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# Analyzing the gap between service visions and realities in manufacturing companies

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## Abstract

Based on the literature, in the new service businesses, service provision rather than goods is fundamental to economic exchange. Customer relationships, intangibles, and co-creation of value with the customer form the basis of the service logic. Although the service logic is claimed to be applicable to all business areas, manufacturing companies seem to have struggled a lot during their first steps towards service business. Only few manufacturers have achieved the ambitious financial objectives in relation to the service business.

The objective of this paper is to analyze the gap between expectations connected to the service business visible in the literature and the current status of service business in manufacturing companies. In this paper, a framework of service business is proposed both to try to capture the nature of the service phenomenon and to fill the gap between the current status level and the level envisaged. In addition to presenting a conceptual analysis, the paper reports empirical data collected by semi-structured interviews (30 managers from 18 companies).

According to the interviews, a shift from goods-based strategy to service-based strategy seems to be a prevailing trend. Despite the ambitious volume and profitability expectations at company level, even the service revenues – apart from machinery and spare parts sales – are so far only at a marginal level. Moreover, there would appear to be a need for an in-depth understanding of the nature of the service business. At the moment, there is ample scope for further research on the nature of the service business to draw comprehensive managerial conclusions. The service framework presented in this paper could be applicable in the interviewed manufacturing companies to analyze their current and expected service businesses.

***Keywords:*** Service(s), Service business, Manufacturing.

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# 1 Introduction

## 1.1 The promised benefits of adopting service logic in business

Typically the current service literature describes a fundamental change in the business environment. As a result, all the companies are involved in service competition (Grönroos, 2000), where, instead of low production costs or high quality of products, there are new means to gain competitive advantage. In their widely cited paper, Vargo and Lusch (2004a) describe a fundamental shift in the (marketing) literature. In the new service businesses (in other words "service logic"), service provision rather than goods is fundamental to economic exchange. Moreover, customer relationships, intangibles, and the co-creation of value with the customer form the basis of the service business. This is pretty much in line with the customer relationship management approach introduced by Grönroos (2000), where the focus is on the understanding of the internal value-generating processes of customers and developing a total integrated offering which serves these value-generating processes.

Moreover, in the literature, long-term customer relationships are described as more profitable than transactional-type short-term ones. Storbacka et al. (1994) summarized that a) perceived service quality leads to b) customer satisfaction, which typically c) strengthens the customer relationship, and leads to d) customer retention. In a perfect world, the aforementioned chain should lead to enhanced customer profitability. This connection, however, seems to be still unproven in the literature (Storbacka et al., 1994). It is noteworthy, Stauss (2005) points out that there are numerous companies which have mainly transactional customers. These companies and their particular challenges in customer profitability management should not be ignored.

Although the service logic is alleged to be applicable in all the business areas, manufacturing companies seem to have struggled a lot during their first steps towards service business (or service logic). Although they aim at becoming service providers, only few manufacturers have achieved the ambitious financial objectives related to the service business (e.g., Gebauer et al., 2005). We largely share the idea of Araujo and Spring (2006), who state that "recent contributions suggesting that the balance should be swung towards services have shied away from examining why, how and when particular product–service combinations should be deployed to address particular types of demand. Why are so many services delivered through products rather than through other means?" Moreover, the current status of the service business of the manufacturers seems to be somewhat unclear, let alone the actual consequences related to service business, to the manufacturing companies aiming at fundamentally new roles in the supply chains. Resources are needed, particularly, to analyze what has actually changed or is currently changing in their businesses.

## 1.2 Objective and methodology

The objective of this paper is to analyze the gap between expectations connected to the service business and the current status of the service business in manufacturing companies. To achieve the aforementioned research objective, we discuss a) the promised benefits of service logic in the literature, b) in light of the interviews, the nature of the service visions set by the manufacturing companies, c) the current status descriptions available in the literature of the service infusion into manufacturing, and, finally, d) in light of the interviews the current status of the services business of the manufacturers. In this paper, a framework of service business is proposed in an attempt both to capture the nature of service phenomenon and to bridge the gap between the current status level and the vision level. The outline of this paper can be read in Figure 1.

| Service Business | Current status | Needed actions, action plans | Visions, Expectations |
|---|---|---|---|
| Literature | Section 3.1 (manufacturing) | Section 4: Understanding the service phenomenon to take the needed actions | Introduction, Section 2.1 (manufacturing) |
| Empirical findings | Section 3.2 | | Section 2.2 |

*Figure 1. The structure of the paper*

In addition to conceptual analysis, the paper reports on empirical data collected by semi-structured interviews. Altogether 30 managers from 18 different companies were interviewed

(March–September 2006). The interviews were based mainly on open-ended questions. The duration of the interviews ranged from 1 h 45 min to 3 h 30 min. Those managers interviewed represented different functions of the company. The interviewees were chosen quite randomly. The interviews were conducted in two batches. The first version of the questions was used in eight (8) companies (3-5/2006). The data were supplemented with a (slightly) modified version in ten (10) companies. Three of the informant companies were interviewed in Taiwan, the remainder in Finland.

The common topics of all the interviews can be summarized as follows:

- the clarity of the service and service business as concepts (in the company)
- the offering of the company (history, current status, future)
- the services purchased and their role in the company (history, current status, future)
- the vision (expectations) connected to the services in the company
- the actions taken (e.g., hired resources) to meet the expectations in the company
- the profitability management of service business in the company
- the key challenges in the supply and demand of the service business of the company.

The role and the importance of the services varied a great deal. Two thirds of the companies (12/18) represented the manufacturing industry, particularly machinery manufacturers, while the rest of the companies provided their customers with industrial services. The industrial service companies were seen as benchmarks for the manufacturers. Only a few manufacturers had already obtained a substantial amount of revenue from services as a result of investments in service business. For the machinery manufacturers, aiming at a new role in the supply chain, the service companies interviewed were seen as exemplary service provider companies. The vagueness of the concept related to service business, however, was seen in all the company representatives interviewed.

# 2 Service visions of manufacturers

## 2.1 Literature-based expectations for service business

The strategic level choices suggested by the recent service literature are claimed to be applicable in all businesses. Gummesson (1995) states that customers do not buy goods or services, they buy offerings which render services which create value. According to Vargo and Lusch (2004a) services is "the application, of specialized competencies (knowledge and skills) through deeds, processes, and performances for the benefit of another entity or the entity itself". Goods are only distribution mechanisms for service provision. Edvardsson et al. (2005) interprets service as a perspective on value creation rather than a category of market offerings, and the very nature of service includes the company-specific feature portrait, as well as the customer-specific service portrait for the particular purpose. Somewhat analogously, Grönroos (2000, p. 125) concludes that although customers look for added value, adding value does not require new services in customer relationships, but that existing customer contacts are managed as services for customers. One might conclude that adopting this kind of service strategy would unquestionably lead to success in the business.

Gaining the competitive edge in the service competition is described through a relatively idealistic process (e.g., Vargo – Lusch, 2004a): 1.) Identify and develop knowledge and skills, which could be source of competitive advantage. 2.) Identify the customers, for which the knowledge and skills could be especially valuable. 3.) Refine these customer relationships in order to fulfil the most specific customer needs by means of these knowledge and skills. 4.) Take advantage of the customer feedback to enhance the market offering and profitability of the company. One potential disadvantage of this lies, however, in its generic level considerations. No detailed company-level action plans can be derived on the basis of it. Moreover, the reasons for company success may not be derived from the selection of this type of service strategy.

As a more detailed implication of the service strategy, the literature suggests that emphasis should be put on the "moments of truth" within customer relationships (Grönroos, 2000). The customer participates in the services process as a resource, as an actor, and as an assessor of both the output and the process itself. The assessment is based on the customer's criteria. In the literature, the main role is typically assigned to the personnel in direct customer contacts (comarketers of the company) (Grönroos, 2000). These are the people who create value together with the customers.

It is a common perception that services currently play an increasingly important role in manufacturing companies (cf., Martin – Horne, 1992; Mathieu, 2001; Johansson – Olhager, 2004). The technology push has also brought more service elements to the manufacturing industries. Moreover, the life-time business potential of machinery has been recognized widely (Wise – Baumgartner, 1999). Largely as noted in the service logic literature, the manufacturers are keen to get closer to their customers and pursue long-term customer relationships. Grönroos (2000) notes that an unfortunate necessity of the 1970s (i.e., service business) has become a means of competition and even a separate business area. He divides potential service business into five categories, based on the life-cycle phases of the good: before manufacturing (design), during manufacturing (financing, safety), selling (information), during consumption and usage (maintenance, training), and after consumption and usage (recycling).

The same umbrella, industrial services, covers a huge variety of different services (e.g. preventive maintenance, remote monitoring, spare part warehousing services, process consulting, training and education). Extended product (see e.g., Thoben et al., 2001) is a fairly close synonym for the industrial service umbrella. Typically, spare part sales is the most profitable business for the manufacturers (Johansson – Olhager, 2004). Therefore, increase in service invoicing seems fairly persuasive. The nature of the new service activities varies a great deal. Manufacturers aim at taking care of certain tasks that a) have previously been undertaken by the customers themselves, b) have been undertaken by a third-party supplier, or c) are entirely new to the supply chain.

Importantly, despite this variety, the literature connects several positive consequences to these services, including 1) extra invoicing, 2) enhanced profitability, 3) more steady cash flow, 4) better corporate image and 5) some other either strategic, financial, or marketing issues (Mathieu, 2001; Kuusisto – Mayer, 2003; Malleret, 2005).

However, one must bear in mind the observation that not all services are billable from the manufacturing companies’ viewpoint, but considered more or less to be “good customer service” by the customer (e.g., Grönroos, 2000; Malleret, 2005). The manufacturers seem to believe in the idea of service logic, that customer relationships turn out to be profitable in the long run.

## 2.2 Empirical findings on the service visions of the manufacturers

The potential of the service business had been recognized among the companies interviewed. “Service” and “service business” were included in one way or another in the strategies of the companies interviewed. The objectives set for the service business, however, varied a great deal from one company to another. Independently of the industry and the interviewee(s) role in the company, the service business was considered as a key to growth in the companies. As an exception (in 1-2 companies), the service business was more or less a necessity, without any major service visions. Regarding revenue from service business, all the companies aimed at growth.

The machinery manufacturers emphasized both the direct and the indirect effects of the service business on the profitability, (6 mentions of each). The indirect benefits were connected to the same elements that can be read in the literature. “Constant cash flow, long-term revenues”. “The margin in services is higher than in goods, at least occasionally.” Interestingly, the descriptions of the direct value of the service business were conditional. New service businesses were currently being developed, and these businesses are expected to give exceptionally high margins. “I would like to see an invoice ‘X euros professionalism’”. The service sector companies interviewed, especially those in ICT, where seen as ideals for the manufacturers. These companies have already experience of the new revenue models outside the traditional goods-based business.

The officially stated indirect values, similarly to the direct ones, were in line with the basics of the service logic in the literature: getting closer to the customers’ business and making the customer relationships more intensive, “becoming a preferred supplier”. In the most ambitious service visions, a machinery manufacturer provides its customers with comprehensive solutions and, instead of solely machinery, the availability or even the productivity of the machinery is offered to the customers. Some interviewees had a vision of a more fundamental re-organization within the value chain, which would typically be based on either the forthcoming strict legislation or the enhanced new technology. Some companies pursued the role of a coordinator or “a coalition builder”, to manage the material and immaterial streams of the value chain they were involved in, which would make them “independent” in the price-based competition. Such visions were described both by the manufacturers and the service sector representatives.

# 3 Current status of service business among manufacturers

## 3.1 Infusion of service into manufacturing: current status and challenges

In the literature, one may find only few success stories of companies who have become service companies from being traditional manufacturers. Mathieu (2001) cites IBM and Dell as good examples of a successful change. Moreover, in Europe, FujitsuSiemens might be an analogous example. Interestingly, in all these examples, new service business has replaced the goods-based business of the company. Instead of the hardware, the main sources of revenues come from project sales and maintenance of the ICT systems.

In machinery manufacturing, the maturity of the service business seems to be measured by the revenue percentage of aftersales (i.e., spare parts and maintenance). In the literature, a goods-service continuum has been introduced (e.g., Martin – Horne, 1992; Oliva – Kallenberg, 2003). At one end, the goods revenues equal 100 %, while at the other end all the revenues come from the service business. Obviously, successful companies may be positioned at different points along the goods-service continuum. According to Gebauer et al. (2005), 30 % service revenues indicates advances in the service business, the main share of total value creation stems from services. There are numerous companies which meet this condition (e.g., KCI, Kone, Wärtsilä). More accurate estimates of the current status or the maturity of the service business seem to require more detailed analysis.

Although they aim at becoming service providers, only few manufacturers have achieved the ambitious financial objectives related to the service business (Gebauer et al., 2005). Significantly, the recent service literature reports several obstacles in the manufacturers' way to becoming service provider companies: Brax (2005) notes that many new services developed by the manufacturers, such as full maintenance contracts or performance contracts would change the fundamental business models of the manufacturers. This radical change in the business model would also require radical changes inside the organization. Despite the fundamental changes required of the manufacturers, most companies take actions only step by step. Therefore, the companies do not seem to be achieving their ambitious objectives. Both Oliva and Kallenberg (2003) and Gebauer et al. (2005) noted that only few manufacturers have achieved their ambitious financial objectives related to the service business. This notion is supported by the motivational aspects. Success in the service business is only rarely rewarded in the companies, either by monetary or intrinsic incentives. Meanwhile, the machinery manufacturing represented the distinctive core business in the companies.

## 3.2 Empirical findings on the current status of the service business

***Clarity of the service concept***

In this section, the current status of the companies interviewed is described to account for the challenges and the "service paradoxes" appearing in the literature. Significantly, the interviewees acknowledged the need to clarify the service concept. For most of the companies interviewed the meaning of "service" or "service business" is not clear. In one service sector company, the confusion of concepts was seen as a huge challenge even in everyday business. "Everyone gives his/her own meanings to these core concepts; it is a fundamental problem in our company."

***Marginal revenues apart from machinery and spare parts sales***

According to the interviewees, machinery, spare parts and maintenance represent the core business of the manufacturers. Revenues outside the aforementioned groups are only at a marginal level, generally under 10 %. In certain cases aftersales, i.e., mainly spare parts, may bring in over 50 % of the company's revenues. Some interviewees interpreted the spare part business as service business, while others did not. Currently, the spare part business represents the most profitable part of the business for many of the manufacturers. Meanwhile, the profitability of the new comprehensive service concepts was more or less unknown among the interviewees.

When considering the market offering of the companies, the manufacturers emphasized material goods. It can be claimed that there were no "value partners" among the interviewees, but the companies provided their customers with machinery and maintenance related to this machinery. Some interviewees discussed the value propositions made by the company, regarding the availability of the machinery, for instance. Some interviewees recognized the value propositions of more comprehensive performance contracts, available in the company web sites, but paid relatively little attention to them. It is noteworthy that different service businesses are currently at different phases of their life-cycles. The most advanced solutions seem currently be in the pilot phase.

Many interviewees representing manufacturing companies (9/12), admitted that their company was mentally “a pure manufacturer” and that it was a long way to become a service provider company. Typically, the role of service business was seen as an indirect element to bring about new machinery sales. “There are no machinery sales without service business and vice versa.” More generally, regarding benefits from service business, all the manufacturers immediately discussed the benefits for the company itself; the benefits for the customers were rarely mentioned.

***From visions to concrete objectives***

The service visions of the manufacturers seem to be mostly in line with the literature-based promises for service business. However, although service strategy was emphasized by the interviewees, there is a lack of concrete growth or profitability objectives for service business. There would appear to be a couple of change agents in the companies who are responsible for the implementation of the service strategy.

The answers regarding profitability objectives set for service business were relatively confusing. Instead of profitability objectives, many respondents talked about covering the costs of service business. Interestingly, as already noted in the literature, some services are not invoiced by the manufacturers. As one interviewee put it: “In service business we do something for the customer, another question is whether or not this can be invoiced.” Moreover, “customers put their money into expensive machinery; naturally they expect help from the manufacturer.”

Due to the lack of concrete profitability objectives for the service business, fulfilment of those objectives was only occasionally discussed. One interviewee, an aftersales service manager, put it graphically: “If a profitability objective was set, I would sell only spare parts to my customers.” Cost-based pricing was used widely in traditional machinery manufacturing. Regarding service business, new pricing and invoicing methods, such as value-based pricing, were mentioned quite often. To conclude, the service business was seen as something different from the traditional business of the manufacturers. Some of the service cannot be invoiced to the customers. However, if the service is beneficial to the customer, part of the “value-added” should be given to the manufacturer.

***Lack of resources in service activities***

The interviewees were asked about the resources allocated to service activities in order to analyze the commitment of management to the service visions and strategies. Responses suggested that lack of resources was a typical problem among manufacturers. Although the services can be seen in the strategies of the manufacturing companies as an opportunity to grow, the management of the companies appeared uncertain about the actions needed. Not enough resources have been allocated to the New Service Development to promote the services as a strategically important issue. Moreover, there seems to be no crisis as a driving force for the new strategy. On the contrary, there is a peak of the economic cycle. As a result, there are not so many commercialized new services that are even ready to be sold. Moreover, three interviewees mentioned that in the service business, besides research and development, there is also a lack of operative resources.

***Challenges in supply and demand***

In sum, the interviews show that there are challenges in service business both in the supply and in the demand for the new services. Besides the aforementioned lack of resources, the following challenges to the supply side were mentioned. (According to the last 10 companies interviewed):

- "much under development, far less ready for sale" (4/10)
- customer knowledge is inadequate (3/10)
- knowledge sharing, i.e., internal benchmarking works inadequately (2/10).

On the other hand, the market seems not to be ready either for adopting the new service visions:

- the customers are not familiar with the services (and underlying technologies) (3/10)
- service businesses is targeted at a new market (2/10)
- the customer does not know us (1/10).

Service design (productization) was seen as a solution to nearly all of the aforementioned challenges. Obviously, there is a need to refine the vague and inconsistent service offering to be easier for the manufacturer to sell, and more importantly, easier for the customer to buy. On a more general level, however, these findings may tell us about the immaturity of the service business. In some cases, the underlying customer needs seem to be taken for granted. Customers' unwillingness to pay for certain service elements may be due to insufficient customer benefits.

***The buyer-seller paradox***

All companies, importantly, are both sellers and buyers of goods and services. Interestingly, none of the companies interviewed had systematically analyzed the buying behaviour of the company itself in order to find implications to the company's own service business. In the visions of the manufacturers, the aim is for a preferred system supplier status among the customers. The same manufacturers, however, do not allow preferred system supplier status to any of their own service suppliers with analogous service offerings.

Recently, the manufacturing companies have cost-consciously outsourced certain activities and are constantly requiring cost savings from their suppliers. Meanwhile, in the spare parts business, for instance, the cost of a spare part covers a substantial amount of other cost elements than just the purchasing price of the good. However, according to a spare part manager interviewed, the customer does not see the service elements (knowledge-intensive work) that are needed to deliver the right part of high quality in a cost effective way to the customer. "A number of personnel are needed for this invisible work." Naturally, the price level of the spare parts is very high from the customers' viewpoints; they only pay for goods and similarly require cost savings of the machinery manufacturers. To put it simply, the companies are unconsciously applying the principle "do not do what I do, do what I say." In this context, the phenomenon can be called the "buyer-seller paradox".

### 3.3 Summary of the current status of the service business

In sum, the service business represents a leap in the dark for the manufacturers, who for several decades have been machinery manufacturers. In Figure 2, the findings from the interviews are put together. Quite naturally, a change that is not forced may not happen. At the moment, the machinery manufacturers are at the peak in the economic situation. Demand for machinery and aftersales is extremely high. New service development activities undertaken by the competitors have not yet dramatically changed the competitive environment of the manufacturers. However, the service potential recognized by the scholars and the companies themselves seems attractive.

Despite the positive consequences, it is relatively easy to find reasons for the challenges in the service businesses of the manufacturers. These challenges are largely congruent the service paradoxes noted in the literature. One reason for change resistance is the fact that due to the new services, the earning logic and the power structure of the business units involved will change. The new performance contracts, for instance, would shift profitability from spare parts to the new services. From the perspective of the spare part unit, this would mean a change from "the moneymaker" of the organization to being one of the less profitable business units. Even if the change and its consequences were more clearly identified, it is all but impossible to gain support from those units that would lose due to the strategic change.

Another reason for the change resistance is the history of the manufacturing companies as pure manufacturers. For some of the managers, manufacturing will always be the most crucial success factor of the company. Together with the lack of understanding of the service phenomenon, this is a major challenge on the road to gaining wider commitment to the new strategy inside the manufacturing companies.

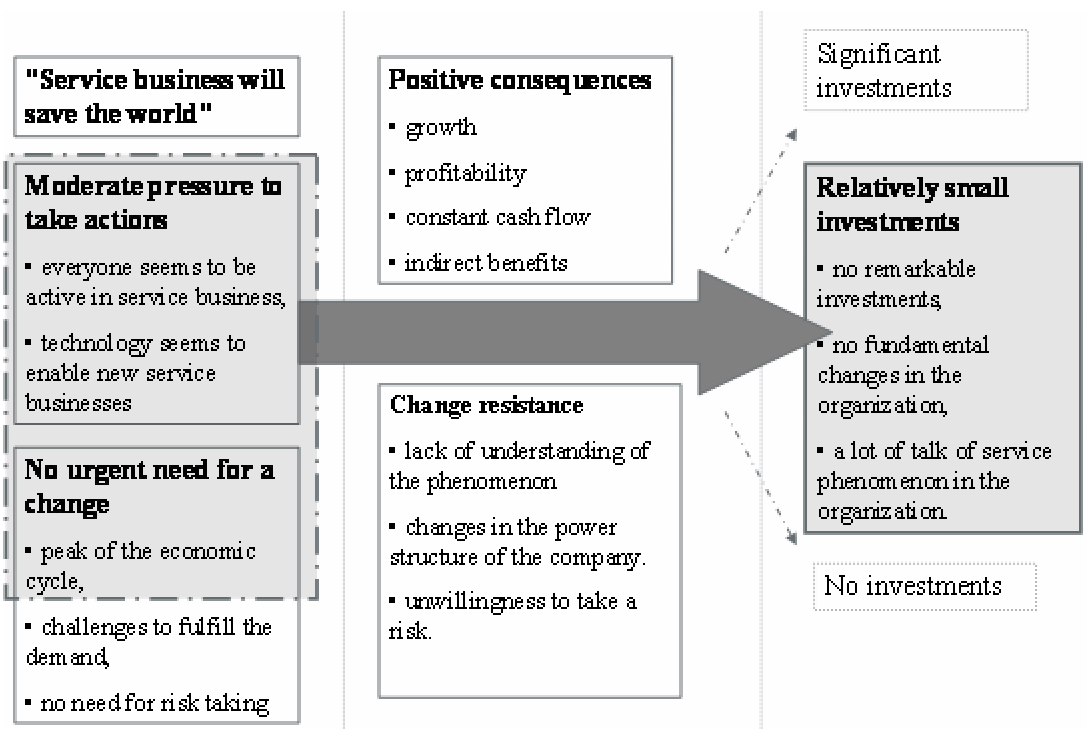


*Figure 2. Current status of the service business in manufacturers*

Therefore, quite naturally, the service strategy has so far led only to relatively small investments to execute this strategy. In some companies the service strategy has led to modifications in the business unit structures. So far, no fundamental changes in the organizations at operational level have taken place. Quite naturally, awareness of the new business area is required to achieve substantial changes in the business. Awareness may lead to changes in attitudes inside the organization, which in turn is required to change the economic figures.

# 4 Towards an action plan: understanding the service phenomenon

## 4.1 Service means activities done for the customer

When comparing the current status to the desired status, one typically ends up with an action plan to reach the desired status. The formulation of a detailed action plan requires, however, in-depth understanding on the company and the key phenomena in its business environment. In this paper, we seek to answers the questions as to what would change in the business due to the service business, and how dramatic changes we are involved in. A merely superficial understanding of the service business will not lead to fruitful conclusions. Therefore, in this section, we discuss the fundamentals of the service phenomenon.

The current status of the service literature is somewhat confusing. According to Stauss (2005), there is still no widely accepted service definition. In 1970s, Shostack suggested "a break free" from product marketing (Shostack, 1977). Thereafter, significantly, services have commonly been defined, compared to goods, in terms of what they are not: intangible, non-storable, etc. (Spring – Araujo, 2005). Typically, service research has been based on the IHIP characteristics to differentiate between services and physical goods: 1) intangibility, 2) heterogeneity, 3) inseparability (of production and consumption), and 4) perishability. In the last ten years the IHIP characteristics have been harshly criticized both for being relatively randomly introduced in the first place (see e.g., Lovelock – Gummesson, 2004; Edvardsson et al., 2005), and for the complexity and subjectivity of each of the different variables (Vargo – Lusch, 2004b). In the light of the IHIP characteristics, certain goods may differ from each other more than goods and services.

As already mentioned, Vargo and Lusch (2004a) recently defined services as "the application, of specialized competencies (knowledge and skills) through deeds, processes, and performances for the benefit of another entity or the entity itself". Alternative approaches to service interpretations have been called for widely and some fresh ideas have already been evinced (see e.g., Lovelock – Gummesson, 2004; Edvardsson et al., 2005; Araujo – Spring, 2006).

Lovelock and Gummesson (2004) suggested that products (activities) that lead to changes in rights to either possess or use certain things differ from those that do not. Obviously, a good may sometimes be valuable to the customer as such (a luxury car). Sometimes the main value is realized due to the right to use certain good (a bus). Sometimes certain goods are only resources to create value to the customer (a car used for transportation).

Edvardsson et al. (2005) concluded that services represent a) a perspective (on value creation) rather than any category of products or market offerings. Moreover, services focus on b) value from the customer's viewpoint, thus raising the importance of the co-creation of value with the customer. Interestingly, Edvardsson (2005, p. 119) concludes that on a lower level of abstraction than that discussed above, no general definition for services exists. Therefore, the actual relationship between this new service description and several interrelated concepts, such as "product", "good", "process", "solution", and "customer value," remains somewhat unclear.

According to Araujo and Spring (2006), "a service activity is an operation intended to bring about a change in the status in a reality C that is owned by [customer] B effected by service provider A" (Gadrey, 2000, in Araujo – Spring, 2006). In this definition, service is defined well in relation to processes and customer needs. It is the service provider's processes that enable the changes desired in the customer's world. Significantly, we interpret that the reality C owned by the customer consists not only of goods but also of certain statuses, which could be enhanced by the service provider.

In line with Grönroos (2000) among others service is fairly widely interpreted as processes, actions or series of actions (activities), contrary to the "pre-produced" physical products (outputs). As described by Edvardsson et al. (2005), it is noteworthy that there is a fundamental difference between offering "service" compared to "services". Services are something that can be offered to the customer, quite similarly to prefabricated physical products, while service refers to the whole organization performing activities in providing the customer with a good experience. For us, an acceptable service definition should 1) include a logical connection to the business processes and their outcomes, and also 2) capture the nature of value creation for the customer, recently emphasized by the leading scholars.

On the basis of the conceptual analysis described, we separated the outputs from the activities and asked ourselves whether service refers mainly to activities, while goods refers always to outputs. It had been recognized that in addition to goods, the output may include enhanced knowledge or almost any type of change of state. Similar to Edvardsson et al. (2005), Vargo and Lusch (2004a), and particularly Araujo and Spring (2006), we proposed that *service means all the activities undertaken for someone else* (Figure 3, Adapted from Laine et al., 2006).

In other words, service means activities underlying the desired state created for the customer. From the supplier's perspective, service is an activity performed for the customer. From the customer's perspective service means activities performed for him/her or his/her company.

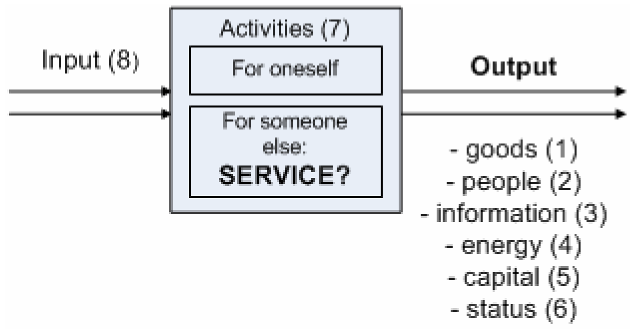


*Figure 3. Service means activities undertaken for the customer (adapted from Laine et al., 2006)*

In Figure 3, the outputs of the activities may include almost any kind of changes in statuses which can be seen not only in goods but in organs (people) either mentally or physically, in information, in capital, or in energy in its different forms (Laine et al., 2006). Our approach is in line with Ackoff's (1971) idea of the system as a purposeful set of interrelated elements: we need a certain structured set of activities in order to reach the desired set of outputs. Analogously to Edvardsson et al. (2005), service is not any category of market offerings, but rather an interpretation of a generic business (process). Different categories of market offerings can be derived from the six types of outputs presented above. Therefore, the juxtaposition between goods and services no longer makes sense.

### 4.2 Potential implications of the service framework presented

***Are all businesses service businesses?***

According to the service framework presented above, there is ample scope for different service interpretations. One may read Figure 3 as a generic framework, which is not exclusive to any business areas. In other words, if all the businesses are interpreted through the activities performed, all businesses could be interpreted as service businesses, (Laine et al., 2006). Stauss (2005) criticized the conclusion of Vargo and Lusch (2004a), who interpreted all businesses as service businesses. Stauss (2005) stated that if the concept of service is extended to cover all business areas, the crucial characteristics of service business including, e.g., simultaneous production and consumption will simultaneously be lost.

In order to avoid the "Pyrrhic victory" described by Stauss (2005), one should recognize the potential differences between businesses, where a) activities, b) outputs, or c) inputs are crucial to the parties involved. Edvardsson et al. (2005) stressed the subjectivity of the service interpretation. For us, quite analogously, all goods include service; which elements become visible is a question of emphasis. Moreover, depending on the business and the customer segment, emphasis is placed on different types of outputs. Inside one single customer relationship, the manufacturer and the customer may stress different (combinations of these) elements. There are numerous different ways to look at the situation from the viewpoint of either the customer or the manufacturer[2]. Moreover, the customer is free to choose whatever combination of outputs (1-6), activities (7) and resources (8) he/she is willing to pay for (Figure 3). Knowing the customer preferences in the light of inputs, activities, and outputs might be a good starting point for business development.

In the context of the manufacturers aiming at being service providers, there is a need to draw conclusions at a lower level of abstraction. One has to recognize the role of the service phenomenon in their business environments. In this section, the potential implications of the service framework presented in the service business of the manufacturers are discussed by means of four different questions:

1. What is the difference between service business and other business areas (for manufacturers)?
2. Are there any other simultaneous phenomena, besides the service phenomenon, that should be taken into account in the business of the manufacturers?
3. Are the main types and combinations of the inputs, activities, and outputs currently changing in the manufacturers' businesses?

[2] In the extremely simple example in Figure 3, with only one activity and resource element and six types of outputs, there are 255 different combinations of inputs, activities and outputs. All eight factors may or may not be present in the customer-manufacturer situation. This means $2^8 = 256$ different combinations. If we require the presence of at least one element, we end up with a total number of $255 = 2^8 - 1$ different combinations.

4. What is the difference between the pure service definition and the successful service strategy described in the literature?

This discussion would form the basis for the preliminary managerial implications for the manufacturers struggling in their service businesses.

***What is the difference between service business and other business areas?***

The subjective IHIP characteristics do not seem to form a proper basis for identifying any fundamental differences between goods and services. In light of the service framework presented, neither is the co-creation of value with the customer, emphasized by Edvardsson et al., (2005), exclusive for service. Both in activity-oriented and in output-oriented businesses, different forms of co-operation may take place. The customer may take part in certain activities, but may, at the same time, put emphasis strictly on output. Therefore, the difference between services business and other business areas remains has not been established.

According to the framework presented, in service business the emphasis is on the activities performed for the customer. One may ask whether this represents any changes in the business of the manufacturers. On the one hand, one may think that manufacturers have always made their goods for the customer, not for themselves. On the other hand, "performing activities for the customer" may represent a new customer-oriented way of thinking among manufacturers.

If emphasis is placed on a) *performing activities*, less emphasis is potentially placed on the output. It is possible that during a project, for instance, the participants place most emphasis on the activities performed (journey), and the desired output (intention) is altered during the project. If the main idea in business is to do something b) *for the customer*, the needs of the customers should be taken extremely seriously. As one interviewee put it, "we do anything the customers ask for". *Performing activities for the customer* as a combination of the previous alternatives is mostly in line with the visions of the manufacturers, who aim at getting closer to their customers. Numerous concrete actions are needed to realize the vision. These actions seem to be, however, context dependent.

***Are there any other simultaneous phenomena that should be taken into account?***

There seem to be at least two phenomena behind the life-cycle service business potential identified by the manufacturers: 1) the outsourcing phenomenon and 2) larger machinery fleets. The main idea of outsourcing is to improve the cost effectiveness of the company and the whole network (Dekkers, 2000). According to the interviews, the most obvious activity to be outsourced by the customers to the manufacturers would be machinery maintenance. Either the third party, i.e., external service providers, or the customer's own maintenance resources can be seen as competitors for those maintenance services. It is noteworthy that many machinery manufacturers have hundreds or thousands of pieces of machinery as an active fleet all over the world. This machinery needs to be constantly repaired and maintained. Due to the advanced technologies, which allow remote monitoring and diagnosis, for instance, the manufacturing companies may gain competitive advantage in the maintenance business. One interviewee put it very aptly: "Service is based on expertise; we identify customers' problems they cannot even see."

Obviously, the active fleets may have grown independently of the service phenomenon. It is more or less one factor that makes aftersales service business more attractive for the manufacturers. Separating the service phenomenon from the outsourcing phenomenon is a more challenging task. Derived from the service definition "service means activities undertaken for the customer", the service supplier wants its customers to outsource certain activities to the supplier. The interviewees admitted the logical connection between service and outsourcing phenomena (7/8). Moreover, three types of outsourced activities were identified: 1) activities currently undertaken by the customer itself, 2) activities that have been outsourced to a third-party supplier and 3) activities that are completely new for the supply chain. In the context of the manufacturers, the activities are re-organized inside the supply chains. Therefore, there seems to be room for new service activities.

***Are the main types of the inputs, activities, and outputs currently changing?***

As already noted, the main inputs, activities, and outputs vary from customer to customer and, on a more general level, from business to business. In the context of the manufacturers, there seem to be new types of outputs that should be taken into account. The comprehensive solutions, such as performance contracts, offered by the manufacturers would require information in its different forms as both inputs and outputs, and even different kinds of new innovative service activities underlying the desired outputs.

Knowledge and skills were emphasized in the service logic by Vargo and Lusch (2004a). For us, service means activities undertaken for the customer and this is always based on certain knowledge and skills. Knowledge and skills are naturally needed to create and refine new service activities in the companies, which are either new to the company itself or new to the entire supply chain. From the viewpoint of the customer, the pure material output (goods) may not be enough to fulfil the customer’s need. Both the supply and demand challenges may be due to the new immaterial outputs, i.e. information and other status changes required from the manufacturers. The emphasized role of knowledge and skills, however, seems to be independent of the service phenomenon. All kinds of outputs, even immaterial, should be identified if they are beneficial to the parties involved. Getting used to the immaterial elements in business is a hard task for the traditionally-oriented manufacturers and even for their customers. The challenges may be derived from the well-established culture of machinery manufacturing inside the manufacturers, not necessarily from the generic characteristics of service business.

***What is the difference between service definition and successful service strategy?***

In the service literature, as already mentioned, there is no widely accepted list of service characteristics. Recent contributions have extended the concept of service to all business areas. Moreover, even more importantly, another extension has been made when connecting the service concept to a successful business strategy. Both Vargo and Lusch (2004a) and Grönroos (2000) describe the most crucial strategic choices (i.e., customer relationship approach, role of marketing in business, the nature of value propositions, etc.), that lie behind the success in service business. Unfortunately, abandoning the ambiguous list of IHIP characteristics has not led to reforming or refining the service definition as such, but to discussing service strategies, which potentially misguide the management involved in service business.

For us, importantly, service definition (and the service framework presented) is one way to describe or categorize different business areas and nothing else. The framework may be helpful for the companies, for instance to recognize: 1) what the actual activities performed for the customer are, 2) what the realized outputs are, and 3) what the (either direct or indirect) mechanisms are that realize the value for the customer. However, the generic framework as such does not lead us to any context specific managerial implications. As Edvardsson et al. (2005) put it: “The very nature of service, however, includes the company-specific feature portrait, as well as the customer-specific service portrait for the particular purpose. The purpose may be value-in-use or it may also be a long relationship view.”

## 5 Conclusions

According to the interviews, a shift from a goods-based strategy to a service-based strategy seems to be a prevailing trend. In this paper, the gap between expectations connected to the service business and the current status of service business in manufacturing companies – as seen more traditionally representing mainly after sales – was discussed. It was found that the literature connects several positive consequences to service business, and these consequences have widely been adopted to the service visions of the manufacturing companies. In this context, “service” is often associated with close customer relationships.

The current status of service business in the same companies, however, constitutes a huge challenge. Yet so far, the service revenues – apart from machinery and spare parts sales – are only at a marginal level. Despite the ambitious volume and profitability expectations at company level, only few interviewees seemed to believe in the direct profitability effects of service products: The services seem to represent mainly indirect elements in the customer relationships. Service business represents a leap in the dark for the manufacturers, and there is a natural resistance to change. For us, there seems to be a need among manufacturers for an in-depth understanding of the nature of service business.

The current status of the service literature is somewhat confusing. There is still no widely accepted service definition. In this paper, it is proposed that service means activities undertaken for someone else. In the service framework presented in this paper we separated input, activities and outputs. In this context service refers to the activities. Additionally, the outputs of the processes can be divided into at least six categories. The customer is free to choose whatever combination of outputs, activities and resources he/she is willing to pay for. The service framework presented in this paper could be applicable for the manufacturing companies interviewed to analyze their current and expected service businesses.

First, service business, i.e., performing activities for the customer, could mean “taking customer needs more seriously” to the manufacturers. Second, analyzing customer preferences in terms of inputs, activities, and outputs might lead to a better understanding of the customers’ world. Customer segmentation may be a helpful tool in this analysis. Even if context-specific customer preferences were ascertained, a successful service strategy will not be a self-evident issue. Customer profitability management remains an unsolved problem, which may be a subject of further study in this context.

The research setting includes, however, several limitations to be taken into consideration. The findings based on the interviews are tentative in nature. Moreover, the generic framework as such does not lead us to any context specific managerial implications. More effort is needed to capture the service phenomenon to draw context-specific managerial implications for the manufacturers struggling with their service businesses. Carrying out a more extensive empirical study based on the framework established in this paper, in general, and its inputs, activities, and outputs, in particular, is another way to enhance knowledge in this area.

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## References

Ackoff, R.L. (1971), “Towards a system of system concepts”, Management Science, Vol. 17, No 11, pp. 661–671.

Araujo, L., Spring, M. (2006), “Services, products, and the institutional structure of production”, Industrial Marketing Management, Vol. 35, pp. 797–805.

Brax, S. (2005), “A manufacturer becoming service provider – challenges and a paradox”, Managing Service Quality, Vol. 15, No 2, pp. 142-155.

Dekkers, R. (2000), “Decision models for outsourcing and core competencies in manufacturing”, International Journal of Production Research, Vol. 38, No. 17, pp. 4085-4096.

Edvardsson, B., Gustafsson, A., Roos, I. (2005), "Service portraits in service research: a critical review", International Journal of Service Industry Management, Vol. 16, No. 1, pp. 107-121.

Gebauer, H., Fleisch, E., Friedli, T. (2005), "Overcoming the Service Paradox in Manufacturing Companies." European Management Journal, Vol. 23, No. 1, pp. 14-26.

Grönroos, C. (2000), Service Management and Marketing: A Customer Relationship Management Approach, Chichester, John Wiley & Sons Ltd. 394 p.

Johansson, P., Olhager, J. (2004), "Industrial service profiling: Matching service offerings and processes." International Journal of Production Economics, Vol. 89, pp. 309-320.

Kuusisto, J., Meyer, M. (2003), Insights into services and innovation in the knowledge intensive economy, TEKES.

Laine, T., Paranko, J., Suomala, P. (2005). ”Analyzing Commodities: Ambiguous Differences between Goods and Services”, Proceedings of the 11th Conference on Concurrent Enterprising, Munich, Germany.

Laine, T., Paranko, J., Suomala, P. (2006), “The Nature of Services in B2B Context” The 13th International Annual Conference of European Operations Management Association. Glasgow, Scotland, June 18-21, 2006, Vol. 2, pp. 887-896.

Lovelock, C., Gummesson, E. (2004), "Whither Services Marketing? In Search of a New Paradigm and Fresh Perspectives", Journal of Service Research, Vol. 7, No. 1, pp. 20-41.

Malleret, V. (2005). "The drivers of service profitability in small industrial firms", 7 th Manufacturing Accounting Research Conference, Tampere, Tampere University of Technology.

Martin, C. R. J., Horne, D. A. (1992), "Restructuring towards a Service Orientation: The Strategic Challenges." International Journal of Service Industry Management, Vol. 3, No. 1, pp. 25-38.

Mathieu, V. (2001), "Service strategies within the manufacturing sector: benefits, costs and partnerships." International Journal of Service Industry Management, Vol. 12, No. 5, pp. 451-475.

Oliva, R., Kallenberg, R. (2003), “Managing the transition from products to services”, International Journal of Service Industry Management, Vol. 14 No. 2, pp. 160-172.

Shostack, G. L. (1977). "Breaking Free from Product Marketing." Journal of Marketing, Vol. 41, pp. 73-80.

Spring, M., Araujo, L. (2005), “Revisiting the service-product distinction: implications for supply chains and networks”, The 12th International Annual Conference of European Operations Management Association. Budapest, Hungary.

Stauss (2005), “A Pyrrhic victory: The implications of an unlimited broadening of the concept of services”, Managing Service Quality, Vol. 15, No. 3, pp. 219-229

Storbacka, K., Strandvik, T., Grönroos, C. (1994) “Managing Customer Relationships for Profit: The Dynamics of Relationship Quality.” International Journal of Service Industry Management, Vol. 5 No. 5, 1994, pp. 21-38.

Thoben, K–D., Eschenbächer, J., Jagdev, H. (2001), “Extended Products: Evolving Traditional Product Concepts”, The proceedings of the 7th conference on concurrent enterprising, Bremen, Germany.

Vargo, S. L., Lusch, R. F. (2004a), "Evolving to a New Dominant Logic for Marketing", Journal of Marketing, Vol. 68, No. 1, pp. 1-17.

Vargo, S. L., Lusch, R. F. (2004b), "The Four Service Marketing Myths: Remnants of a Goods-Based, Manufacturing Model." Journal of Service Research, Vol. 6, No. 4, pp. 324-335.

Wise, R., Baumgartner, P. (1999), "Go Downstream: The New Profit Imperative in Manufacturing", Harvard Business Review, Vol. 77 (Sep-Oct 1999), pp. 133-141.