supply chain management have to be adapted to the service portfolio. This means that these units have to be standardized in a way like in product dominant firms in order to reduce costs and increase efficiency. The offers however have to be slightly adapted to specific customer wishes as services cannot be standardized totally.\(^{63}\)

  One important part in this sector is also the acquisition and integration of advanced technology. When a firm is able to integrate the newest technological features it can not only benefit from elaborated services but also from newest market screening techniques or competitor analyses.\(^{64}\)

  It is also stated that successful innovative firms are mainly benefiting from advanced technologies when they are able to use them in a creative way as this means that it is a differentiating factor.\(^{65}\)

- **Service Key Performance Indicators**
  The non-financial performance indicators related to customer loyalty or satisfaction have to be analyzed continuously in order to operate efficiently.

- **Standardized Service Offering**
  Several modules of a complete service package can be standardized via central service provision units which make the whole process more efficiently and service partners could take over certain service offerings via franchising when the service is standardized.\(^{66}\)

\(^{63}\) cf. Schweiger/Dressel/Pfeiffer (2011), p. 53f
\(^{64}\) cf. Santamaria/Nieto/Miles (2011), p. 147
\(^{66}\) cf. Schweiger/Dressel/Pfeiffer (2011), p. 56f
➢ Transparency in the reporting systems
The detailed documentation of financial and non-financial indicators is providing the internal departments with information regarding optimization potential and the customers with exact details about the performed service.

➢ Focused selling units
The employees which are dealing with the customers and offer the service have to be capable of providing the suited service innovations and the coordination and training of these people is essential.\(^{67}\)

A study from 2010 was measuring the impact of knowledge and capabilities concerning new service developments on the sustainable competitive advantage of a firm. 385 service businesses in the UK were surveyed and the hypothesis could be confirmed that the task knowledge about service innovation impacts the competitive advantage.\(^{68}\)

➢ Service Incentives
The change towards a service provider has to include also the change of the reward or incentive system as the people contribute different levels of input regarding the final service.

4.1.2 Second Service Innovation Model

The next model that is presented in this proposal is called the Survival of the fittest model for Innovation processes. It is an advancement of the famous stage gate model by Cooper which is later on mentioned. The model here is the guideline for the innovation teams and the innovation master of a company who are involved in the process of a service innovation.

\(^{67}\) cf. Schweiger/Dressel/Pfeiffer (2011), p. 56f
\(^{68}\) cf. Storey/Kahn (2010), p. 8
This model illustrates that creative idea generations are also on the top of the process. Several methods are used in this phase to come up with ideas for service innovations as the 6-3-5 method, 9 window tool or morphological box where a problem needs to be defined, analyzed and decomposed in its elements and parameters. After that each element of the basic problem is analyzed for all the possible characteristics before the solutions of the element characteristics are documented. The best or most suited one should then be used as a basis for service innovation.\(^\text{70}\)

The Setup Playground as the second step is the most important one in this model as it defines the involved elements for the service innovation process. The company defines which and how many teams should be part of the process. The number and duration of the sprints is also documented before defining the value criteria. These determinants are normally elaborated between the customers, IT experts and the innovation master who has the control over the innovation process. The budget and personnel should not be too broad in order to secure the most innovative idea. The sprint as the third phase describes the development process of the service innovation which takes around 2-6 weeks. At the end of the sprint the innovation teams present their results and the innovation master and employees of different departments evaluate the several presentations.

\(^{69}\) cf. Schoeneberg (2014), p. 106
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The last step is the adaption phase and this step is characterized by the change and modification of the teams. In order to secure the survival of the best and fittest service innovations the innovation master can redistribute budgets and move team members.\textsuperscript{71}

\begin{tabular}{|l|}
\hline
\textbf{b. Main determinants}\textsuperscript{72} \\
\hline
\end{tabular}

- Internal capabilities
  The innovation master needs to be of high expertise as he is defining the most appropriate teams in the service innovation process.

- Innovation teams
  People are forming teams which work during a certain phase on a service innovation and present the results to a firm jury. The better the teams are functioning and put together the more promising the result. Cross functional teams are a valid method. As innovation teams are an essential part of an innovation development process some more features of such innovation teams are presented to the reader. As a first step the basic conditions for a successful collaboration of innovation teams are listed before the opportunities and prospects but also risks are mentioned which are associated with such teams.

\textsuperscript{71} cf. Schoeneberg (2014), p. 105
\textsuperscript{72} cf. ibid, p. 110
Basic conditions for successful innovation teams:73

| Team structure | • Team members should have a certain level of expertise in different areas and the social competence for a successful teamwork has to be sufficient  
• They should also prefer the work in teams but with a focus on reaching own goals  
• High level of self-discipline and motivation |
|---|---|
| Ambition and job description | • The aim of such an innovation team should be clear, within a certain timeframe, constant and mandatory for the whole team  
• The task should be challenging and also of a high level of importance as it is put lots of effort into the development of possible innovations |
| Leadership of the team | • The innovation team should have the competence to work on its task autonomously and with a certain freedom of choice because the teams should work creatively on a possible service innovation and with too strict guidelines the outcome would be influenced  
• Regular and construct feedback meetings should advance the performance  
• Each member of the group should actively influence the outcome of the decision-making |
| Organization | • Innovation focused behavior should be encouraged which means that mistakes and failures have to be accepted  
• Teams should be provided with training and development phases which are timely accurate  
• The organizational structure should be decentralized in order to secure the independency of team choices  
• Trustful environment and open conversations should benefit the group |

Opportunities for innovation teams:

- The gathering and collection of knowledge and ideas for the development of service innovations can be improved through the combination of different levels of expertise and competencies. As the teams are normally consisting of employees of different departments the creative processes are favored by the diversity of the backgrounds.

- Complex tasks can be solved more efficiently by integrating the different levels of expertise and know-how.

- Solutions and decisions which were found during the teamwork phases are accepted more easily as more people are involved and adapted to the individual inputs.

- The job satisfaction can be increased and stress may be decreased as group members can provide others with social support when certain tasks are too challenging or complex.

Risks for innovation teams:

- The creativity processes can be hindered when the group is focusing too much on the harmonization of the group interdependencies. Some critical disputes and discussions are positive for a satisfying outcome as there is a need of analyzing problems and opinions in detail.

- The groups can develop a certain level of protection and isolation when focusing on an innovation project. The risk hereby is that the minds are too narrow and supportive inputs from outside are neglected.

- Social requirements may overstretch some members of the group and the coordination of a positive work flow and environment can put a strain on the efficacy of an innovation team.
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- Conflicts within groups can be beneficial for a creative end result. However destructive disputes are not contributing to success.\textsuperscript{74}

\begin{itemize}
  \item Customer integration
\end{itemize}

The customers have to be willing to be part of a long process as the teams are taking some time during the sprints.

The setup playground phase where customers are collaborating with the different departments to define a certain service innovation range is also essential as the customers need to invest effort in this stage.

4.1.3 Third Service Innovation Model

The stage gate model developed by Cooper in 1990 is also mentioned in this thesis as it is an essential one and as written before it is a base for modern innovation processes like the survival of the fittest method.

a. Service Innovation Model 3 \textsuperscript{75}

\textbf{Figure 9: Five phase stage gate model}\textsuperscript{75}

The stage gate model consists of 5 phases and each of them is accompanied by a certain gate (Figure 9). The idea for a service innovation is the initial start for the whole process before the initial screen of certain non-financial criteria is acting as the first gate. The preliminary assessment will then analyze the potential via closer looks

\textsuperscript{74} cf. Carell/Herrmann/Kleinbeck (2007), p. 122
\textsuperscript{75} cf. Cooper (1990), p. 46
at the market size, market acceptance or market potential. An internal potential assessment is also carried out to see whether costs and time to market are acceptable.

The second gate named second screen will again proof the first analysis results and it will give green lights when it is okay. The second stage is then the last one before developing the service or product and a market analysis will provide inputs about customer wants and needs. A financial analysis is also made.

The next gate again proofs “must meet” and “should meet” criteria before starting the development.

The development and post development review will shed some light on the successful quality of the project or product and ensure the attractiveness of the innovation.

The validation is the proof of the service innovation via field trials, pilot productions, test markets or in house product tests. The gate after this stage is called pre commercialization business analysis and the financial aspects will decide whether the innovation will be realized or stopped.

The final steps consist of the full market launch and an exact review of the implementation actions.\(^{76}\)

### b. Main determinants\(^ {77}\)

The following main determinants are derived from the article where the different gates and steps provide the reader with the key factors for success of the service innovation process.

- **Market analysis**

  The use of detailed analysis instruments to screen the market potential, market size or potential is essential and the customer analysis regarding wants and needs is the basis for this successful service innovation.

  The more detailed the market analysis and as a result the orientation on the market, the better the performance of the service innovation. In a study in 2010 it was examined if the market orientation has a positive effect on a new service

\(^{76}\) cf. Cooper (1990), p. 52f

\(^{77}\) cf. ibid, p. 51
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performance and the results were highly significant.\textsuperscript{78}

- Internal capabilities analysis
The knowledge about the technical options, the cost and time it takes to develop a service innovation and the competition in this sector where a firm wants to compete is essential for the future success.

- Legal analysis
A definition of future steps requires a firm to check whether patent and intellectual property rights can be protected. It is furthermore important to see if there can be legal obstacles when working on a service innovation for the future.

4.1.4 Fourth Service Innovation Model

The next model that illustrates the process of service innovation is a bit different to the previous ones and consists of four big phases.

a. Service Innovation Model 4 \textsuperscript{79}

The first step in this model is represented by a detailed analysis of the customers’ motives. The firms do normally analyze why customers are buying certain services

\textsuperscript{78} cf. Chyi/Jyue-Yu/Yi-Hsing (2010), p. 273
and they need to ask suited questions in order to get to know what customers want to achieve with the purchase of a specific service offerings.

The second phase describes the analysis of the whole job the customers get done and through a breakdown in several little part-jobs the providing firm can see where some innovations can be performed. The competition may have overlooked a certain part in a complete service process and when a little part is taken over by the analyzing firm it can be the successful piece for a service innovation.

The next step in this model describes which opportunities exist for a firm to help the customers get a job done better. The essential part hereby is the focus on the outcomes of a certain service and that the specific outcome is an important detail for the customer for future success.

When missing outcomes are identified and the customers' wants can be satisfied better, then a company needs to invest resources, time and talent into the value creation. The service innovations can be realized via new ways how services are delivered or through complete new service types. The integration of the customer in this part of the progress is vital as both the supplier and the buyer can benefit from suited service innovations.\textsuperscript{80}

\begin{tabular}{|l|}
\hline
\textbf{b. Main determinants} \textsuperscript{81} \\
\hline
\end{tabular}

The key factors that are vital for the success of this certain service innovation model are listed below.

- Competitor analysis

The market analysis is the essential part for service innovations and the detailed look at the competitors’ service portfolio in a certain branch is inevitable as innovations can be based on weaknesses of competing firms. Furthermore it is crucial to determine how long a competitor’s advantage could last over the other competing firms in order to work on a strategy that respects the timeframe.\textsuperscript{82}

- Customer analysis

\textsuperscript{80} cf. Bettencourt/Brown/Sirianni (2013), p. 20
\textsuperscript{81} cf. ibid, p. 16ff
\textsuperscript{82} cf. Noe (2013), p. 11
The integration of the wants and needs of customers is again mentioned here as it is important for every model to know what future or existent customers may require. The service providing company should identify what the customers want to achieve or reach with the help of services. Furthermore, they should also investigate whether there are specific problems existent for the customers and how they can be solved. The clarification of these specific jobs that customers are consuming helps at finding the gaps for innovations.

➢ Customer integration
When investing the resources of a firm into value creation, it should be based on the customers’ co-creation inputs. They are the main idea creators and innovation aims. Hereby, the role of account managers, frontline employees, and field service staff is essential as they are communicating and therefore interacting with the people who are in charge of using or ordering the material with attached services. When they know the insiders for possible innovations, they have to include them in the service development process.\(^\text{83}\)

\(\textbf{4.1.5 Fifth service innovation model}\)

The following model is also focusing on the process of service innovation and it tries again to have a broader view on the process in order to help customers get a certain job done better. A medical device manufacturer has all the steps in mind that are needed to perform a certain operation and with this view in mind, the firm can detect possibilities for service innovations. The steps are the following and show the phases during an operation. After a detailed analysis of the steps, a service innovation can emerge.

\(^{\text{83}}\) cf. Noe (2013), p. 17
a. Service Innovation Model 5

1. Define
2. Locate
3. Prepare
4. Confirm
5. Execute
6. Monitor
7. Modify
8. Conclude

b. Main determinants

- Service culture
A firm with a focus on products which tries to adapt to service offerings needs to shift the focus from technical aspects to the view of the customers as they are the aim of the service. A simple concentration on price won’t be enough and the incorporation of services next to products can broaden the portfolio.

- Customer interaction
The field representatives, account managers and customer service employees need to focus on a close and trustful communication and interaction base. The center of attention needs to be therefore on focal jobs which the customers want to get done more efficiently by the providing firm.

The involvement of frontline employees in the serviceability of a new service development was explored in a study in 2010 and the hypothesis that the extent of

85 cf. ibid, p. 281
frontline employee involvement in the (a) design, (b) development, and (c) full launch stages positively affects service marketability of the NSD product was supported.⁸⁶

➢ Empowerment and compensation
Account managers need to strengthen their contact with other people of a buying company as the users of a service will provide more input about possible innovations than the buyers. Therefore these managers need to have the competency to interact with more responsible people which can affect the compensation modes. This means that account managers should have the motivation and encouragement to sell service innovations or to work on them by linking these efforts with special remunerations or compensation benefits.

➢ Training of employees
The organization needs to adapt its structure to the service landscape and teams can be built to work on service innovation processes. These involved staff members however need to be trained how certain service solution differ from product characteristics.

4.1.6 SIXTH INDUSTRIAL SERVICE INNOVATION MODEL

The following model of a service innovation process consists of four major steps and the model is mentioned as it integrates the sales perspective more detailed than the other ones. This is an essential part as the major aim of a service innovation is still the sale and profit of such a service and without a proper strategy concerning the selling and delivery stages of this model the market sensing or development costs won’t be covered.

⁸⁶ Melton/Hardline (2010), p. 415
The market sensing is the starting point for this service innovation process and it is a long process of looking at different aspects of a market. The international competitors can act as a benchmark as well as little local suppliers and a company needs to balance the local and international inputs to generate an industrial service innovation. The sensing often also becomes a difficult matter as still lots of services are offered for free in combination with products and the sensing firms are not able to analyze the total portfolio.

The development of services is then characterized by the integration of customers and the stages of sales and delivery as the correct marketing of service innovations is a crucial factor.

The sales stage here is the most important aspect. Sales representatives have to be included in the service development phase in order to communicate later on the value in use and advantages of the service. Sales people are then also given certain incentives when selling services as they are a normal part of the business portfolio and special service sales people are integrated in the sales departments to highlight the importance.

The delivery stage has to convince the clients of the quality and success of the service offer. The customers can be informed for example in regular meetings how certain services are beneficial for the company’s goals. The intangible benefits have

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to be made visible and agreed key performance indicators or cost savings should be linked directly to the specific industrial service.\textsuperscript{88}

| b. Main determinants \textsuperscript{89} |

As industrial service innovations are always based on and influenced by several key determinants the following success factors are taken from a different author than the one who has stated the service innovation model. However these main determinants are matching the model.

- Market attractiveness
Service innovations should focus on a market that provides a promising financial return as the expenses of a service innovation process have to be covered. The future returns are therefore some crucial decision criteria. Furthermore the quantities of demanding firms or the density of competing firms can influence the market attractiveness as a more competitive market makes it much more difficult for gathering the financial returns.

- Human resource management
The employees are making the difference when it comes to profitable and promising service innovations and the qualified selection and retaining of valuable employees is strategically important. When service oriented personnel or innovation experienced employees can be installed in the firm it forms the base for all the different steps in the service innovation model.

- Customer analysis
The active market research is the basis that customer needs and the industrial service innovation fit together. The clients’ wishes are the aim of the service adaptation and without profound knowledge of the future and current customer preferences a service innovation will not be successful.

\textsuperscript{88} cf. Kindström/Kowalkowski (2009), p. 162ff
\textsuperscript{89} cf. Ottenbacher/Harrington (2010), p. 7
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➢ Pre-launch activities
A detailed service concept and a solid financial analysis of the prospected market are vital before introducing an industrial service innovation. These pre-launch activities are inevitable for a successful innovation.\(^{90}\)

➢ Offering
It is essential to structure the service offering portfolio and on which specific parts to concentrate on. If a service range is too extensive the focus can be lost. The services should also match the products to achieve a promising value synergy.\(^{91}\)

➢ Training of employees
A staff’s flexibility and adaptability can make the difference in a competitive market landscape and the employees need to be trained for qualified customer relations and service launches.

➢ Empowerment
The top management has to show trust and give employees the responsibilities for indicating service innovation ideas and initiatives. The decentralization of authority to decide will favor a climate that supports service innovations.

➢ Behavior based evaluation
The quality of customer contact and relationships needs to be valued in order to start a successful service innovation. The technical skills are as important as the social relations.

➢ Service advantage/quality
A service innovation can only be successful at the end when the offered performance is superior to the competitors’ offers. This can be realized through a unique service experience or an outstanding service quality.\(^{92}\)
The quality of service can in the end affect the customers loyalty and as a consequence the firm profitability which was tested in study in 2010 (Figure 10).\(^{93}\)

\(^{90}\) cf. Ottenbacher/Harrington (2010), p. 8
\(^{91}\) cf. Kowalkowski/Kindström (2014), p. 100
\(^{92}\) cf. Ottenbacher/Harrington (2010), p. 8
\(^{93}\) cf. Yee/Yeung/Cheng (2010), p. 116
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### Figure 10: Influence of service quality

- **Tangible quality**
  The basic frame of a service offering needs to be of high quality in order to secure the successful service experience. The accuracy, consistency and reliability are also factors that justify certain price levels.\(^{94}\)

These determinants in this chapter were also tested regarding their impact on the performance of a service innovation. The type of innovation was also divided into new service innovations and incremental service innovations (Figure 11).

\(^{94}\) cf. Ottenbacher/Harrington (2010), p. 8f
### Factors of NSD resulting from the factor analysis

<table>
<thead>
<tr>
<th>Service product</th>
<th>Innovative NSD projects</th>
<th>Incremental NSD projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tangible quality</td>
<td>-</td>
<td>0.16 0.014</td>
</tr>
<tr>
<td>Service advantage</td>
<td>-</td>
<td>0.26 0.000</td>
</tr>
<tr>
<td>Consistency service delivery</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Innovative technology</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Market</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Market responsiveness</td>
<td>0.28 0.010</td>
<td>-</td>
</tr>
<tr>
<td>Market attractiveness</td>
<td>0.37 0.002</td>
<td>0.20 0.003</td>
</tr>
<tr>
<td>Price competition</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Competitive offerings</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Process</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Effective marketing communication</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Raise awareness</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Employee involvement in process</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NSD pre-launch activities</td>
<td>0.24 0.046</td>
<td>-</td>
</tr>
<tr>
<td>Employee commitment</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NSD process management</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Organizational</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SHRM</td>
<td>0.32 0.003</td>
<td>0.20 0.002</td>
</tr>
<tr>
<td>Behavior-based evaluation</td>
<td>-</td>
<td>0.21 0.001</td>
</tr>
<tr>
<td>Training of employees</td>
<td>-</td>
<td>0.22 0.002</td>
</tr>
<tr>
<td>Empowerment</td>
<td>-</td>
<td>0.24 0.000</td>
</tr>
<tr>
<td>Management synergy</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Reputation</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Selective staffing</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Formalization</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Marketing synergy</td>
<td>-</td>
<td>0.15 0.022</td>
</tr>
<tr>
<td>Sample size</td>
<td>45</td>
<td>138</td>
</tr>
<tr>
<td>No. of factors in equation</td>
<td>4/23</td>
<td>8/23</td>
</tr>
<tr>
<td>F-value (equation)</td>
<td>15.4</td>
<td>16.8</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.56</td>
<td>0.48</td>
</tr>
</tbody>
</table>

Note: All results significant at the 5 percent level (0.05 significance)

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**Figure 11: Testing new service developments**

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95 cf. Ottenbacher/Harrington (2010), p. 8
4.1.7 SEVENTH SERVICE INNOVATION MODEL

This model refers to an innovation process in the telecommunication industry and it is chosen because of its different characteristic of the determinants.

<table>
<thead>
<tr>
<th>a. Service Innovation Model 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Discovery phase</td>
</tr>
<tr>
<td>2 Concept phase</td>
</tr>
<tr>
<td>3 Development phase</td>
</tr>
<tr>
<td>4 Test phase</td>
</tr>
<tr>
<td>5 Market introduction</td>
</tr>
</tbody>
</table>

b. Main determinants

The key success factors in this model relate to two big determinants:

- **Customer integration**
  The customer wishes and requirements are screened constantly and they are analyzed according to the specific phase of the innovation process. Especially the first steps are essential and there is range of possibilities to investigate what the future buyers may wish to have.

- **Learning process**
  The explorative learning in the beginning is important for gathering the innovative ideas that could fulfill the clients’ needs. The transformative learning later on is a kind

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97 cf. ibid, p. 352
of connection phase between the explorative and exploitative learning phase as this last step requires a firm to apply the knowledge it has gained through the external information acquisition via explorative learning.

### 4.1.8 Eighth Industrial Service Innovation Model

One further model that needs to be mentioned is also about the process of an industrial service innovation and the steps in this model are influenced by internal and external innovation processes. This model is the most extensive one regarding the steps. The main phases are the following:

#### a. Industrial Service Innovation Model 8

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Idea validation</td>
<td></td>
</tr>
<tr>
<td>2. Concept development</td>
<td></td>
</tr>
<tr>
<td>3. Concept test</td>
<td></td>
</tr>
<tr>
<td>4. Profitability analysis</td>
<td></td>
</tr>
<tr>
<td>5. Outline of the service system, process and offer</td>
<td></td>
</tr>
<tr>
<td>6. Outline of the Marketing program</td>
<td></td>
</tr>
<tr>
<td>7. Service test</td>
<td></td>
</tr>
<tr>
<td>8. Employee training</td>
<td></td>
</tr>
<tr>
<td>9. Pilot production</td>
<td></td>
</tr>
<tr>
<td>10. Test market</td>
<td></td>
</tr>
<tr>
<td>11. Market introduction</td>
<td></td>
</tr>
</tbody>
</table>

The phases in this model describe a similar sequence of service innovation process steps to the previous models. One further aspect however is that the authors of this model state that the concept test, service test and test market are driven by the external innovation processes whereas the other steps are more or less influenced.

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by both sides. This is conclusive to the other models as the customers’ preferences and wants are the base for successful service innovation and they have to be integrated in the innovation process. The main determinants that are mentioned in this source are now listed.

<table>
<thead>
<tr>
<th>b. Main determinants</th>
</tr>
</thead>
</table>

There are four key requirements that need to be respected when looking at this certain service innovation model.

➢ Customer analysis
The customers are the essential part in the process. The integration of future buyers leads to a minimization of risk and the exact analysis of the clients’ wishes influences the success of the service innovation.

➢ Competitor analysis
It was also already stated in this proposal that competitors can either act as benchmark or as a potential threat for copying the service innovation. If customers however are deeply integrated in the development process the imitation becomes difficult as there are individual customer adaptations.

➢ Employee Marketing-Training
The service innovation process depends on the quality and capabilities of the staff members and the management has the task to get and retain the qualified personnel for future innovations. Furthermore they need to be developed towards innovation capabilities and the behavior during customer contacts.

➢ Innovation culture
When a firm is working on industrial service innovations it needs to realize that the service is not just an independent and small part of a company’s portfolio but it is linked to and built on companies’ capabilities and strengths. This means that the culture of an organization has to change and integrate the service innovation focus.

Therefore the system and structure of a firm needs to be adapted to a service innovation focus which leads to the fact that the customers can experience a service offer that is well-planned from the start of collaboration until a possible breakup.\(^{100}\)

### 4.1.9 Ninth Industrial Service Innovation Model

This chapter here should provide the reader with one last service innovation model before presenting the list of corresponding key determinants that have been compiled in a study from 2011 through extensive literature research.

<table>
<thead>
<tr>
<th>Service Innovation Model 9 (^{101})</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Starting phase</td>
</tr>
<tr>
<td>2. Analytical phase</td>
</tr>
<tr>
<td>3. Conception phase</td>
</tr>
<tr>
<td>4. Preparation phase</td>
</tr>
<tr>
<td>5. Test phase</td>
</tr>
<tr>
<td>6. Implementation phase</td>
</tr>
</tbody>
</table>

These steps in this service innovation model are normally presented through a cycle which includes returns or the repetition of certain phases as the innovation process is a continuous progress. The test phase for example can reveal that various parameters should be changed in order to successfully advance the service innovation and therefore this model should be seen as a basic guideline.

\(^{100}\) cf. Schneider/Bullinger/Scheer (2006), p. 175f
\(^{101}\) cf. Bullinger/Schreiner (2006), p. 73
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The following table which is presented below comes from a study that was published in 2011 and it comprises the most relevant New Service Development Process Success Factors. The basic model for the key determinants here was the one mentioned above. The listed determinants in Table 4 are extracted from 48 articles in various journals that deal with the topic of service innovation success factors and it gives the reader a good overview about the most often cited key determinants.

<table>
<thead>
<tr>
<th>Key determinant for service innovation success</th>
<th>Number of times cited in the 48 articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee Involvement</td>
<td>11</td>
</tr>
<tr>
<td>Appropriate Formalization</td>
<td>11</td>
</tr>
<tr>
<td>Management measures</td>
<td>11</td>
</tr>
<tr>
<td>Customer Involvement</td>
<td>9</td>
</tr>
<tr>
<td>Market Orientation</td>
<td>9</td>
</tr>
<tr>
<td>Synergy</td>
<td>8</td>
</tr>
<tr>
<td>Cross Functional Collaboration</td>
<td>7</td>
</tr>
<tr>
<td>Employee Expertise</td>
<td>7</td>
</tr>
<tr>
<td>Process Quality</td>
<td>7</td>
</tr>
<tr>
<td>IT Expertise</td>
<td>3</td>
</tr>
<tr>
<td>Market Selection</td>
<td>3</td>
</tr>
<tr>
<td>Service Advertising</td>
<td>3</td>
</tr>
<tr>
<td>Value Chain Integration</td>
<td>3</td>
</tr>
<tr>
<td>Communication</td>
<td>2</td>
</tr>
<tr>
<td>Cross Functional Integration</td>
<td>1</td>
</tr>
<tr>
<td>Aesthetic Design</td>
<td>1</td>
</tr>
<tr>
<td>Design Test</td>
<td>1</td>
</tr>
<tr>
<td>Expert predictions</td>
<td>1</td>
</tr>
<tr>
<td>Financial Analysis</td>
<td>1</td>
</tr>
<tr>
<td>Internal Market Orientation</td>
<td>1</td>
</tr>
<tr>
<td>Iterative Process</td>
<td>1</td>
</tr>
<tr>
<td>Process Speed</td>
<td>1</td>
</tr>
<tr>
<td>Resource Exploitation</td>
<td>1</td>
</tr>
<tr>
<td>Team Consistency</td>
<td>1</td>
</tr>
<tr>
<td>Choice of Technology</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 4: Study about success factors

103 cf. ibid, p. 6
104 cf. ibid, p. 4
105 cf. ibid, p. 10
The table shows that a lot of success factors that have been mentioned in the chapters before are quoted a number of times in scientific articles. The Employee Involvement together with the right formalization and management measures rank top on this list which is conclusive as the formalization, staff involvement and management attention can be part of a new service culture implementation which is mentioned in a lot of the models in this thesis. A detailed summarization of the most relevant key determinants however is made later in chapter 4.4.2.

4.2 Marketing of Service Innovations

This following subchapter should round up the chapter about the industrial service innovation models as the result of such service innovations also has to be presented to the customers in an effective way. In order to show the reader how such innovations can be transferred into a solid marketing strategy the following input will deal with the correct price determination of service innovations and the operational marketing steps.

   a. Price determination for profitability of service innovations

It is already stated that price determination of service innovations is a complex topic as the intangibility and difficulty of testing make it tough to calculate. It is however possible to transfer the service offerings into profitable branches of businesses and the three cornerstones are part of this process:

   ✓ Customer Value analysis

The detailed analysis of the customer side is inevitable as the clients have to be willing to be pay for the service innovations. Therefore the supplier has to calculate certain factors as for example

   ➢ Which kind of work simplification is done by the new service?

   ➢ Is there an increase in business efficiency at the customer’s firm?

   ➢ Which part of the service necessities of the clients is covered with the new service?
After these parts are analyzed the supplier has to present the client which financial savings are generated by the new service and how the operational cash-flow can increase by the adoption of the service innovation. The sensitive step in this price calculation process is that the customer should not have the feeling of paying for service offerings that are costless somewhere else.

The suppliers are then in parts compiling a broad portfolio where basic service achievements are for free and the service innovation factors are based on an agreed price level that respects the payment reserves of the client. As soon as a certain price level is declared it can be used as a basis for future negotiations.106

✓ Competitive pricing analysis:

The offering of service innovations has to be embedded in the competitive field in a way that the clients are favoring this certain portfolio. The challenge hereby is the detection of the most profitable and qualified price segment. The price offer should not be too low as the clients may connect cheaper propositions with a quality decrease whereas a high priced service portfolio discourages the general customer base. A detailed analysis of the competitors’ single services and their contract duration, product consistency, hourly wage, current interest rates, personnel expenses or logistics has to be conducted.

✓ The internal cost factor:

The final price of a service innovation offering has to meet the basic requirements of profitability and gross margins. The difficult aspect is the determination of all the relevant parts and their contribution to the final price offer. The service is often included in a product-service bundle and the service level agreements are influencing the cost factors. The internal cost factor has to be managed in a holistic way and all the single service elements of the total construct have to be studied in terms of expenditures and margins.

All these three basic elements of a price setting need to be respected when it comes to the calculation of an industrial service innovation.107

---

106 cf. Geissbauer et al. (2012), p. 62
107 cf. ibid, p. 62f
Conjoint analysis methods can also be part of this price setting process and the respondents need to rate different characteristics that play a role during the buying process of industrial services. With the help of these models the firms are able to integrate all the different aspects in the price communication that are essential for customers (Figure 12).\textsuperscript{108}

If this is managed successfully the profitability will be promising.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{impact_profitability.png}
\caption{Impact on profitability\textsuperscript{109}}
\end{figure}

b. Operational Marketing Mix of Service innovations

The last point of the presented framework is the operational marketing mix of new services in the industrial sector.

\textbf{Communication policy:}

One major factor of a successful marketing strategy for service innovations is the right communication. It is essential to minimize the perceived risk of the clients and the new service offerings can be promoted best via mouth to mouth marketing with branch leaders or lead users. If a company can detect the right people in the industry an innovation offering can be diffused via different channels and an additional complaint management will favor the communication.

The integration of customers into the communication policy is also essential and the so called “market pull” innovations which are targeting specific customer needs are accepted by the future clients.

\textsuperscript{108} cf. Niederauer (2009), p. 161  
\textsuperscript{109} cf. Eggert et al. (2011)
Pricing policy:
In the previous subchapter the pricing strategy has already been mentioned. In general there are two major pricing strategies for a service provider. First it can implement the skimming strategy where the position as a kind of monopolist is exploited. In this case the high fix costs are balanced by higher returns and the customers are demanded to pay high prices. The negative aspect here is that the number of clients won’t be as high as during the penetration strategy. This kind of policy addresses a higher number of clients whereas the price is rather low. In general it can be said that complex service innovations are often individualized and as a consequence the price is negotiated with the clients’ responsible employees in order to determine the exact contract details.

Distribution policy:
This part of the policy mix is a bit similar to the communication strategy as the lead users and opinion leaders should be identified when offering new service developments. Furthermore the sale agents have a crucial role in the distribution channel as they have to convince the clients’ decision makers to invest in a new service offering. The distribution can then be offered via direct or indirect strategies which depend on the grade of complexity and the aim behind a service offering.\(^\text{110}\)

Performance policy:
As the service offerings are hard to protect from imitation and the innovations can take place at several parts of the process it is essential to have differentiations at different levels. The process technology or intellectual property can be the base for the service innovation for a whole industry and via patents the service offering can be protected in a way. The takeover of little services from a client can also be a service innovation source and the individual performances of the service provider can constitute in total an innovation performance.\(^\text{111}\)

\(^\text{111}\) cf. ibid, p. 260
Industrial Service Innovation in Upper Austrian companies

In the end of the framework a short view on Figure 13 describes the advantages of a successful new service offering. The study was conducted in the UK service business industry and one part of the results concerning the impact of new service development on the firm’s competitive advantage is shown below:

<table>
<thead>
<tr>
<th>Sustainable Competitive Advantage (x=.86, CR = 0.89, VE = 0.59, HSV = 0.30)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>This business’s NSD programme has been successful in...</td>
</tr>
<tr>
<td>Making the business more competitive</td>
</tr>
<tr>
<td>Establishing new markets</td>
</tr>
<tr>
<td>Ensuring the long-term viability of the business</td>
</tr>
<tr>
<td>Achieving better utilisation if resources</td>
</tr>
<tr>
<td>Leverage sales of other products and services</td>
</tr>
<tr>
<td>Bringing new clients to the business</td>
</tr>
<tr>
<td>Retaining existing customers**</td>
</tr>
</tbody>
</table>

Figure 13: Success of NSD programs

4.3 Trends affecting industrial service innovation

The next chapter is again a very essential one as it is providing the reader with the main trends affecting the industrial service innovation processes. The service innovation models that have been mentioned now in chapter 4.1 are exposed to external challenges and developments and the different phases of the various models are in a mutually dependent relation with the current trends in the industrial service sector.

Some of the most important trends that are mentioned by different authors are listed below and should provide the reader with an overview about the conditions that the service innovation processes have to meet.

---

112 cf. Storey/Kahn (2010), p. 11
<table>
<thead>
<tr>
<th>Böttcher/Meyer (2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The service provision is realized via broad cooperation networks between different parties</td>
</tr>
<tr>
<td>• The clients are demanding holistic service packages that do not only include the basic service but also additional offerings</td>
</tr>
<tr>
<td>• The information and communication technology like remote services is becoming essential</td>
</tr>
<tr>
<td>• Security and reliability of services is a precondition that such a service is bought</td>
</tr>
<tr>
<td>• Faster time-to-market and time-to-change intervals</td>
</tr>
<tr>
<td>• Standardization is increasing because of economies of scale however minor adaptations still have to be incorporated.\textsuperscript{113}</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Beuren/Ferreira/Cauchick Miguel (2013)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Products are accompanied with services as they add value to the core products. The customers are demanding these holistic packages, mainly in the area of maintenance and monitoring</td>
</tr>
<tr>
<td>• The businesses are more and more offering the use of certain products. The customers are therefore just using the service of a product and do not possess it.</td>
</tr>
<tr>
<td>• The companies are also more and more finishing certain products in the own facilities via services and just sell the finished end products that another company has outsourced.\textsuperscript{114}</td>
</tr>
</tbody>
</table>

\textsuperscript{113} cf. Böttcher/Meyer (2011), p. 28
\textsuperscript{114} cf. Beuren/Ferreira/Cauchick Miguel (2013), p. 225
### Schweiger/Dressel/Pfeiffer (2011)

- Consulting services are required to present the clients and buyers the advantages and characteristics of highly innovative technological developments
- Individually configured solutions are required on the market which forces companies to accompany them with new service offerings
- The market for innovative products becomes more and more competitive as new products can be imitated easier than new services. A successful service innovation process can therefore generate advantages
- Services which are bundled with products can lead to a close relationship between customer and supplier and loyalty is enhanced
- The profitability and revenue potential is more promising in the service sector as margins in the innovative product sector are already much more exhausted. The service sector is characterized by more latent efforts and potential which lowers the pricing pressure
- An increased quality and environment focus have forced the service sector to come up with solutions
- Customers are nowadays willing to outsource certain services which opens opportunities for service or product providers to concentrate on these fields

### Gao/Yao/Zhu (2009)

- Strategic networks and collaborations with customers are built in order to work on a complete solution oriented service portfolio
- The simple offering of products is replaced by a complete set of solutions and services
- Set up strategic alliances with different firms and organizations in order to guarantee a professionally managed portfolio of products and services which are not part of the core capability

---

**Wolfmayr (2008)**

- Manufacture activities and staff intensive activities are being outsourced whereas management levels are enlarged.
- Service innovations in Austria are often based on externally bought technological inventions which is a disadvantage for future success as the internal know-how is much more important.\(^{117}\)

**Opitz (2009)**

- Due to technological progress and innovation some new possibilities for service offerings have evolved which has implications for a restructured organizational strategy.
- The competitive pressure on profitability and turnover has caused a continuously improving technology.
- The ever increasing globalization and internationalization of markets has caused an intercultural understanding and the service offerings have to be adapted to intercultural requirements and individual differences.
- The demand towards complete system solutions is increasing and therefore the products are bundled with service offerings in order to provide a complete package.
- The necessity and objective to fulfill the customer requirements and to form a closer connection with the customers requires the enterprises to restructure the product and service portfolio in order to compete in this growing industry.\(^{118}\)

### 4.4 Synopsis of Models, Determinants and Trends

The following chapter will present a clear summarization of the previously mentioned service models, key determinants and trends. After the facts are listed the most often cited determinants and trends are put together in a conclusive table. This table will

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\(^{117}\) cf. Wolfmayr (2008), p. 4ff

\(^{118}\) cf. Opitz (2009), p. 24
then be presented in a matrix form which is the basis for the expert interviews where the interviewees should state how important the different key determinants and trends are and why they think they are crucial. A further explanation will be given later.

4.4.1 Summarized Service Innovation Models

Table 5 offers an overview of existing service innovation models.

<table>
<thead>
<tr>
<th>Author</th>
<th>Phases of the model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schweiger/Dressel/Pfeiffer (2011)</td>
<td>(1) Understand</td>
</tr>
<tr>
<td></td>
<td>(2) Observe</td>
</tr>
<tr>
<td></td>
<td>(3) Define the perspective</td>
</tr>
<tr>
<td></td>
<td>(4) Finding ideas</td>
</tr>
<tr>
<td></td>
<td>(5) Develop strategies</td>
</tr>
<tr>
<td></td>
<td>(6) Testing</td>
</tr>
<tr>
<td>Schoeneberg (2014)</td>
<td>(1) Idea creation</td>
</tr>
<tr>
<td></td>
<td>(2) Setup playground</td>
</tr>
<tr>
<td></td>
<td>(3) Sprint</td>
</tr>
<tr>
<td></td>
<td>(4) Evaluate</td>
</tr>
<tr>
<td></td>
<td>(5) Adapt</td>
</tr>
<tr>
<td>Cooper (1990)</td>
<td>(1) Preliminary Assessment</td>
</tr>
<tr>
<td></td>
<td>(2) Detailed Investigation/Preparation</td>
</tr>
<tr>
<td></td>
<td>(3) Development</td>
</tr>
<tr>
<td></td>
<td>(4) Testing and validation</td>
</tr>
<tr>
<td></td>
<td>(5) Full Production and launch</td>
</tr>
<tr>
<td>Bettencourt/Brown/Siriani (2013)</td>
<td>(1) What jobs are customers trying to do?</td>
</tr>
<tr>
<td></td>
<td>(2) Are customers’ jobs are part of a larger process?</td>
</tr>
<tr>
<td></td>
<td>(3) What opportunities exist to get this job done?</td>
</tr>
<tr>
<td></td>
<td>(4) What resources must be invested in value creation?</td>
</tr>
<tr>
<td>Author (continued)</td>
<td>Phases of the model (continued)</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Bettencourt/Brown (2013)</td>
<td>(1) Define</td>
</tr>
<tr>
<td></td>
<td>(2) Locate</td>
</tr>
<tr>
<td></td>
<td>(3) Prepare</td>
</tr>
<tr>
<td></td>
<td>(4) Confirm</td>
</tr>
<tr>
<td></td>
<td>(5) Execute</td>
</tr>
<tr>
<td></td>
<td>(6) Monitor</td>
</tr>
<tr>
<td></td>
<td>(7) Modify</td>
</tr>
<tr>
<td></td>
<td>(8) Conclude</td>
</tr>
<tr>
<td>Kindström/Kowalkowski (2009)</td>
<td>(1) Market sensing</td>
</tr>
<tr>
<td></td>
<td>(2) Development</td>
</tr>
<tr>
<td></td>
<td>(3) Sales</td>
</tr>
<tr>
<td></td>
<td>(4) Delivery</td>
</tr>
<tr>
<td>Schaarschmidt/Kilian (2014)</td>
<td>(1) Discovery phase</td>
</tr>
<tr>
<td></td>
<td>(2) Concept phase</td>
</tr>
<tr>
<td></td>
<td>(3) Development phase</td>
</tr>
<tr>
<td></td>
<td>(4) Test phase</td>
</tr>
<tr>
<td></td>
<td>(5) Market introduction</td>
</tr>
<tr>
<td>Schneider/Bullinger/Scheer (2006)</td>
<td>(1) Idea validation</td>
</tr>
<tr>
<td></td>
<td>(2) Concept development</td>
</tr>
<tr>
<td></td>
<td>(3) Concept test</td>
</tr>
<tr>
<td></td>
<td>(4) Profitability analysis</td>
</tr>
<tr>
<td></td>
<td>(5) Outline of service system</td>
</tr>
<tr>
<td></td>
<td>(6) Outline of Marketing program</td>
</tr>
<tr>
<td></td>
<td>(7) Service test</td>
</tr>
<tr>
<td></td>
<td>(8) Employee training</td>
</tr>
<tr>
<td></td>
<td>(9) Pilot production</td>
</tr>
<tr>
<td></td>
<td>(10) Pilot production</td>
</tr>
<tr>
<td></td>
<td>(11) Test market</td>
</tr>
<tr>
<td>Bullinger/Schreiner (2006)</td>
<td>(1) Starting phase</td>
</tr>
<tr>
<td></td>
<td>(2) Analytical phase</td>
</tr>
<tr>
<td></td>
<td>(3) Conception phase</td>
</tr>
<tr>
<td></td>
<td>(4) Preparation phase</td>
</tr>
<tr>
<td></td>
<td>(5) Test phase</td>
</tr>
<tr>
<td></td>
<td>(6) Implementation phase</td>
</tr>
</tbody>
</table>

Table 5: Summarized service innovation models
### 4.4.2 Summarized Key Determinants

Table 6 gives a complete overview about all the key determinants of the different models by the quoted authors which have been mentioned in the chapters before.

<table>
<thead>
<tr>
<th>Author</th>
<th>Key determinants for service innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Schweiger/Dressel/Pfeiffer (2011)</td>
<td>➢ Customer Focus/Service Mindset&lt;br&gt;➢ Services as Product&lt;br&gt;➢ Documentation of Installed Base&lt;br&gt;➢ Serviceability&lt;br&gt;➢ Management Commitment&lt;br&gt;➢ Service System/Infrastructure&lt;br&gt;➢ Service Key Performance Indic.&lt;br&gt;➢ Standardized Services&lt;br&gt;➢ Transparency in Reporting&lt;br&gt;➢ Focused Selling Units&lt;br&gt;➢ Service Incentives</td>
</tr>
<tr>
<td>(2) Schoeneberg (2014)</td>
<td>➢ Internal capabilities&lt;br&gt;➢ Innovation teams&lt;br&gt;➢ Customer Integration</td>
</tr>
<tr>
<td>(3) Cooper (1990)</td>
<td>➢ Internal capabilities analysis&lt;br&gt;➢ Market analysis&lt;br&gt;➢ Legal analysis</td>
</tr>
<tr>
<td>(5) Bettencourt/Brown (2013)</td>
<td>➢ Service Culture&lt;br&gt;➢ Customer Interaction&lt;br&gt;➢ Empowerment/Compensation&lt;br&gt;➢ Training of Employees</td>
</tr>
<tr>
<td>(6) Kindström/Kowalkowski (2009)/Ottenbacher/Harrington (2010)</td>
<td>➢ Market attractiveness&lt;br&gt;➢ Strategic Human Resource Mgmt.&lt;br&gt;➢ Customer analysis&lt;br&gt;➢ Pre-launch activities&lt;br&gt;➢ Offering&lt;br&gt;➢ Training of employees&lt;br&gt;➢ Empowerment&lt;br&gt;➢ Behavior based evaluation&lt;br&gt;➢ Service advantage&lt;br&gt;➢ Tangibility of the service</td>
</tr>
</tbody>
</table>
Table 6: Summarized key determinants

After the listing of all the determinants in the different models Table 7 shows the densification of the success factors. In the left box the general main determinant is mentioned and in the right box the success factors that can be summarized to this specific main determinant are listed. The number next to the determinants on the right side indicates the model where the factors appeared. These 9 determinants were chosen because they were mentioned at least in 4 of the 9 innovation models.
<table>
<thead>
<tr>
<th>Main determinant</th>
<th>Included key success factors (Number of model where determinant appeared)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Customer analysis</strong></td>
<td>Customer focus (1)</td>
</tr>
<tr>
<td></td>
<td>Customer analysis (4)</td>
</tr>
<tr>
<td></td>
<td>Customer analysis (6)</td>
</tr>
<tr>
<td></td>
<td>Customer analysis (8)</td>
</tr>
<tr>
<td><strong>2. Management Commitment+ Service Culture</strong></td>
<td>Commitment (1)</td>
</tr>
<tr>
<td></td>
<td>Mgmt. measures (8)</td>
</tr>
<tr>
<td></td>
<td>Service Culture (5)</td>
</tr>
<tr>
<td></td>
<td>Innovation culture (8)</td>
</tr>
<tr>
<td></td>
<td>Appropriate formalization (9)</td>
</tr>
<tr>
<td><strong>3. Service System</strong></td>
<td>Service system (1)</td>
</tr>
<tr>
<td></td>
<td>Focused selling units (1)</td>
</tr>
<tr>
<td></td>
<td>Innovation teams (2)</td>
</tr>
<tr>
<td></td>
<td>Strategic Human Resource Mgmt. (6)</td>
</tr>
<tr>
<td></td>
<td>Cross functional Work (9)</td>
</tr>
<tr>
<td></td>
<td>Cross functional Integration (9)</td>
</tr>
<tr>
<td><strong>4. Customer Integration</strong></td>
<td>Customer Integration (2)</td>
</tr>
<tr>
<td></td>
<td>Customer Integration (4)</td>
</tr>
<tr>
<td></td>
<td>Customer Integration (5)</td>
</tr>
<tr>
<td></td>
<td>Customer Integration (7)</td>
</tr>
<tr>
<td></td>
<td>Customer Involvement (8)</td>
</tr>
<tr>
<td><strong>5. Service tangibility</strong></td>
<td>Service as product (1)</td>
</tr>
<tr>
<td></td>
<td>Standardized Service (1)</td>
</tr>
<tr>
<td></td>
<td>Tangibility of service (6)</td>
</tr>
<tr>
<td></td>
<td>Process quality (8)</td>
</tr>
</tbody>
</table>
Main determinant (continued) | Included key success factors (Number of model where determinant appeared (continued))
--- | ---
6. Market Orientation | Market analysis (3)
| Market attractiveness (6)
| Competitor analysis (4)
| Competitor analysis (8)
| Market orientation (9)
| Market selection (9)
| Internal Market Orientation (9)

The service innovation has to be adapted to the market conditions and without proper knowledge of the competitors, the branch and the economic preconditions a service innovation won’t be successful.

7. Internal capability analysis | Documentation installed base (1)
| Internal capabilities (2)
| Internal capabilities (3)
| Synergy (9)

The firm needs to know where the strengths and weaknesses of their capabilities are. The service innovation has to be connected to the competencies and the database about the market and the customers’ wants has to be well-documented.

8. Training of employees | Focused selling units (1)
| Training of employees (5)
| Training of employees (6)
| Learning process (7)
| Employee expertise (6)
| Employee marketing + training (8)

The staff of a firm has to be trained continuously to communicate the benefits of a service innovation but also to act professionally during customer contacts as this is essential for the experienced service quality of the customers.

9. Employee Empowerment | Service Incentives (1)
| Empowerment + compensation (5)
| Empowerment (6)
| Employee Involvement (8)

Service Innovations are dependent on frontline employees as they are interacting with the customers. They need to be integrated in the idea generation process but also in specific compensation schemes in order to support motivation and the service innovation culture.

Table 7: Densification of main determinants

---
### 4.4.3 Summarized Trends

The following trends in Table 8 are extracted from the chapter 3.2 and again a key trend is shown on the left side whereas the quoted trends from at least two authors are on the right side.

After the key trends are shown a last summarizing matrix will oppose the key determinants with the key trends which form the basis for the expert questionnaire.

<table>
<thead>
<tr>
<th>Main trend</th>
<th>Author’s explanations</th>
</tr>
</thead>
</table>
| **1. Holistic product-service packages** | - The clients are demanding holistic service packages that do not only include the basic service but also additional offerings  
- Products are accompanied with services as they add value to the core products. The customers are demanding these holistic packages, mainly in the area of maintenance and monitoring  
- The demand towards complete system solutions is increasing and therefore the products are bundled with service offerings in order to provide a complete package  
- Services which are bundled with products can lead to a close relationship between customer and supplier and loyalty is enhanced |
| Böttcher/Meyer (2011)  
Beuren/Ferreira/Miguel (2013)  
Opitz (2009)  
Schweiger/Dressel/Pfeiffer (2011) | |
| **2. Strategic collaborations and alliances** | - Set up strategic alliances with different firms and organizations in order to guarantee a professionally managed portfolio of products and services which are not part of the core capability  
- The service provision is realized via broad cooperation networks between different parties |
| Gao/Yao/Zhu (2009)  
Böttcher/Meyer (2011) | |
3. Focus on consulting

Lahonen (2011)
Schweiger/Dressel/Pfeiffer (2011)

- Consulting services are required to present the clients and buyers the advantages and characteristics of innovations
- Integrate consulting to compete in the service industry

4. Individual adaptations

Opitz (2009)
Schweiger/Dressel/Pfeiffer (2011)

- The ever increasing globalization and internationalization of markets has caused an intercultural understanding and the service offerings have to be adapted to intercultural requirements and individual differences
- Individually configured solutions are required on the market which forces companies to accompany them with new service offerings

Table 8: Summarized trends

4.5 Derived empirical matrix

The following empirical matrix (Table 9) is combining the previously mentioned 9 summarized key determinants and the 4 main trends in the industrial service business. The aim of the matrix is to have after the interviews a holistic view which key determinants are an essential success factor for each specific trend in order to guarantee a successful industrial service innovation in Upper Austria.

This is a conclusive step as the thesis is presenting in its core chapter a number of different key determinants of different authors. The focus of the research question however is put on the most important key determinants for successful industrial service innovations in Upper Austria and therefore the matrix will highlight the inputs of the experts to present a good answer to the research question.

The boxes of the matrix will therefore contain two informative statements:
First the interviewees will state which ones of the 9 determinants are the most important ones in their opinion. In total they have to choose the 3 most important success factors according to their view. Second the interviewees will state if the determinants have an effect for targeting the trend and why.
## Industrial Service Innovation in Upper Austrian companies

<table>
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<tbody>
<tr>
<td>1</td>
<td>Customer analysis</td>
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<tr>
<td>2</td>
<td>Service culture</td>
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<tr>
<td>3</td>
<td>Service system</td>
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<tr>
<td>4</td>
<td>Customer Integration</td>
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<tr>
<td>5</td>
<td>Service tangibility</td>
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<td>6</td>
<td>Market orientation</td>
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<tr>
<td>7</td>
<td>Internal capability analysis</td>
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<tr>
<td>8</td>
<td>Training of employees</td>
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<tr>
<td>9</td>
<td>Employee involvement</td>
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</tbody>
</table>

Table 9: Derived empirical matrix
Industrial Service Innovation in Upper Austrian companies

5. EMPIRICAL PROCEDURE

The following chapter will now present how the empirical part in this master thesis will look like. Basically there are 2 main parts now explained: the detailed course of action for the interviews with the interview guidelines and after that the analysis method of the interviews.

(1) Explanation of the interview method and course of action
(2) Explanation of the method how the qualitative interviews will be analyzed

5.1 INTERVIEW METHOD AND COURSE OF ACTION

The answers for filling out the blank spaces in this matrix will be given by experts about industrial services in Upper Austria. 3 experts are interviewed in 2 steps. First they should state which 3 out of the 9 main determinants which are presented on cards are the most important ones in their opinion and why. Second the 3 most important success factors for service innovations are taken and opposed to the four main trends. They experts should then state if the determinants have an effect on each trend or not, why they are having an effect or not and if they can be classified into short term effects or long term consequences. A detailed explanation of the interviews is given in a few pages.

The reason why the method of qualitative expert interviews was chosen is that the research question cannot be answered without the exclusive information of several experts in the field of industrial services. The interview guideline is already based on theoretical information about this topic but the focus for the Upper Austrian industry can only be established via expert interviews and therefore the aim is to generate specific knowledge to answer the research question. The ten steps for conducting the expert interviews are shortly mentioned below in order to explain the further procedure:

1. Developing the interview guideline (presented below)
2. Pre-Testing the interview guideline

The method of expert interviews is matching the aim of this thesis as it was stated already in chapter 1.2 that the goal is to deduce a general guidance for successful service innovations through the combination of theory based and empirical findings. The way how the questions will be presented and asked in these qualitative interviews will be realized via partly structured interviews. This means that the questions which are asked by the interviewer are defined through topics and a list of specific questions. The exact wording and sequence of the questioning however can be adapted to each interview partner as sometimes a question is answered more in detail or with linkages to other questions which would be asked later and this leads to a more fluid and open interview situation.\textsuperscript{121}

It will now be explained via the interview guideline how the interview situations will look like in detail and what is expected from the interviewees.

As it is stated already a few times, the thesis is combining 9 key determinants for successful industrial service innovations and 4 trends that influence the industrial service landscape. Now the interviews will consist of two steps:

\begin{center}
\textbf{Step 1}

\textit{Narrow down most important key determinants}
\end{center}

In a first step it is now tried to further narrow down the number of key determinants as it is essential to know the most important ones in the eyes of the interviewees. For this reason the 9 key determinants are presented to them on a card with detailed

\textsuperscript{120}cf. Kaiser (2014), p. 12
\textsuperscript{121}cf. Gläser/Laudel (2010), p. 42
explanations of the determinants. The interviewees have then to decide which 3 of the 9 determinants are the most effective and possibly essential ones for industrial service innovations in their opinion and they have to name these 3 most important ones. This is helpful as the focus is now tighter and the interview will be more clearly. The 9 determinants are now shown again in detail in order to make visible how the cards will look like for the interviewees.

The explanation of each determinant is gathered from the theoretical models by the different authors from chapter number 4 where all the main determinants appear:

**Question:**

*Which 3 out of these 9 key determinants for industrial service innovations are the most important ones in your opinion?*

<table>
<thead>
<tr>
<th>Key determinant 1: Customer analysis</th>
</tr>
</thead>
</table>
| Customers’ businesses are performing and consuming certain jobs to produce, sell or manage their product portfolio. It is therefore an essential part of the service providing firm’s task to apply certain research methods to analyze these jobs in detail. If this is done properly it is possible to detect fields where improvements may be needed or where gaps exist between aspirations and reality. A question hereby could be whether there exist certain problems during the consummation of services and what would be the desirable optimum result. Furthermore the service providing company can realize which jobs are the focal and central ones of the customers in order to put more focus on these kinds of jobs. These research methods can only be promising when the relationship is trustful and close as a firm is cautious when it comes to internal processes. When a firm however is able to identify what the aims of customers are and what resources are invested for certain jobs, the customer analysis can support a company in gathering innovation ideas. The customer analysis also includes the detection of the potential of quantities of customers’ demands in order to see if the specific job remunerates or not.*
### Key determinant 2: Service culture

A business which wants to concentrate on industrial service innovations has to shift the focus from technical or financial features of products to specific service wishes of customers in order to highlight the importance of a service portfolio. The top management levels have to accept a detailed service offering strategy and it is also essential to make this service culture visible for all the departments of a firm in order to integrate that culture permanently.

This clear communication of a service vision requires the staff to see with the eyes of the customers.

The service providing units are developing during this process therefore the same importance as manufacturing departments in order to have a consistent service structure.

### Key determinant 3: Service system

Customer relationship management units, supply chain management units and product lifecycle management units have to be coordinated professionally like it is happening in product offering firms as the efficiencies regarding costs, information flow and employee know-how have to be exploited as well when it comes to service offerings.

One way of coordinating such challenges is the development of cross functional innovation teams that form an important part in the service system as they develop service innovations in accordance with customers and with different levels of expertise. Managers of such innovation teams that favor the service system can be the so called innovation masters who have the responsibility to build and guide teams. This master is also checking the results and outcomes of the teams and can then as a consequence adapt the team consistencies.

A service system can also develop when the firm decides to install a whole service branch in the firm next to the manufacturing units but this requires a new structural organization.

The services however cannot be that standardized like tangible products and therefore slight adaptations have to be incorporated in the service system which means that the service oriented units have to be in close continuous contact with customers.
<table>
<thead>
<tr>
<th>Key determinant 4: Customer integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>When it comes to service innovations the customers form an essential part of the idea generation process. The clients’ firm has to be integrated in the innovation process from the beginning on as they know best where they want to have improvements or help and the client may even co-create the service innovation. Prototypes of service innovations are a popular instrument in this part where models can be tested with actual clients. They can then evaluate and give feedback how this service innovation may be supportive or where deficiencies occur. Customer integration is therefore inevitable for working in the right direction. The key for such a close customer integration is a trustful communication and relationship between frontline employees or/and key account managers to detect the wishes and wants.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key determinant 5: Service tangibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>The service innovation can be successful when the service is handled like a product in order to reveal existing service levels to potential customers, what specific customized services can be offered and what the different price levels are for the customers. This is essential to know for the clients as the purchase and utilization of service offering can be associated with high costs in the industrial sector and the service has therefore to be presented like a tangible good. Furthermore the tangible aspects that are associated with a service offering have to be of high quality as deficiencies in this matter can influence the perceived quality of the service.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Key determinant 6: Market orientation</th>
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</thead>
<tbody>
<tr>
<td>The detailed market analysis is providing a firm with two aspects: First the company will see how the competitors’ service portfolios look like and how the service landscape is structured in different branches. This allows a firm to identify certain gaps or advances in comparison to other firms. Furthermore it is essential to analyze how long a certain advance or disadvantage of a competitor lasts as the service innovation process takes time and this needs to be respected when it comes to the management of timing. Second the company will detect the size, potential or character of a market in order to know if service innovations are needed, which kind of innovations may be demanded and how they will perform financially as it is the final aim to sell the service to cover the costs of development or provision.</td>
</tr>
</tbody>
</table>
**Key determinant 7: Internal capability analysis**

When a firm knows how the customers’ preferences and wants do look like it is also important to realize if the internal capabilities, strengths and resources can satisfy these specific clients’ wishes. An essential precondition for service innovation is therefore the detailed documentation of customers’ demands and internal capabilities. They can be: the costs that are connected to service innovations in the firm, the time it takes to develop the service innovation, the know-how of the different employees to perform a service innovations and the technical options that are prevalent in order to develop an industrial service innovation.

**Key determinant 8: Training of employees**

First of all a service providing firm needs to be able to retain and hire qualified and trained personnel for potential service innovations. Furthermore, when a firm is deciding to work on service innovations it often installs service innovation teams which consist of different units. This means that the company has to make sure that these teams and units are trained to efficiently work on creative service innovations. Besides the frontline employees, who are in the actual contact situations with the customers, need to be trained well enough to understand, explain and sell the service innovations. In addition to that the employees also have to be trained to develop professional customer relations as these soft skills influence the perception of service innovations and the launches of new service solutions also need to be exercised professionally in order to highlight the innovation’s advantages.

**Key determinant 9: Employee empowerment**

A basis for service innovation is that the top management levels are assigning and transferring authorities to employees to indicate service innovation ideas and initiatives. Such a decentralized system of authority when it comes to service innovation will lead to a more open and creative culture which favors innovations. Account managers also need to get the authority and responsibility to interact not only with the purchasing units of clients businesses but also with the users of service innovations of different buying companies as they know best where innovations should be performed. The new empowerment schemes can also be linked with new compensation modes which motivate employees to work on innovations when bonuses are rewarding such ideas.
After these determinants were presented to the experts via the cards the 4 main trends will also be explained in detail to them. The trends were again written on cards and should help the experts to link the trends with the determinants more easily and to have them visible.

**Step 2**
**Personal opinion why key determinants are essential**

In a second step the interviewees will see their 3 most important key determinants for service innovations. The interview partners should now state why each of the 3 main determinants can have an effect on the four trends and if these effects can be classified into short term or long term consequences.

All the survey sheets are shown in the supplement in order to present the reader the structure of the interview situations but the first is shown as an example here in order to see how they experts were interviewed.

<table>
<thead>
<tr>
<th>1st sheet</th>
<th>1. Trend: Holistic product-service packages</th>
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<tbody>
<tr>
<td>Customers in the industrial sector are demanding more and more holistic packages. This means that they do not only want a product with a perfect quality and acceptable price but also an accompanied service that facilitates the purchasing, handling, usage, understanding or decomposition of the product. Furthermore these key services in addition to the core product should be supported by low cost or free offerings that improve the relationship between the</td>
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</table>
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The 3 most important determinants which were picked before are now asked in detail

<table>
<thead>
<tr>
<th>Determinant</th>
<th>Effect (Y/N)</th>
<th>Why?</th>
</tr>
</thead>
<tbody>
<tr>
<td>A detailed customer analysis is helpful considering the development of product-service packages</td>
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<td></td>
</tr>
<tr>
<td>A specific service culture can favour the development of product-service packages</td>
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<tr>
<td>A professional service system can support the development of product-service packages</td>
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<tr>
<td>The integration of customers can lead to successful product-service packages</td>
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<tr>
<td>The service tangibility can influence the success of product-service packages</td>
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<tr>
<td>A market orientation can be essential for product-service packages</td>
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</table>
### 7. Determinant:
The internal capability analysis can be helpful considering the product-service packages.

### 8. Determinant:
The training of employees can be deciding for product-service packages.

### 9. Determinant:
The employee empowerment can successfully influence the product-service packages.

### 5.2 Course of action for the analysis:

As explained above in the beginning of chapter 5 the expert interviews will be conducted and on the side recorded in order to have a transcript of the interviewees’ answers.

After the interviews are finished the recorded answers will be transcribed to have the answers via text documents. This step enables the writer of this thesis to analyze the text regarding the different statements and the paraphrasing of the answers and opinions to the different questions should then answer the research question.

The model for analyzing the experts’ answers and visualizing the outcome of the questions is based on a matrix which is mentioned by Miles and Huberman (Figure 14).
The reason why this model was chosen as a basis for analysis is that the main interest of this master thesis was the detection of the influence and effect of the main determinants on successful industrial service innovations with respect to the relevant trends.

So this model is helping to detect 3 types of information:

- Are the most important determinants having an effect on each trend or not?
- Why are they having an effect on the trend or not and which types are provided for explaining the effect?
- Is there a short term effect which is probable to predict and to asses or are there more long term consequences which can only happen when the short term effects are occurring and respected?

The own deduced analysis model based on the Miles and Huberman model is the following for this master thesis (Table 10).

---

**Figure 14: Effects table as a basis for analysis**

The own deduced analysis model based on the Miles and Huberman model is the following for this master thesis (Table 10).

---

122 cf. Miles/Huberman (1994), p. 94
Product-Service Packages:
Customers in the industrial sector are demanding more and more holistic packages. This means that they do not only want a product with a perfect quality and acceptable price but also an accompanied service that facilitates the purchasing, handling, usage, understanding or decomposition of the product.

<table>
<thead>
<tr>
<th>Determinants (number of times mentioned)</th>
<th>Effect? Yes / No</th>
<th>Explanation of the types provided</th>
<th>Short term effects</th>
<th>Long term consequences</th>
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<tbody>
<tr>
<td>Customer analysis (2)</td>
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<td>Service Culture (2)</td>
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<td>Service System (1)</td>
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<tr>
<td>Integration of customers (3)</td>
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<tr>
<td>Tangibility and clarity of services (1)</td>
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<tr>
<td>Employee empowerment (1)</td>
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Table 10: Own derived effects table for analysis
6. RESULTS OF THE QUALITATIVE EXPERT INTERVIEWS

The following chapter will now present the reader the results of the interviews. The steps for showing the answers and inputs of the interviewees are shortly explained:

First of all the chapter will show why the 9 main determinants for successful industrial service innovation are in general important to the experts and how often they have been rated under the 3 most important determinants for service innovation.

In a second step the determinants which have mentioned by the interviewees are opposed to the four main trends and the thesis will show why each of the determinants can have an effect on the four trends regarding the short term or long term consequences.

In a third and last step the most important facts to each trend and determinant will be included in the empirical matrix which was presented in the beginning of chapter 5. This matrix will give the readers a closing, clear, understandable and also summarizing view on the results of this empirical procedure and this matrix should then also act as a guideline for future successful service innovations.

6.1 RESULTS OF DETERMINANT RATINGS

Each of the 9 determinants is now shown again and it is shortly explained why it is important or not in the eyes of the interviewees. Furthermore the number next to the determinant indicates how often it was mentioned by the experts under the 3 most important success factors.

**Determinant 1: Customer analysis – mentioned by 2 interviewees**

Without a proper and detailed customer analysis the service innovation process cannot be started. It is a basic precondition therefore and it is then in a second step closely linked to integration of customers after the right ones have been analyzed.

Generally spoken it can be said that this determinant is a very essential one as a company won’t let its employees work and put effort on service innovations if it becomes clear after an analysis that the customer are not in need of such innovations.

One main aspect is also that the analysis should be focused on the processes of the customer in order to see what happens before the customer utilizes the service and what is happening afterwards. The chain of different processes should provide a company with possible innovation approaches.
Furthermore a customer analysis itself is not enough as the main point is to make use of the customer inputs and give credit to the results of the analysis. This is then as a consequence also dependent on the strategic direction as it is a forward looking decision if results of customer analyses should be transformed into service innovations after they have been actively figured out.

Determinant 2: Service Culture – mentioned by 2 interviewees

The service culture is a sensible topic when it comes to service innovations as this culture cannot be developed in advance it has to evolve in regard of services. The right formulation of this determinant should be more the “commitment and willingness to service culture”. The culture is also a basic condition for future adoptions of the mindset towards services and the empowerment but also training of employees is closely linked to this cultural shift.
It is essential to mention the formulation “commitment to service culture” as there may exist already a certain culture in a company but not linked to services and this can cause barriers. The culture regarding services has to be as a consequence then characterized by openness, eagerness to experiment and commitment of the top management to support this culture in order to not get service innovation approaches lost.
There are examples of employees in firms which were getting frustrated and in the end failed as the company’s culture was not valuing the service aspect.

Determinant 3: Service System – mentioned by 1 interviewee

A well developed and autonomous service line is not realistic in the beginning for service innovations in the industry. There should be similar to the service culture a commitment and openness for change and an effective service system.
Especially in Upper Austria a lot of companies are very innovative on the product side and extend their work on tangible goods but the service side and service commitments are rather underdeveloped and the missing number of employees for such a service line is one cause. A change of thinking and valuing of such a service branch would therefore be the entering wedge.
In Upper Austria some companies detect that the gap towards the integration of service portfolios is too big and outsource the service line and system to an limited liability company.
It is also dependent as a consequence on the dedication whether a firm is willing to sell services which are linked to its own products or if the services are sold as an independent part of its portfolio not connected to products.

As soon as a company decides and is far enough to install a service line it has to deal with the inclusion of this new structure into the existent matrix and this can be a challenging step to integrate this service oriented system into a product oriented matrix.

**Determinant 4: Integration of customers – mentioned by 3 interviewees**

Without an analysis and following integration of customers in the beginning of a service innovation process a basic precondition would be missing. It is first and foremost necessary to integrate them and not only analyze them as the customers know best what they really prefer or are in need of when it comes to the development of industrial service innovations. However the process of integrating the customers has to be handled with care since they demand every possible service when they see it is manageable and the challenge hereby would be that the company may undertake too much with regard to its resources.

The integration is however important when it comes to testing of prototypes with lead users and of services which are not bound to own products but different interfaces. Out of this integration of lead users and testing of services ideas for innovations evolve and become successful.

**Determinant 5: Tangibility and clarity of services – mentioned by 1 interviewee**

The clarity of a service system is a crucial point for developing an industrial service innovation as the services and innovations need to be communicated and translated to the customers in a way that they understand these developments correctly. Clients have to see what is different to competitors services and why the cost may be rising due to increased benefits of technological service innovations.

What is more is that the clarity needs to be functioning as well on the internal side as the employees have to get a picture who is responsible for which parts of the service innovation process.

The importance of clarity of such service innovations however is rising during its development process as in the beginning there is no tangible and specific service that needs to be translated and other steps have to be prioritized.
Determinant 6: Orientation on the market – mentioned by 0 interviewees
This dimension is not too essential in the beginning as a company won’t be concentrating too much on the dynamics of the markets but look for customers that are willing to utilize and acquire the service innovations. Later on when service innovations are evolving the dynamics play a more crucial role.

Determinant 7: Internal capability analysis – mentioned by 0 interviewees
The base for an internal analysis is not broad enough in the beginning as it will become clear only after a while if the employees are capable of working on service innovations. There is primarily product oriented staff in the company where I cannot deduce details like time, costs or efforts concerning service innovations.

Determinant 8: Training of employees – mentioned by 0 interviewees
When a company is focusing its efforts on industrial service innovations a training of its employees can perchance not be effective enough as the employees are more trained probably on technical features and processes so the staff that needs to be trained in this direction may not be the right one for this plan.

Determinant 9: Empowerment of employees – mentioned by 1 interviewee
It is extremely important that employees are allowed to bring in ideas. It can be part of an evolving service culture where employees are asked and allowed to force ideas but in the absolute beginning of service innovation processes this determinant is more downstream.

When analyzing the ratings of these 9 main determinants by the experts it can be seen that especially the customer analysis, service culture and integration of customers are vital points for effective industrial service innovations. Furthermore the service system, tangibility of services and employee empowerment were rated by at least one of the interviewees regarding an important success factor. It should also be acknowledged that the respondents were allowed to name different and further determinants which could be essential for industrial service innovations but the following 9 ones were obviously sufficient. One last interesting fact is that the
interview partners perceived all these 9 determinants as important and also in a way related and correlative.

6.2 RESULTS OF EXPERT SURVEY

The following chapter will now present the answers of the experts regarding the determinants which were mentioned at least 1 time and are marked with the green color. In sum there are now 6 determinants which will be opposed sequentially to each of the 4 trends.

The first column will present each time the determinant. The next one indicates whether the determinant is having an effect on the trend or not. The third column will present the reader the explanations the interviewees gave regarding the effect of the determinants on the trends of industrial service innovations. The last column will then list the short run effects of these determinants on service innovations and possible longer run consequences for the future which are however more difficult to predict since they depend on the short run effects. Sometimes no long run consequences are listed since it was not possible to evaluate them.
### Product-Service Packages:
Customers in the industrial sector are demanding more and more holistic packages. This means that they do not only want a product with a perfect quality and acceptable price but also an accompanied service that facilitates the purchasing, handling, usage, understanding or decomposition of the product.

<table>
<thead>
<tr>
<th>Determinants (number of times mentioned)</th>
<th>Effect? Yes / No</th>
<th>Explanation of the types provided</th>
<th>Short term effects</th>
<th>Long term consequences</th>
</tr>
</thead>
</table>
| Customer analysis (2)                   | Y/               | A meaningful service innovation for product service packages can only be developed with customers and the analysis is the basic precondition. There is also the need to find customers through the analysis for testing the prototypes based on real clients. Without having these customers the company won’t get beyond the stadium of prototype testing. | Short term effects:  
- A starting point for realizing industrial service innovations.  
- Finding customers for testing the prototypes on real clients  
Long term consequences:  
- Getting beyond the stadium of prototypes and being successful with service innovations |
| Service Culture (2)                      | Y/               | Service culture has a clear effect on product service packages when it comes to the integration of services with products. A company often produces its tangibles goods and plans or discusses afterwards what kind of technical services it wants to link to this good for offering more value. This is better than neglecting the services at all but a service culture would support the strategy to plan the | Short term effects:  
- Making the product-service packages and hybrid added value better predictable and schedulable more effectively as service innovations are planned in advance  
- Company becomes more sensitive for the topic of product-service packages |
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<table>
<thead>
<tr>
<th>Service System (1)</th>
<th>Y/</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effect especially for established firms as they need to see the shift towards a service system for product-service packages like a start-up company. They need to get over the old product oriented structure which is impeding a service system and the start-up style allows a trial and error, experiments and freedom supporting climate. An important step would be to not exaggerate in the beginning in order to</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Long term consequences:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Difficulties for family owned business which are concentrating its efforts on processes and product-service packages which were working for a (few hundred) years.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Short term effects:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Change of view and strategy to start-up companies</td>
</tr>
<tr>
<td>• New focus on freedom for learning, experiments and attempts</td>
</tr>
<tr>
<td>• Evolving of smaller units for service innovations</td>
</tr>
<tr>
<td>• Top management is showing commitment and favors a service system via this step</td>
</tr>
<tr>
<td>• Change of controlling system</td>
</tr>
</tbody>
</table>
Industrial Service Innovation in Upper Austrian companies

<table>
<thead>
<tr>
<th>Integration of customers (3)</th>
<th>Y/ Y/ Y/</th>
<th>It has a direct effect on product-service packages as the company needs to know in detail what the customer is planning to do with it. The consumer benefit is in the middle of attention which means that a tight customer-firm cooperation and therefore integration transforms the selling of products into a provision of services. After a detailed engagement with the customer the real needs are identified which are sometimes more satisfied with services linked to products than the simple provision with goods. In the test phase of pilot projects the company gets important feedback of</th>
</tr>
</thead>
</table>

**Long term consequences:**
- A service line is established in the organizational matrix

**Short term effect:**
- Possibility to test pilot projects to gather important feedback and to see what the customer is planning to do with a product-service package
- Real needs are spotted which means that services sometimes replace the good
- Important feedback
- Service customers are identified through tight integration

**Long term consequences:**
- Selling of product-services packages after getting beyond the phase of prototype testing
Industrial Service Innovation in Upper Austrian companies

| **Tangibility and clarity of services (1)** | Y/ | A company is sometimes linking a number of services to a product and the client needs to see what is offered exactly and which benefits are provided regarding an easier handling or usage of products. |
| **Employee empowerment (1)** | Y/ | The employees in the sales department, customer service center or service technique line are in constant contact with customers and identify problems or needs at first hand. As a consequence they can ask other clients if the same wants or difficulties with innovations exist and therefore these employees need to be heard. Employees with customer contact also have to be trained and introduced to methods which allow a clear |

**Short term effects:**
- Customer is realizing the actual benefits of services which are linked to products with regards to an easier handling or usage of products.
- Employees with tight customer contact are more sensitive to wants and needs for innovations
- Introduction to methods for detecting wants and needs motivates them to bring themselves in
- Kaizen gives employees a voice and valuing ideas regarding failures is preventing the repeatedly discussed propositions which prevents frustrations
- Inclusion of customer service people
Industrial Service Innovation in Upper Austrian companies

<table>
<thead>
<tr>
<th>Understanding of service problems.</th>
<th>in meetings with top management facilitates the explanation of ideas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Through Kaizen the employees are asked to bring in ideas and it is tried to analyze all the propositions regarding failures and weaknesses. Only if the ideas are valued as promising and no negative consequences are attached the innovation proposal will be pursued. This favors the motivation to bring in ideas and respecting the profitability and cost aspects.</td>
<td>• Possible danger of too many people in the decision process and that customers may want too much</td>
</tr>
<tr>
<td>Employees should not be excluded from meetings regarding such decisions and top management has to show the courage to share possible secrets regarding innovations as ideas should be discussed in meetings and not declared officially just on a small page which is stated in the bureaucracy.</td>
<td><strong>Long term consequences:</strong></td>
</tr>
<tr>
<td>Danger of including too many people in the decision and discussion process</td>
<td>• Hierarchy becomes more decentralized and customer wants and problems are integrated into service-product innovations faster</td>
</tr>
</tbody>
</table>
### Strategic collaborations and alliances:
When firms are offering an industrial service portfolio it is possible that some specific service offerings or service characteristics are not parts of the core capability. Therefore alliances with different firms which can overtake certain services are needed in order to guarantee and provide the clients’ firms with a satisfying service portfolio.

<table>
<thead>
<tr>
<th>Determinants (number of times mentioned)</th>
<th>Effect? (Yes / No)</th>
<th>Explanation of the types provided</th>
<th>Short term effects</th>
<th>Long term consequences</th>
</tr>
</thead>
</table>
| Customer analysis (2)                  | Y/ Y/N             | When a small firm wants to show a possible bigger partner that it is promising to start an alliance it has to persuade him with positive and rewarding customer data. IBM was mentioned as an example and this firm will start negotiating when it presumes that a customer segment is solid and in need of such a service innovation. In general the customers will not care about any alliances or collaboration. The customer analysis for such alliances is therefore not a vital factor in the beginning. Also for bigger firms who need small assistant businesses as in the IT for example it is not urgent to present detailed customer analysis data. | Short term effects:  
- Initial starting basis for negotiation with a bigger partner  
- Excited interest of alliance partner  
- No effects probably for bigger firms  
- If customer is a potential strategic partner the customer analysis can be important in this case | Long term consequences:  
- Collaboration with a powerful partner |
Industrial Service Innovation in Upper Austrian companies

<table>
<thead>
<tr>
<th>Service Culture (2)</th>
<th>Y/ Y/</th>
<th>Not a substantial matter for strategic partnerships except for the fact the customer is a strategic partner for future actions.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>It has an effect as a company needs to present the clients the services in a way that they are understandable and clear which is much more difficult for intangible goods than for products. This can only be done effectively by integrating this importance in the culture. For such tasks it is crucial to have a partner in the beginning who is managing a surface where customers can see how services are built up, functioning and or which possibilities exist. After a certain period the offering company should then determine whether to manage these surfaces on its own or still outsource it. The service culture is necessary for long lasting alliances since it can threaten the partnership when the culture is not directed to services The grade of specification also differs when building service levels for clients with partners. Users will need a clearer and easier service presentation than developers who are experts in this field.</td>
</tr>
</tbody>
</table>
|                     |       | Short term effects:  
|                     |       | • Base for effective partnership where strategic cooperation partner is presenting the services to clients on a professionally managed surface for instance  
|                     |       | • Necessary for longer relationships  
|                     |       | Long term consequences:  
|                     |       | • Strategic decisions will have to be made whether to proceed the partnership or to integrate the service in the own culture |
### Service System (1)

<p>| | | | |</p>
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<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Service System (1)</td>
<td>/N</td>
<td>The customer analysis for getting into an alliance regarding service innovations is much more important than an established service system. It should not be rated as too important. In an advanced stadium it can become vital and a precondition with effects on service innovations.</td>
<td><strong>Short term effects:</strong>&lt;br&gt;• No effect</td>
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</table>

### Integration of customers (3)

<p>| | | | |</p>
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</thead>
<tbody>
<tr>
<td>Integration of customers (3)</td>
<td>Y/ Y/ /N</td>
<td>An integration of the customer is essential for proofing a potential partner that the market was analyzed well enough and that there was done sufficient groundwork. The analysis should be credible and not illusive. The integration of customers is also essential as the company needs to know what type of language the client is speaking and what his exact needs are. After that the product with integrated different services can be developed successfully with a partner. The customers don’t have to know every detail of alliances and service partnerships as he is interested in a final</td>
<td><strong>Short term effects:</strong>&lt;br&gt;• Persuasion of the partner that the market consists of actual and potential clients&lt;br&gt;• Detect the language and needs of customers for effective partnerships&lt;br&gt;• Customers get information about different partners but focus is just on the final service/good with perfect quality</td>
</tr>
</tbody>
</table>
Industrial Service Innovation in Upper Austrian companies

good or service of perfect quality. He should be integrated and informed however about the fact that services are realized by an alliance but that firm A for instance is just the medium which is transferring the information.

| Tangibility and clarity of services (1) | Y/ | It is essential to have clarity when it comes to strategic alliances for industrial service innovations. The partner needs to know what the basic idea is and what exactly is expected from him as a collaborating party. The explanation of the mutual benefits of such an alliance is therefore crucial. | Short term effects:  
- Partner gets to know what is expected from him and how the mutual benefits of this collaboration can look like  
Long term consequences:  
- Trustful collaboration |
|----------------------------------------|----|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Employee empowerment (1)               | Y/ | Certain employees are in constant contact with customers but also other businesses in the industry. When planning an alliance with such a partner these employees should have the power to assess these possible partnerships as they know from fieldwork or other customers which firms have a positive or negative reputation and whether these firms would be suitable or not. | Short term effect:  
- Detection of right partners for alliances through employee’s insider information  
Long term consequences:  
- Successful alliances through long standing experiences |
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### Consulting services:
It is evident that the quality and performance of industrial service innovations has to be high and professional but the people who are selling or providing this service need to be able of highlighting and explaining these advantages and characteristics of the sometimes complex service offering. The responsible staff members have to be trained and focused therefore to exercise good consulting.

<table>
<thead>
<tr>
<th>Determinants (number of times mentioned)</th>
<th>Effect? Yes / No</th>
<th>Explanation of the types provided</th>
<th>Short term effects</th>
<th>Long term consequences</th>
</tr>
</thead>
</table>
| Customer analysis (2)                  | Y/ Y/            | Essential for the pre sales phase of service innovations. The customer analysis is in this case supporting the consulting. In case of an established portfolio of modules that can be transformed into individual possibilities of modularizations the sales phase is linked to professional consulting and analysis regarding the innovation. In the process of internationalization of service innovations the consulting is a long process and runs through different steps of consulting strategies. When a company is already cooperation with a client and is accepting that every customer is different to handle a profound consulting service for a client can | Short term effect:  
• Customer analysis and consulting should be performed at the same time as it is an important groundwork in the pre-sales phase.  
• When portfolio is established sales department and consulting interact and build on established customer analysis  
• Initiates possible long term international projects  
• Increased image trough profound consulting adapted to the customer  
• Dynamic or long standing customer analysis processes depending on the branch | Long term consequences:  
• Managing the pre-sales phase successfully with detailed customer |
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| Service Culture (2) | Y/ Y/ | A service culture honoring a functioning service system is essential as it determines the right contact person for consulting services. The communication regarding industrial service innovation needs to be performed perfectly and the consulting has to be coordinated professionally with sales teams. Conflicts of interest can evolve when not managed well. It has an effect as the industrial services are skill-intensive services and the service culture has to support the transition from sales people to consulting employees who are not just selling the tangible goods via catalogues but who are forming constant customer relationships which end in the sale of services. |
|--------------------|------|-------------------------------------------------|---|

Short term effects:
- The right coordination of contact persons with customers and the well-functioning link between consulting and sales teams
- Transformation of sales people to consulting people for selling long lasting service relationships
- Implementation of service related key figures, efficiency measures and trainings to support the consulting services.
- Consulting will be realized not only for own products but for external goods
- The consulting is more intensive when it is marked in the culture for innovations and the customers will realize that is authentic
Total return of investment on partnerships can be higher for services.

Service culture has to force more suitable key figures, methods of efficiency measure or trainings for employees to support effective consulting services and link them with success figures.

Service culture needs to be open enough to sell consulting or services for other products which are not part of the own business. The service which is superior to others should lead the market. The label for a functioning car can already be done everywhere and customers decide where the services are the best.

A well-marked service culture is influencing the intensity of offered innovations of consulting services and it is authentic for customer firms. If it appears put-on the clients will notice.

| Service System (1) | Y/ | A well-functioning service system is defining the responsible contact persons and the communication procedure for professional consulting offers. The system is managing therefore the interest conflicts between sales and consulting areas | Short term effects:  
- Definition of the communication procedure and management of perfectly coordinated consulting offers  

Long term consequences:  
- Long lasting customer relationships with continuous service provisions which can end in higher returns on investments |
### Integration of customers (3)

<table>
<thead>
<tr>
<th>Y/N</th>
<th>Only vital for continuous development of service innovations but customer integration should not be performed too extensively as it can mean that there would be a lack of clearance of the service</th>
</tr>
</thead>
</table>
| Y/Y | The integration of customers for effective consulting strategies is vital as the firm needs to know exactly what the customer asks for and demands.  

The firm has to deduce customer inputs and complaints to integrate these customer wishes into the consulting services.  

Training for correct detection of needs and wants of customers to develop better consulting for sales departments  

The company also needs to detect the right people for the integration as users of services which will be included can probably block when they feel offended by improvement suggestions. The innovation and consulting advice should include how this service can be sold internally and arguments have to be integrated that support the takeover of such service innovations |

<table>
<thead>
<tr>
<th>Short term effects:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Detection of exact needs and wants for effective consulting</td>
</tr>
<tr>
<td>- Deduction of customer inputs into better consulting</td>
</tr>
<tr>
<td>- Training of correct detection of customer wants for better consulting</td>
</tr>
<tr>
<td>- Openness for consulting advice at the client’s firm when most suited contact persons are found and convinced by service packages that include arguments for internal selling</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Long term consequences:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Base for continuous improvement processes after consulting services are established</td>
</tr>
</tbody>
</table>
### Tangibility and clarity of services (1)

<table>
<thead>
<tr>
<th>Y/</th>
<th>The clarity of possible service innovations are facilitating the whole consulting service process as the customers can get a clear picture what is meant by the service and what can be expected</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Short term effects:</strong></td>
</tr>
<tr>
<td></td>
<td>• Facilitation of the consulting process as client firms get a picture of what can be expected from the service</td>
</tr>
</tbody>
</table>

### Employee empowerment (1)

<table>
<thead>
<tr>
<th>Y/</th>
<th>The employees should be trained and empowered to detect the needs and integrate them into the consulting services.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>This matter has to be handled with care however as the sales and consulting departments shall not promise innovations that cannot be kept.</td>
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<tr>
<td></td>
<td>The consulting should integrate the actual and realistic features.</td>
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<tr>
<td></td>
<td>Visionary people are more dedicated to work in research departments than in sales areas.</td>
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<tr>
<td></td>
<td><strong>Short term effects:</strong></td>
</tr>
<tr>
<td></td>
<td>• Detection of exact customer needs and power to communicate it via appropriate consulting</td>
</tr>
<tr>
<td></td>
<td>• Training of correct detection and right consulting without promising too visionary projects</td>
</tr>
<tr>
<td></td>
<td>• Branch is influencing the grade of empowerment and innovation: industry sector – change, whereas medicine – conservative</td>
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<tr>
<td></td>
<td><strong>Long term consequences:</strong></td>
</tr>
<tr>
<td></td>
<td>• Successfully suited consulting by including the employees closely into the consulting strategy</td>
</tr>
</tbody>
</table>
### Individual adaptations:
The globalization and general internationalization of the markets has forced the companies to individualize certain service offerings and to adapt to intercultural requirements. The service demanding firms are also more and more requesting individual configurations as services should support a firm with firm specific solutions and the service innovations in this field should be aware of these needs.

<table>
<thead>
<tr>
<th>Determinants (number of times mentioned)</th>
<th>Effect? Yes / No</th>
<th>Explanation of the types provided</th>
<th>Short term effects</th>
</tr>
</thead>
</table>
| Customer analysis (2)                  | Y / Y /        | It is important to actively go to the customers and observe the people who are using the services as the potential innovations for individualized services can be realized only with direct customer contact. Focus groups or classic market analyses are not useful in this case as it is not sufficient when people are only talking about possible problems as they often cannot formulate it correctly. When a company is analyzing the customer base carefully it is probable that different consumer segments with various wants and needs are detected. The main objective can then stay the same but individual adaptations to socio cultural | Short-term effects:  
- Detect incipient stages for possible individualizations  
- Formulation of individual demands by customers may not be sufficient however due to problem of suitable verbal description  
- Sensitive analysis can yield different segments with differing individual requests which are satisfied with an overall aim and strategy but with slight adaptations  

Long term consequences:  
- Successful provision of various segments with light adaptations |
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| Service Culture (2) | Y/ Y/ | Depends on the type of firm. It has of course an effect as a family owned business would have to change the system and culture to develop individual adaptations and it needs to integrate a whole new marketing concept in accordance with the individual adaptations.  
A service culture is sharpening the sensitivity and service mindset in the long run and the service providing firm is asking itself towards individual adaptations:
  - Something may not be running perfectly at the customer?
  - Something may have changed at the client’s firm regarding the responsible people or technological products which are in use?
  - The customer’s firm may serve different or new markets than before?
All these steps of analysis can lead to individualized service innovations
Some companies put the customer in the center of attention and with direct inputs |
<table>
<thead>
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<th></th>
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<tbody>
<tr>
<td>Short term effects:</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Integration of a whole new marketing concept when a firm is transforming its service culture towards individual adaptations</td>
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<tr>
<td></td>
<td>Sharpening the sensitivity and service mindset towards individualized service innovations for the customer’s firm</td>
<td></td>
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<tr>
<td></td>
<td>Service culture is built on customer wishes which can be visualized by configurators</td>
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<tr>
<td></td>
<td>Formation of suitable alliances</td>
<td></td>
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<tr>
<td>Long term consequences:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transformation of assembly lines towards individual production centers</td>
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</tr>
</tbody>
</table>
Industrial Service Innovation in Upper Austrian companies

| Service System (1) | /N | Only at the stage of an implementation and continuous improvement process useful. At the beginning of an individualized service innovation process it is not needed yet. | Long term consequences:  
• Facilitation of continuous improvement processes for innovations or adaptations |

| Integration of customers (3) | Y/ Y/ Y/ | Very essential as a service innovation for individualizations won’t be successful when the customers are not integrated. Part of customer analysis but more than that since simple analysis like in the | Short term effects:  
• Enables the explorative phase for individualized services and is more than simple analysis  
• Deduction of exact consumer wants |
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| **Tangibility and clarity of services (1)** | Y/ | The clarity of the service provision is essential as the customer firm needs to know exactly what the individual adaptation contains and how it differs from former offers or competitor’s service packages. Especially when the individualized service is more expensive than others it is important to declare how this pricing was chosen (maybe in a sense of a permanent availability for customer wishes) | **Short term effects:**  
• Customer firms get to know the individual details and accept possible higher costs by a clear documentation | **Long term consequences:**  
• Detection of future trends and effective production lines which are favored most by the clients  
• Adaptations can be performed timely accurate and more precise |

- detergent branch won’t work.  
  Big effect on individual adaptations as customers can ask for exact configurations which are deduced as a consequence. It has to be remembered however that customer wishes are bound to cyclical fluctuations and the individualizations have to integrate the changing consumer tastes  
  When a company is able to log into the client’s DNA and integrate these findings a timely accurate adaptation can be realized easier and more precise.
| Employee empowerment (1) | Y/ | Employees should be informed and asked what is possible to realize as ambitions which are too high can cause consumer complaints. The depth and wideness of individual adaptations have to be declared to fix also the price ranges for adaptations in order to integrate employees effectively. | Short term effects:  
- Fixation of possible adaptations with matching price ranges and scope of individual configurations by integrating all kinds of employees in the firm |
6.3 Matrix of Determinants Influencing the Trends

This third subchapter now about the results of the empirical expert interviews tries to highlight the most important facts about the relevant success factors in relation to the four main trends in the industrial service landscape. The summarization is presented via the matrix which is already displayed in the beginning of chapter 5. The reader gets to see at first glance why the determinants are the most important ones. The reason why only the short term effects are added in the matrix and not the long term consequences is the fact that the short term effects can be assessed and suspected more precisely and therefore are more valid for a guideline. The long term consequences may emerge when the short term effects are arising. In the first column on the left side a timeline was additionally added. It is based on inputs of the expert interviews and it should show that the industrial service innovation is a development process and that there are certain steps that have to be followed one after another. The customer analysis is hereby the ground base for future innovations and the active integration of the customer is an essential step after analyzing the clients’ wants and needs. The Service culture as a following factor is crucial for installing a service mindset and a clear commitment to innovations regarding services for the customer. It also integrates the empowerment of employees which are asked to bring in ideas and first-hand information of their customer insights. The clarity and tangibility of services is then as a following important in order to present a clear picture of the possible service innovation to the external clients’ firms but also to the internal departments so that they can focus on an aim. The last step shown here is the service system. It can evolve after the previous success factors are respected and a well-elaborated and clearly structured system regarding service innovations is then a basic condition for future innovations with high potential.
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<table>
<thead>
<tr>
<th>Timeline</th>
<th>Themes</th>
<th>Determinants</th>
<th>Holistic product service packages</th>
<th>Strategic collaborations and alliances</th>
<th>Consulting services</th>
<th>Individual adaptations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Step</td>
<td>Customer analysis</td>
<td>Short-term effects:</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>- Starting point for innovations of product-service packages</td>
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<tr>
<td></td>
<td></td>
<td>- Customers are found for prototype-testing</td>
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<td></td>
<td></td>
<td>Short-term effects:</td>
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<tr>
<td></td>
<td></td>
<td>- Base for negotiating with bigger business partner</td>
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<tr>
<td></td>
<td></td>
<td>- Get the interest of possible alliance partner</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>- Dependence of small firms on detailed customer analysis</td>
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<tr>
<td></td>
<td></td>
<td>- Base for working with customers as potential future strategic partner</td>
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<tr>
<td></td>
<td></td>
<td>Short-term effects:</td>
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<tr>
<td></td>
<td></td>
<td>- Customer analysis and consulting are linked closely as it is an important groundwork in the pre-sales phase</td>
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<td></td>
<td></td>
<td>- Initiates possible long term international projects</td>
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<td></td>
<td>- Dynamic or prolonged customer analysis processes depending on the branch (mobile / industrial goods)</td>
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<td></td>
<td></td>
<td>- Increased positive image trough profound consulting adapted to the customer</td>
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<tr>
<td></td>
<td></td>
<td>Short-term effects:</td>
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<tr>
<td></td>
<td></td>
<td>- Detection of incipient stages for possible individualizations by active inquiries</td>
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<tr>
<td></td>
<td></td>
<td>- Formulation of individual demands by customers may not be sufficient however due to problem of suitable verbal description</td>
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<tr>
<td></td>
<td></td>
<td>- Sensitive analysis can yield different segments with differing individual requests which are satisfied with an overall aim and strategy but with slight adaptations</td>
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<tr>
<td>2. Step</td>
<td>Integration of customers</td>
<td>Short term effects:</td>
<td>Short term effects:</td>
<td>Short term effects:</td>
<td>Short term effects:</td>
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<tr>
<td></td>
<td>Short term effects:</td>
<td>Possibility to test pilot projects to gather important feedback and to see what the customer is planning to do with a product-service package</td>
<td>Persuasion of the partner that the market consists of actual and potential clients</td>
<td>Detection of exact needs and wants for effective consulting</td>
<td>Enables the explorative phase for individualized services</td>
<td></td>
</tr>
<tr>
<td></td>
<td>New Service customers are identified through tight integration</td>
<td>Real needs are spotted which means that services sometimes replace the good</td>
<td>Detect the speech for and needs of customers for effective partnerships</td>
<td>Integration of customer inputs into better consulting</td>
<td>Deduction of exact consumer wants in order to provide them with individual configurations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Customers get short information about different partners for clarity</td>
<td>Customers get short information about different partners for clarity</td>
<td>Training of correct detection of customer wants for better consulting</td>
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</tbody>
</table>
### Short term effects:  
- Making the product-service packages and hybrid added value better predictable and schedulable more effectively as service innovations are planned in advance
- Company becomes more sensitive for the topic of product-service packages

### Short term effects:  
- Base for effective partnership where strategic cooperation partner is for example seen as a medium for transmitting the customer’s service information
- Necessary for longer relationships

### Short term effects:  
- The right coordination of contact persons with customers and the well-functioning link between consulting and sales teams
- Transformation of sales people to consulting people for selling long lasting service relationships
- Implementation of service related key figures, efficiency measures and trainings to support the consulting services.
- Consulting will be realized not only for own products but for external goods
- The consulting is more intensive when it is marked in the culture for innovations and the customers will realize that is authentic

### Short term effects:  
- Integration of a whole new marketing concept when a firm is transforming its service culture towards individual adaptations
- Sharpening the sensitivity and service mindset towards individualized service innovations for the customer’s firm
- Service culture is built on customer wishes which can be visualized by configurators
- Formation of suitable alliances for individualizations
<table>
<thead>
<tr>
<th>4. Step</th>
<th>Employee Empowerment</th>
<th>Short term effects:</th>
<th>Short term effects:</th>
<th>Short term effects:</th>
<th>Short term effects:</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Employees with tight customer contact become more sensitive to wants and needs for innovations towards packages</td>
<td>Detection of right partners for alliances through employee’s insider information</td>
<td>Detection of exact customer needs and power to communicate it via appropriate consulting</td>
<td>Fixation of possible adaptations with matching price ranges and the scope of individual configurations by integrating all kinds of employees in the firm for individual adaptations</td>
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<tr>
<td></td>
<td></td>
<td>Introduction to methods for detecting wants and needs motivates them to bring themselves in</td>
<td>Training of correct detection and right consulting without promising too visionary projects</td>
<td>Branch is influencing the grade of empowerment towards innovation: medicine sector may be too conservative for empowerment in contrast to dynamic industries</td>
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<td></td>
<td></td>
<td>Kaizen gives employees a voice and valuing ideas regarding failures is preventing the repeatedly discussed propositions which prevents frustrations</td>
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<td></td>
<td></td>
<td>Inclusion of customer service people in meetings with top management facilitates the explanation of ideas</td>
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<tr>
<td></td>
<td></td>
<td>Possible danger of too many people in the decision process and that customers may want too much</td>
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<tr>
<td>5. Step</td>
<td>Tangibility and Clarity of services</td>
<td>Short term effects:</td>
<td>Short term effects:</td>
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<tr>
<td></td>
<td></td>
<td>Customer is realizing the actual benefits of services which are linked to products with regards to an easier handling or usage of products.</td>
<td>Partner gets to know what is expected from him and how the mutual benefits of this collaboration can look like</td>
<td>Facilitation of the consulting process as client firms get a picture of what can be expected from the service</td>
<td>Customer firms get to know the individual details and accept possible higher costs by a clear documentation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6. Step</th>
<th>Service System</th>
<th>Short term effects:</th>
<th>Short term effects:</th>
<th>Short term effects:</th>
<th>Short term effects:</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Change of view and strategy to start-up companies</td>
<td>No effect</td>
<td>The communication during consulting services is of perfect quality as a suited service system is defining the right person for the consulting.</td>
<td>No effect</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New focus on freedom for learning, experiments and attempts</td>
<td></td>
<td>Coordination of sales and consulting departments</td>
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<tr>
<td></td>
<td></td>
<td>Evolving of smaller units for service innovations</td>
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<td></td>
<td></td>
<td>Top management is showing commitment and favors a service system via this step</td>
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<tr>
<td></td>
<td></td>
<td>Change of controlling system</td>
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</table>
6.4 Answer of research question and summary of results

The research question which had to be answered in this master thesis was the following:

What are the main determinants with respect to the relevant trends for successful industrial service innovation in Upper Austria?

It was tried to find the most relevant and important determinants for industrial services via literature research and by collecting various service innovation models by different authors which contained several lists of the relevant success factor. The 9 main determinants which were gathered and deduced from the models were then opposed to the 4 main trends which were also identified via literature research. The experts were then presenting their views on the most important determinants for successful industrial service innovations and some core statements could be found to answer the research question:

- The customer analysis, customer integration, service culture, employee empowerment, service tangibility and service system were perceived as the most relevant determinants for successful industrial service innovation processes.

- The integration of customers was mentioned by all of the interviewees when rating the 3 most important determinants and the customer analysis together with the service culture were named by two experts. It can be said therefore that integration of customers, customer analysis and service culture are indispensable for service innovation processes.

- The customer analysis is in general a starting point for innovations as it cannot be skipped when identifying customers for prototype testing, convincing the right strategic partners, implementing customer oriented consulting and finding the right segments for individualizations.

- The integration of customers should be attached to the analysis stage as the customers can be essential for the testing of pilot projects and detection of real needs. Furthermore the language of customers is identified and partners...
can be convinced when wants and needs can be presented. The consulting can also be based on such findings in order to increase the value.

- **A service culture** is then vital for including the service perspective in the production process of tangible goods. This means that services are planned in advance and virtually included before the goods are made. The internal coordination but also external cooperation with partners is also eased through a service culture commitment and the sales people are transformed into consulting forces with a service aspect focus. In addition the key figures are including service related aspects in order to highlight the relevance of new service offerings.

Last but not least the customer is generally put in the center of attention and sensitivity and service mindset are sharpened through this actions in a service culture.

- **The employee empowerment** can have the consequence that first-hand information towards customer wishes for innovation are brought in by customer service employees and these people should be included at top management meetings. The right partners for alliances can also be found easier through employee empowerment as frontline staff has insider information about dynamics in the market and reputations of several firms. The training of such empowered employees for detecting the right wants and needs of customers for innovations, new alliances, efficient consulting and adaptations has to be conducted correctly however in order to build up the right scope of the service portfolio.

- **The tangibility of services** and clarity is a vital factor for presenting the customer firms the actual benefits, the strategic partner the mutual tasks and it clarifies the pricing models which are connected to innovations of product-service packages or individualized offers.

- **The service system** as the last determinant for successful service innovations is enabling a company in the best case to integrate trial and error approaches, experimental freedom and a learning culture. The top management should
also be committed to services in a service system and a clear customer oriented focus can be installed.

These 8 statements are answering the research question and the expert interviews were gathering valuable information regarding the most important determinants for successful industrial service innovations.

6.5 Limitations of the Thesis

A limitation of the master thesis about the industrial service innovations in Upper Austria is that the number of experts for the interviews was not very high with 3 respondents. There should be further studies in the future were responsible people of industrial service offering firms are interviewed and asked about their opinion regarding the most relevant determinants.

Furthermore there can exist more success factors for industrial services but the 9 determinants which were asked in detail were the most common and most often cited ones in the literature and therefore they were picked. The experts were informed that they can name further determinants when they have something absolutely essential in mind but the 9 discussed determinants were probably sufficient at first glance.

The 3 interviews for this study however have been very informative and successful as on average the interviews lasted about 1 hour and a lot of inputs were given and as a consequence analyzed. The advantage of the interviews was also that the respondents were having a very broad and extensive view on this topic and so this thesis was able to present valid information regarding the importance of the determinants.
7. CONCLUSION

The importance of services and innovations in the manufacturing and industrial sector has been increasing in the past years and the relevance of such industrial service innovations is becoming more essential in the future which was made clear when analyzing the situation in Austria in this thesis. The effects of innovations regarding products and services on the turnover figures are evident and therefore successful service innovation processes in companies are a vital factor for its competitiveness.

The process of transforming a company from a pure product manufacturer towards a service provider with a focus on innovations was therefore explained in order to present the reader that the services cannot be handled independently from the products but should be more seen as hybrid bundles with increased benefits for clients’ firms. The transformation process is then also highlighting in order to show that fragmented service functions are not sufficient and service lines can and should evolve more as autonomous and powerful units.

The climate of a company towards services is then also a basic condition for future innovations in this field as the openness, support, commitment and exchange of ideas for service innovations builds the framework for such developments of service innovation processes.

This thesis was then as a consequence putting the focus on the most relevant service innovation models from different authors and the associated success factors and determinants for the prosperous planning and development of service innovations. In total 9 models were identified and the most important determinants were deduced by determining that the most important key determinants for further investigation in the expert interviews have to occur at least in 4 out of the 9 models.

It became clear that factors as the customer analysis, customer integration or service culture are very important for service innovation processes as the customer builds the leading reference point for services and a culture which is supporting a service direction and innovation culture is inevitable for developing efficient industrial services.

The most important determinants are then as a following in an interdependent relationship with the most important trends in the industrial sector as the holistic product-service packages, strategic alliances, increased professional consulting
services or individualized adaptations are forces that need to be handled and targeted by the determinants in order to become competitive in this branch.

The process of such service innovations is generally spoken a very complex one as a company cannot rely on cost efficient, technological superior or modern products but it needs to adjust its efforts and strategies but also organizational efforts on customer wants and needs. This requires a firm to be flexible, open minded but also to show the required commitment and the service innovation process can result in recurrent rounds, restarts and changes of plans. The decisive factor is that the company is not losing the focus on the actual customer preferences and the mutual benefits of the providing company with increased sales and the purchasing party with a product supporting service is outweighing the costs and time that are invested.
REFERENCES


Kowalkowski, C. (2006): Enhancing the industrial service offering. New requirements on content and processes; Linköping: Dissertation from the International Graduate School of Management and Industrial Engineering
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Schweiger, S., Dressel, K., Pfeiffer, B. (2011): Serviceinnovationen in Industriounternehmen erfolgreich umsetzen. Neue Geschäftspotenziale gezielt durch Dienstleistungen ausschöpfen; Wiesbaden: Gabler Verlag

Storey, C., Kahn, K.B. (2010): The role of knowledge management strategies and task knowledge in stimulating service innovation; Journal of Service Research


**APPENDIX**

The supplement is showing the survey sheets:

<table>
<thead>
<tr>
<th>1st sheet</th>
<th>1. Trend: Holistic product-service packages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Customers in the industrial sector are demanding more and more holistic packages. This means that they do not only want a product with a perfect quality and acceptable price but also an accompanied service that facilitates the purchasing, handling, usage, understanding or decomposition of the product. Furthermore these key services in addition to the core product should be supported by low cost or free offerings that improve the relationship between the purchasing and service providing party.</td>
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</table>

<table>
<thead>
<tr>
<th>The 3 most important determinants which were picked before are now asked in detail</th>
<th>Effect (Y/N)</th>
<th>Why?</th>
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<tbody>
<tr>
<td>1. Determinant: A detailed customer analysis is helpful considering the</td>
<td>Short term effect</td>
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<td></td>
<td>Long term effect</td>
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<tr>
<td>Determinant</td>
<td>Development of Product-Service Packages</td>
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<tr>
<td>2. Determinant:</td>
<td>A specific service culture can favour the development of product-service packages</td>
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<tr>
<td>3. Determinant:</td>
<td>A professional service system can support the development of product-service packages</td>
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<tr>
<td>4. Determinant:</td>
<td>The integration of customers can lead to successful product-service packages</td>
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<tr>
<td>5. Determinant:</td>
<td>The service tangibility can influence the success of product-service packages.</td>
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<tr>
<td>6. Determinant:</td>
<td>A market orientation can be essential for product-service packages</td>
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<tr>
<td>7. Determinant:</td>
<td>The internal capability analysis can be helpful considering the product-service packages.</td>
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<tr>
<td>8. Determinant:</td>
<td>The training of employees can be deciding for product-service packages</td>
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<tr>
<td>9. Determinant:</td>
<td>The employee empowerment can successfully influence the product-service packages</td>
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</tbody>
</table>
2. **Trend: Strategic collaborations and alliances**

When firms are offering an industrial service portfolio it is possible that some specific service offerings or service characteristics are not parts of the core capability. Besides it can be the case that the number of employees is not sufficient for covering all the demands. Therefore alliances with different firms which can overtake certain services are needed in order to guarantee and provide the clients’ firms with a satisfying service portfolio. These broad networks of firms are becoming more popular in the future.

| The 3 most important determinants which were picked before are now asked in detail |
|-----------------------------|-----------------|-----------------|
| **Determinant:** | **Effect (Y/N)** | **Why?** |
| | **Short term effect** | |
| | **Long term effect** | |
| **1. Determinant:** | | |
| A detailed customer analysis can be helpful for building a strategic cooperation | | |
| **2. Determinant:** | | |
| A special service culture can | | |
favor the development of strategic alliances

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<tbody>
<tr>
<td>3. <strong>Determinant:</strong></td>
<td>A professional service system can be helpful considering the installation of strategic collaborations</td>
</tr>
<tr>
<td>4. <strong>Determinant:</strong></td>
<td>A customer integration can be important for future strategic alliances</td>
</tr>
<tr>
<td>5. <strong>Determinant:</strong></td>
<td>The tangibility of services can influence the success of strategic collaborations towards service innovations</td>
</tr>
<tr>
<td>6. <strong>Determinant:</strong></td>
<td>A market orientation can be deciding for strategic alliances</td>
</tr>
<tr>
<td>7. <strong>Determinant:</strong></td>
<td>The internal capability analysis can be helpful considering strategic alliances for industrial service innovations</td>
</tr>
<tr>
<td>8. <strong>Determinant:</strong></td>
<td>Training of employees is important for future strategic alliances</td>
</tr>
<tr>
<td>9. <strong>Determinant:</strong></td>
<td>An employee empowerment can favor the development of strategic collaborations</td>
</tr>
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</table>

3. **Trend:**
It is evident that the quality and performance of industrial service innovations has to be high and professional but the people who are selling or providing this service need to be able of highlighting and explaining these advantages and characteristics of the sometimes complex service offering. The responsible staff members have to be trained and focused therefore to exercise good consulting and informational support and this needs to be integrated into a service providing firm’s structure.

<table>
<thead>
<tr>
<th>The 3 most important determinants which were picked before are now asked in detail</th>
<th>Effect (Y/N)</th>
<th>Why?</th>
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<td></td>
<td>Short term effect</td>
<td>Long term effect</td>
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<tr>
<td><strong>1. Determinant:</strong></td>
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<tr>
<td>A detailed customer analysis is helpful considering a detailed consulting service</td>
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<tr>
<td><strong>2. Determinant:</strong></td>
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<tr>
<td>A specific service culture can favor a professional consulting</td>
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</table>
## Industrial Service Innovation in Upper Austrian companies

<table>
<thead>
<tr>
<th>Service Offer</th>
<th>3. Determinant: A professional service system is important for conducting detailed consulting services</th>
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<tbody>
<tr>
<td></td>
<td>4. Determinant: A customer integration can support the development of consulting services considering service innovations</td>
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<tr>
<td></td>
<td>5. Determinant: Service tangibility can influence the success of consulting services towards service innovations</td>
</tr>
<tr>
<td></td>
<td>6. Determinant: A market orientation can be deciding for well-planned consulting services</td>
</tr>
<tr>
<td></td>
<td>7. Determinant: The internal capability analysis is helpful considering the consulting services for innovations</td>
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<tr>
<td></td>
<td>8. Determinant: The training of employees can be deciding for successful and professional consulting services</td>
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<tr>
<td></td>
<td>9. Determinant: Employee empowerment can be beneficial for consulting services</td>
</tr>
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</table>

### 4. Trend:

Individual
The globalization and general internationalization of the markets has forced the companies to individualize certain service offerings and to adapt to intercultural requirements. The service demanding firms are also more and more requesting individual configurations as services should support a firm with firm specific solutions and the service innovations in this field should be aware of these needs. As services can be so standardized the price and costs associated with the offering can then as a consequence also be customized.

<table>
<thead>
<tr>
<th>Effect (Y/N)</th>
<th>Why?</th>
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<tr>
<td>Short term effect</td>
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<tr>
<td>Long term effect</td>
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</tbody>
</table>

### 1. Determinant:
A detailed customer analysis can favor the development of individual service innovations for customers

### 2. Determinant:
A specific service culture can influence successfully the individual adaptations

3. **Determinant:**
A professional service system can be important for the development of individual service adaptations

4. **Determinant:**
The customer integration can be helpful for individually performed service innovations

5. **Determinant:**
The tangibility of services can influence the success of individual adaptations considering service innovations

6. **Determinant:**
A market orientation can be deciding for individualizations

7. **Determinant:**
An internal capability analysis can be beneficial for individually designed service innovations

8. **Determinant:**
The training of employees is supporting the development of individual adaptations

9. **Determinant:**
Employee empowerment can favor individual adaptations