



TECHNICAL UNIVERSITY OF CLUJ-NAPOCA

ACTA TECHNICA NAPOCENSIS

Series: Applied Mathematics, Mechanics, and Engineering
Vol. 61, Issue III, September, 2018

OPTIMIZING THE EVALUATION OF EYE TRACKING DATA TO VALIDATE REQUIREMENTS IN VIRTUAL SPACE TO IMPROVE CUSTOMER SATISFACTION

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Abstract: The purpose of the paper is to explain the theoretical background, the effects and the potential of Servitization on today's companies. Based on the basics of product service systems, the development from a net product manufacturer to a holistic solution provider is presented and corresponding business models are highlighted. In addition to the compilation of relevant information, a practical example of Servitization and the changes due to the evolution to a full-service provider will be described and emphasized. For the compilation and evaluation of the presented information, the method of secondary research was primarily used. The sources of information were recent economic and technical literature, scientific journals and current studies by various consulting companies.

Key words: Servitization, Product service systems, industrial operator model, fleet management

1. INTRODUCTION AND CONCEPTUAL CLASSIFICATION

For the description and development of service company, there are innumerable terms, such as Service-Transformation or Servitization, which ultimately include the same thing, namely the development to a provider of services [1]. The foundation for Servitization was laid in the 20th century. After the end of the Second World War and the overcoming crisis during the "Cold War", new technologies and a cosmopolitan thinking led to an ever more connected world. In the course of this, the competitive pressure for companies has also increased, as companies from outside their national borders are now pushing on their home market. An increasingly global market economy developed. Especially for manufacturing companies, such as mechanical engineers, this development requires a rethinking and sometimes even a departure from the previous corporate strategy and orientation. The term Servitization implies "[...] the development of a company from a pure product manufacturer to a service provider" [2]. In order to achieve this far-reaching development, companies are required to make major changes in any area [1]. The basics and

pillars of Servitization are visible in the following illustrations (see Figures 1) and explained in more detail below.

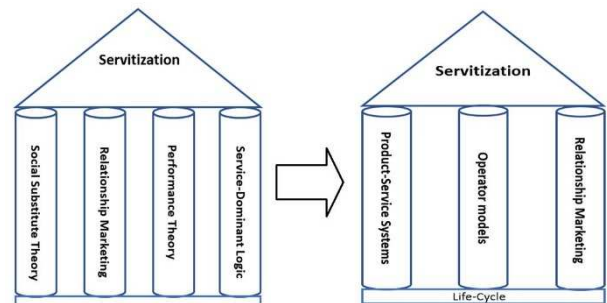


Fig. 1. Fundamentals of Servitization (own figure)

Basically, Servitization, the transformation to services, can be subdivided into four foundations (see Figure 1) [1]. The social exchange theory merely implies that customer relationships always consist of the mutual exchange of values or resources. Relationship Marketing builds on the exchange theory and illuminates the construction, the intensification, as well as the restoration of customer relations. The basis for this is offered by the customer life cycle analysis. The benefit of the customer is in the foreground. The importance of intensive consideration of the customer and his needs is increasingly coming to the fore and is also of great relevance for the service provision of a

company (performance theory). The service dominant logic shows a completely new approach. All companies are understood as service companies and treated as such. Customer needs are taken into account through its function as co-creator in the value added. However, it can be stated that all foundations adopt a very theoretical and socio-psychological approach. Thus, there is a lack of an intensive look at the necessary conversion to and from companies, to become service-oriented. Simply put, the inclusion of techniques for implementing Servitization is lacking. From these points of view, a new concept was designed based on the previous foundations as well as the most important concepts (see Figure 2). This concept should describe the foundations and thus the way of a company to Servitization. The most important terminologies of Service-Transformation are Hybrid Offerings, Integrated Solutions and Product-Service Systems. Hybrid Offerings, first described by Shankar et al. 2009 emphasizes the importance of combining products and services to create greater customer value. Building on this, Integrated Solutions are all about offering customized solutions to the customer. Product-Service Systems ultimately unite the world of products and services. The first development steps of manufacturing companies are evident in that they now offer their products in connection with various services, such as the storage of spare lines, maintenance contracts for their machines or different optimization options.[2]

A closer look at the three concepts raises the question as to what extent it makes sense to clearly separate these terms from each other. Ultimately, Integrated Solutions are a crucial component of the Product-Service Systems. These systems are highly relevant to the emerging customer relationship through customized solutions for their products and services. Product-Service Systems can not exist without Integrated Solutions, at least not in a successful and customer-oriented framework. Hybrid offerings also aim to increase or create customer value. In this closer examination, it becomes clear that the concepts are closely linked or even merge. Thus, a clear separation of concepts is not meaningful and correct. Below, the individual foundations are explained and set

in relation to the goal of Service-Transformation. Product-Service Systems (PPS) have become more important in recent years as companies increasingly focus on meeting the individual needs of their customers. While the potentials and opportunities for further development of products are often difficult to see and require a long phase of development, which often involves a great financial outlay, this is completely different for PPS systems. The big advantage is that potentials are much more obvious. Because these systems are made up of a combination of product and service. This combination offers greater potential and at the same time the possibility of a more clear differentiation. In individual cases, the possible differentiation can go so far that it can contribute to the positioning of the company, its products and services. The ultimate goal is the individual satisfaction of customer needs. In order to finally establish the understanding of Product-Service Systems, the distinction between PPS and Tukker is very well suited. It will be decided between three PPS types product-oriented, use oriented and a result-oriented distinction [5]. As the name suggests, the product-oriented approach focuses on the material products and there is a high proportion of products. The services are thus geared to the particular material product and serve as an extension or support. The use-oriented PPS, on the other hand, moves between service and tangible product. The material product through its use stands in the foreground, whereby the producer remains owner. An example of this type of PPS system is car sharing and leasing of machinery or vehicles. Last but not least, the result-oriented approach. There is a large proportion of service (higher margins) and often no tangible product. The focus of the result orientation is that the customer and supplier define the result to be achieved in advance. On this basis, service activities are performed, which are often billed according to service units [5]. The third pillar relationship marketing places its focus on the customer relationship. More specifically, on the construction, the intensification and the restoration. Similar to the Product-Service Systems, Relationship Marketing also has a benefit orientation. Here, the benefit of the customer in the foreground that is the need

fulfillment. The benefit for the company lies in the value added [1].

To sum up, Servitization is the transformation from a manufacturing company to a service company, with the goal of satisfying customer needs, sustaining the company's success and strengthening its competitiveness [1]. The entire build-up of Servitization is based on the customer lifecycle. This lifecycle is nothing more than the relationship between customer and company. More specifically, it is about the long-term customer loyalty, which is to be achieved by the customer loyalty management and the implementation of various measures.

2. THE WAY TO INTEGRATE SOLUTIONS

In the following section the development from a net product provider to a holistic solution provider is presented and corresponding business models are highlighted. Traditionally, manufacturer of capital-intensive goods include the production and sale of technologically leading, high-quality and competitively priced products as their core competencies. Product-accompanying services such as engineering, maintenance or spare parts, are offered as an additional offer along the product life cycle of the respective product. In turn, customers invest in capital-intensive goods, hire appropriate staff to operate them, and ultimately sell their own products to their customers [8]. The prerequisite for the processing of product service systems is initially the technical development of the material product, with the aim of providing services around the products life-cycle. The combination of material services with a dedicated service ultimately leads to the desired range of services for the holistic satisfaction of customer needs, which can be offered as a holistic solution [4].

Basically, today's companies can be differentiated between two different centered forms of orientation with regard to the offered value proposition. Product centric companies are trying to build competitive advantages and a strong market position based on superior products. For this, the entire organizational structure is geared towards the development,

production and distribution of high-quality products. Most of the success measurement is based on the observation of sales figures and the resulting revenues on the market. Increases in profitability result in most cases from the product focus through the optimization of upstream value creation or at subcontractor's risk and expense. The actual value of the product for the customer is described here by means of various performance attributes. According to STOPPEN AND ROTH, the perceived value results from a subjective overall rating of a product by the customer, in which qualitative benefits and existing product features are weighed against monetary and non-monetary costs in the form of time, energy and effort. It is emphasized that the role, the context and the subjective assessment of the decision maker have a extensive influence on the perception and evaluation of the value. Therefore, the value depends on the quality of product attributes, which can be experienced at first hand and on the subjective perception of the recipient [11].

Service-oriented companies, on the other hand, consider products as a distribution mechanism for the services actually required. From this point of view, Services are not understood as a complementary product to a material good, but as a holistic solution to a complex customer problem. This requires the situation-specific combination of goods and services that are tailored to customer's specific needs. In this approach profitability increases result from the identification and the enhancement of additional potentials within the customer's value creation. Compared to the product-centric approach, the focus is more on the value creation and foreign business processes, which can ultimately lead to an increased problem-solving potential for the supplier. The service-centered approach shifts the understanding of values from a limited cost-benefit ratio, triggered by the supply of material goods to a value realized at the customer, which manifests itself in his processes. This requires a much closer supplier-customer relationship because service suppliers are directly involved in the customer's value creation and support them with their own experiences, resources and

capabilities to solve a particular customer demand [11].

2.1 Stages of the product service continuum

The development process from an industrial product manufacturer to a service provider requires a deep understanding of customer needs and a strategic realignment of the own business. Essentially, the product range is not just expanded or supplemented with services, but completely refocused on the requirements of service business. As a result, the original industrial product no longer represents the central value of an offer. Capital-intensive goods and services are understood as indivisible elements of a complex customer solution, instead of a additional feature focused on the enhancement of the actual product. The evolution to a service-oriented supplier is described as a longterm and complex process on a product-service continuum. The development requires a gradual shift of the activities of the producing company to the value creation of the customer [11]. Within the Product Service Continuum, the evolution from a simple product manufacturer to a holistic solution provider is characterized by the gradual change of business models towards service orientation and the changing understanding of products and services itself [1]. It can be distinguished between four evolutionary stages, which differ in their focus on product service systems and corresponding business models, which are presented below:

I Product-oriented business model

In the product-oriented business model, value creation is primarily based on the product produced and the benefits provided by the usage of the product. In addition, product-related services may be offered which are directly related to the core product and are aligned to the customer's operational processes. The aim is the sales support of the original product and the fulfilment of the statutory prescribed services, which results from the act of putting a product into circulation. The supply of goods and services is largely standardized and characterized by a superficial supplier-customer relationship. The products and services mentioned are paid by one-time payments or financing, whereby ownership passes from the manufacturer to the customer.

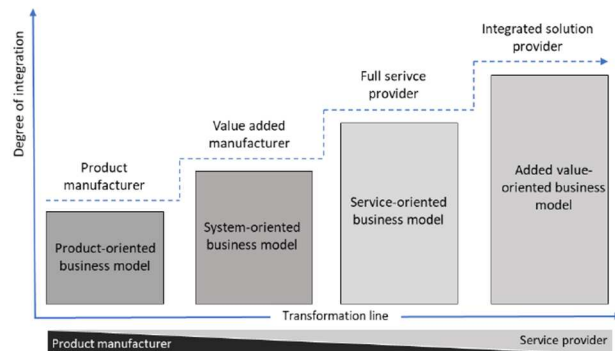


Fig. 2. Product-Service-Continuum (acc. to [9])

II. System solution-oriented business model

The system solution-oriented business model describes the offer of bundled goods and services. In many cases, the tangible product is still in the focus of the offer but aggregated into a relatively complex product service system by adding appropriate services. The resulting product service system is characterized by a relatively high degree of standardization and still strongly focused on the customer's operational processes. At the highest stage of development, offers are linked with first performance guarantees that go beyond the original benefits of the product. This creates a risk transfer from the customer to the supplier, for example by guaranteeing a certain productivity of a product service system.

III. Service-oriented business model

Within the service-oriented business model, the service moves to the center of an offer and represents the core value to the customer. Customer-specific services with a high proportion of services compared to product service systems are offered, which can also be offered completely independent of a tangible product. Therefore, this model sells only the actual benefits instead of the original industrial goods. In that case necessary products are provided by the service provider and remain in his property. The services can support the management of entire or partial business processes, which requires a much closer supplier-customer relationship.

IV. Added value-oriented business model

The aim of the added value-oriented business model is the offer of operator models. In this model, the provider is fully integrated into the value creation of the customer and responsible for the operation or the functionality of entire a

business process. The provider acts as a strategic partner for a part of the customers value creation. This partnership requires the most complex supplier-customer relationship, compared to the already mentioned models. By focusing on specific customer needs and the customers business processes, customer satisfaction is sustainably increased and stronger customer loyalty can be achieved by the supplier. In addition, it is harder to imitate the offered performance, which in turn impedes market entry barriers for possible competitors. The following section deals in detail with the systematization of industrial operator models and their risks and opportunities for customers and suppliers.

2.2 Industrial operator models

Increasingly, companies in the industrial sector are considering whether the classic purchase of equipment and machinery is still timely or whether it makes sense to outsource the actual production processes and instead focus on their own core competencies. This means that in many cases manufacturer of capital-intensive goods are considered as possible operators. Despite this, many customers in the capital goods sector are questioning the credit-financed procurement of investments as well and are discussing usage-based fees instead of large-scaled investments in machines. This consideration is amplified by the increasing efficiency and the growing complexity of capital goods. Another reason for the discussion is the more and more relevant consideration of life-cycle costs. Within this approach, it is not the initial investment that matters, but the long-term cost of ownership within the entire life-cycle of a product. In addition, new business models can be used to acquire less fortunate customers even in stagnating markets, for which investing in a new asset has not been a viable option [8].

As a supplement to the sale of industrial goods, a large scale of complementary services is already being offered in industrial markets. This offer ranges from classic product-related services to product-independent consulting services and even performance and profit guarantees. One of the most common models in the field of service-oriented business models is

the so-called full-service model. For example, the plant manufacturer assumes responsibility for the entire range of maintenance and repair activities for a customer. Thus, the manufacturer has a great influence on the availability and the utilization of the customers system and can exploit the technical or economic potential in a capacity that was previously not achievable for the customer. The greatest advantage for the customer is the guaranteed availability of the system by the manufacturer at agreed fixed cost [5]. An extension of the full-service model is the so-called operator model. In those models the entire operation of a plant or a business process will be performed by a subcontractor, instead of a limited set of sub-activities. Thus, the actual capital goods remain in the hands of the manufacturer and are not transferred to the customer. As a result, the customer receives exclusively the usage or efficiency of the capital good. As a result, performance-based accounting procedures are often used, which will be discussed later in detail. The facility which needs to be operated is nonetheless a part of the user's value chain and naturally located on its property. Otherwise it's just outsourcing of an existing business process. According to this operator models are a special form of acquisition regarding utilization and represent an alternative to the purchase of products or possession of equipment [10]. Operator models are primarily systematized of due to the diversity in the transfer of ownership:

In addition, a distinction can be made between two types of service offers: Increasing the productivity of production processes or increasing the availability of a system. According to SCHUH ET AL. the customer of an operator model usually focuses on the performance of the system, for which the operator can promise a certain performance potential. To provide these potentials it is necessary to permanently report the process parameters, generated during the usage phase, of the plant to the operator in order to continuously optimize the technical performance. However, if the increase in availability is at the centre of the operator model, various reactive and proactive services can be assigned to achieve the guaranteed availability. Reactive service offers

indicate all measures such as spare parts supply and maintenance that enable the basic operation of a system. In this case, the provider only offers services for a specific customer demand and is only slightly integrated into the customer's added value. To proactively increase the availability of an asset, certain services must also be provided proactively. This includes, for example, a twenty-four-seven diagnosis of the plant condition and a condition-based maintenance by the operator [10]. Due to the diversity of business models, various approaches for the billing of operator models are mentioned in the relevant literature. Instead of traditional product sales, other types of pricing can be used, which differ mainly in terms of the additional financial risk of the operator. Further differences exist in the risk assumption by the manufacturer and the demand of the liquidity of the customer. The following section introduces briefly the most common usage-based billing types:

Table 1.

Usage-based billing models of industrial operator models [10]

BILLING MODEL	DESCRIPTION
PAY FOR AVAILABILITY	Payment of the operator based on the provided technical <u>availability</u> of the system. Mostly, a limit on availability is agreed upon and the excesses is rewarded with monetary incentives, while shortfalls are prosecuted with penalties. Accordingly, the manufacturer bears the full risk in case of failure of the system.
PAY PER USE	Payment of the operator due to the actual use of the facility (often billed in operating hours). The manufacturer also bears the risk of default and reduced asset utilization. As a result, parts of the economic uncertainty of the customer are transferred to the provider.
PAY ON PRODUCTION	Payment of the operator regardless of the actual use of the plant but depending on the output produced or the total number of units produced in the plant (profit per unit). The performance of the system is of particular importance, since the optimization of the system is directly related to the possible turnover.

2.3 Opportunities and risks of industrial operator models

The use of operator models may increase the economic potential for the manufacturer and the supplier. The possible focusing or shifting of overall business activities to the actual core competencies represents a significant contribution to the success of the model. The customer can benefit from the specialist knowledge of the operator, which among other things can lead to more efficient utilization and an optimal deployment of resources within the production processes. Furthermore, it is always possible to make use of new and further developments in the technology used, which can make a further contribution to the optimization of business processes. Close coordination between the parties ensures high process reliability, high volumes and the necessary availability throughout the entire life cycle of the

plant. In addition to purely economic aspects, customers benefit from various organizational advantages, which are characterized by a leaner and more efficient operator unit, as well as a significant reduction in interfaces. The customer can ultimately save his liquidity by not having to bear the full cost of capital investment. The usage-dependent billing model converts the fixed investment costs for the acquisition of assets into variable costs and makes them highly calculable. As a result, the customer can save his budget and benefit from high-quality technologies that otherwise would not have been affordable [10].

Through the application of usage-based billing methods, the provider of such a model can record steady and cyclical revenues with a high degree of predictability. In addition, the supplier has a direct influence on the achieved profit, if it is possible to increase efficiency potential for the customer or to increase the output of an asset or plant operated. The operator of the plant can gain a better understanding of the demand for the respective application, align his products/processes to the current market or customer requirements or derive entirely new product improvements by the implementation of direct customer feedback. To sum up, the application of such a model can build a long-term strategic partnership between the parties. Ultimately, this leads to a high customer loyalty potential, even in stagnating or fully developed markets and can lead to high market entry barriers for any competitors. The provider can differentiate itself better than before through the service-centric approach and use its built-in knowledge to involve the customer in long term.

Depending on how many tasks are transferred to the operator, there is a correspondingly high economic risk for the operator. Within the operator model, the manufacturer of the system is paid according to the output or the production result of his equipment. Thus, the manufacturer can only record sales when the system is used, and the occupancy and location risk traditionally carried by the customer is completely transferred to the operator. To meet this risk, so-called minimum purchase quantities are contractually agreed on to protect the operator against sales fluctuations. Furthermore, the full capital tie-up of the system is applied to the provider, which

must bear the full the full pre-financing risk. Beyond that appropriate staff must be set up for the foreign operation and must be trained for the use of the asset at the customer's site. The enormous resource commitment or the lack of experience can lead to some negative impacts on already existing business activities in long-term. By contrast, the customer may face a permanent loss of production knowledge and a decreasing image as technology leader in the market, which can lead to the total loss of competitiveness. Also, not to be neglected is the resulting dependence on the operator. Likewise, the resulting dependence on the operator must be taken into account and the associated planning and quality risks associated with a lack of performance, which was actually promised by the provider [10].

3. CASE STUDY

3.1 Presentation of the selected business model

A practical example of servicing and the changes due to the evolution of a service-oriented business will be described in the following section. For this purpose, the business model of a globally operating manufacturer of power tools will be illustrated and analysed in detail. Hilti develops technologically leading solutions for the construction industry and offers related software systems and services. Hilti's service portfolio includes assistance during the planning process, maintenance and repair of their power tools, as well as consultancy or training.⁴⁷ Since 2001 Hilti offers its customers a special operator model in the form of fleet management under the slogan "Using instead of owning". According to their own statement, Hilti handles about 1.000.000 devices at 100.000 customers worldwide with corresponding service contracts [5].

Within the model, Hilti is responsible for the provision and maintenance of all equipment and complements this offer with a comprehensive range of services. Customers can access the entire Hilti portfolio and start a fleet contract with only one device. Hilti always remains the owner of the equipment and the ownership is replaced by a pure value acquisition. In case of

failure or theft Hilti is liable for the fastest possible replacement. For the benefit provided, Hilti calculates a fixed monthly fee depending on the fleet volume, which includes all services. All tools within the contract are serviced regularly and replaced by new models depending on the particular life cycle (mostly 3-5 years). In the event of a defect or a performance crash, Hilti takes care of the logistics and the repair process, provides a replacement device and guaranties a replenishment lead time of three days until the tool is fixed and back in place. The fleet remains always operational and technically up to date. In addition, the scope of the service contract is flexible and can be adapted to the respective project at any time. The device pool can also be extended temporarily, with a minimum usage time of 5 days, and adapted to demand peaks. At the beginning of the contract, an analysis of the previously used fleet can be performed to identify odd or not optimally working devices and as a result, optimize the tied-up resources. At the early beginning of the contract, as well as for extensions, a system-based credit check of the customer takes place and protects Hilti against any economic risks of a payment default.

3.2 Investigation of the selected business model

Modern and optimally working devices are the key production factors for efficiency and productivity in the construction industry. At the same time, ever higher safety standards are required of the companies and the equipment used. Whenever the right equipment technology is not available to the customer, or when it does not work with 100% reliability, there are delays and costs. In addition, Hilti fleet management reduces the organizational burden of purchasing and managing equipment and simplifies the process of handling repairs, breakdowns and thefts. By transferring the entire administrative effort for provision and maintenance to the operator, the customer can implement efficiency improvements and cost advantages. Continuous maintenance, for example, minimizes equipment downtime and ensures optimal operation. Added to this is the lower financial risk for the contractor due to the total absence of investment

costs in new equipment. According to this additional capital is available for the operative business of the customer. For example, a cordless screwdriver with a gross list price of 684.71 € per piece costs only 6.00 € per day in a fleet contract, including all services for the entire life-cycle [5]. The demand for spare parts and repair costs cannot be predicted easily and thus have a significant impact on the life cycle costs. In addition, Hilti will replace the equipment at its own expense in the event of a breakdown or even theft. The economic benefits are obvious, considering the life-cycle costs and the fact that all necessary repairs and maintenance activities are already included in the price [5].

Hilti can benefit from improved customer satisfaction and become the preferred supplier or strategic partner to its customers. Moreover, Hilti can create an active market entry barrier to the competition through fleet contracts and maximize equipment throughput per customer. In addition, the revenue base may be extended by customers who, due to insufficient purchasing power, have not been suitable for the traditional sale of power tools in the premium segment. Hilti a various number of values:

Table 2.

Added value through the Hilti fleet management	
Added value for the customer	Added value for the operator
▪ Higher productivity	▪ Improved customer satisfaction and loyalty
▪ Minimal default risk	▪ Customer acquisition
▪ Predictable procurement costs	▪ Competitive advantages
▪ Transparent device management	▪ Profitable growth
▪ Optimized process costs	

The Hilti fleet management business model can be classified in the third category of the product-service continuum, the "service-oriented" business models. The focus is entirely on the service provided and only the resulting benefit is sold to the customer. The billing model uses the "pay per use" approach by charging a fee for using a device. This provides the customer with long-term price security and calculable costs. Furthermore, Hilti is responsible for the entire maintenance of the fleet and is integrated into the processes of each customer. Accordingly, this represents a so-called full-service model, which can be seen as a relatively simple form of an operator model, which is dominated by reactive services.

4. THE POTENTIAL OF SERVICIZING

4.1 Hazards and Risks mitigated by Servicing

Servitization allows companies to reduce or even eliminate some of the risks associated with normal product sales. For example, transaction risks are mitigated by Service-Transformation and the costs of transactions are also reduced. Because the information asymmetry associated with sales promotions is becoming less relevant as the manufacturer is liable for durability and reliability. The customer pays only for the functionality and no longer the cost of repairs, maintenance or the like [12].

One benefit of Servitization, therefore, is that it reduces the subsequent risks of typical sales transactions where customers have to pay dearly for repairs and replacement parts. By changing the sales and payment mechanism, Servicing also has an impact on customer incentives that are shifting. The purchase price is no longer relevant as the product is no longer sold. The maximization of the operational efficiency is in the foreground and should be achieved by using the product. This development also has an impact on the manufacturer, which will reduce the cost of the functionality of its product. Among other things, this leads to the conclusion that service products lead to a better company result, as the focus is more on cost-effective methods and profitability. While traditional product sales conflict with the desire to maximize sales (manufacturers) and minimize supply (customer), this can be eliminated in servicing. Since the customer only acquires the right to use the product and the manufacturer continues to own the product. The functionality of the product is thus clearly in focus. It is only important that corresponding specifications are met for the customer, which the manufacturer has previously agreed with him contractually. But also more cost centers get a completely new meaning. For example, the manufacturer is now willing to keep its operating costs, as well as the total costs low and tailor it to the customer accordingly. At the same time, the manufacturer no longer generates additional revenue from repairs, but bears these costs himself. That's the reason why it is so motivating to minimize the costs of maintenance and repair. The fact that most of the lifecycle of the products is controlled

by the manufacturer ultimately leads to many challenges and fields of conflict not even arising. Finally, Servitization leads to a reduction in information asymmetry between the manufacturer and the customer. Furthermore, new performance incentives are created, which ultimately leads to greater efficiency for customers and manufacturers. Thus, both parties can benefit from a service transformation, both monetary and non-monetary [12, 13, 14].

4.2 Emerging or shifting hazards and risks

As stated earlier, Servitization enables companies to reduce / eliminate many challenges and risks. However, as with any change in business strategy, there are new risks involved. The risks listed below can be attributed to selection and moral problems. The result of the Service-Transformation is that the cooperation / relationship between customer and producer is significantly narrower, which can lead to a bilateral dependence at the same time. Because the customer transfers responsibility for the functionality of the product and the fulfillment of its requirements to the manufacturer of the product. In combination with a service contract, the relationship between the two parties is strengthened and closer coordination becomes necessary [12,13]. With the integration into the customer's production line, the producer bears a great responsibility for its functionality and efficiency. In the event of a fault, for example, the customer is dependent on the immediate service of the manufacturer. The bilateral dependence is also reflected in the profitability of the two parties, which are largely dependent on each other. For example, a reduction in the level of customer service negatively affects the profitability of the manufacturer. One result of bilateral dependency is the risk of transferring production losses, which has already been exemplified in the past. Because of the service contract, the customer is required, inter alia, to carry out maintenance and repair work by the manufacturer and may usually not commission external companies. In the event of a frequent failure of functionality or non-restoration of functionality by the manufacturer, the customer is in danger of a long downtime. The customer

can reduce this risk by means of contractual guarantees for functionality. The manufacturer also has the opportunity to mitigate the risk of loss of its customer's production by relying on its knowledge advantage in terms of product lifetime, thus making its maintenance efficient. At the same time, this prediction offers the manufacturer an option to keep costs to a minimum [12].

By specifying the service activities, the customer can distribute the risks very well. Product lifetime also plays a major role in Servitization, but in the form that the customer can transfer a certain percentage of the risk of technology obsolescence to the manufacturer. Due to flexible changes in expiring service contracts. In any case, the customer is focused on signing a contract with the manufacturer, which extends its commitment well beyond the time a new innovation reduces the market value of the service. The risk of market depreciation can be reduced by the possibility of early termination, but this must be explicitly stated in the contract. In addition to the challenges presented, there are many more problems that are largely shifted from the customer to the manufacturer. These challenges need to be solved by innovative services [12].

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SERVITIZARE - CALEA DE TRANSFORMARE DE LA PRODUCĂTORUL PRODUSULUI CĂTRE UN FURNIZOR DE SERVICIU

Rezumat: Scopul lucrării este de a explica contextul teoretic, efectele și potențialul Servitizării asupra companiilor de astăzi. Pe baza elementelor de bază ale sistemelor de servicii pentru produse, este prezentată dezvoltarea de la un producător de produse la un furnizor de soluții holistice și sunt evidențiate modelele de afaceri corespunzătoare. În plus față de compilarea informațiilor relevante, va fi descris și subliniat un exemplu practic de Servitizare și schimbările datorate evoluției către un furnizor de servicii complete. Pentru compilarea și evaluarea informațiilor prezentate, sa utilizat în principal metoda cercetării secundare. Sursele de informație au fost recenta literatură economică și tehnică, reviste științifice și studii actuale efectuate de diferite companii de consultanță.

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