

Title Corporate customers' resistance to industrial
service innovations
Author(s) Korhonen, Heidi; Kaarela, Ilari
Citation International Journal of Innovation
Management
vol. 15(2011):3, pp. 479-503
Date 2011
URL <http://dx.doi.org/10.1142/S136391961100343X>
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Corporate Customers' Resistance to Industrial Service Innovations

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Abstract: This paper examines the reasons for corporate customers' resistance to adopt industrial service innovations provided by their supplier companies. It is based on work with nine Finnish suppliers of industrial services and their potential customers. We view organizations as networks of individual adopters. We find that organizational sentiment towards adopting an innovation is often ambivalent and that resisting views reveal important drawbacks of an innovation that need to be addressed. The results clarify the effects of utility, cost, emotion and risk aversion in organizational service decisions emphasizing the fit of the service for the customer.

Keywords: Innovation resistance; innovation rejection; innovation adoption; industrial service; business-to-business; service innovation; organizational innovation; customer collaboration; customer understanding.

1 Introduction

Manufacturers and technology companies in the old industrial countries are innovating more and more in the service domain providing their client companies with integrated product service packages, total solutions and life cycle services rather than traditional products. These are novel kinds of concepts that are often - but not necessarily - enabled by new technology. These concepts can also be seen as business model innovations as they are turning business models of industrial companies towards service logic.

The transformation from product logic towards service logic is seen especially important in the western developed countries as traditional physical manufacturing of industrial goods is facing fierce competition from the fast developing countries, and competition within research and development is also increasing. Due to the increasing competition, advanced companies are extending their innovation efforts to include new areas outside the traditional technology domain or product and production development. Many technology companies have acknowledged the importance of service innovations

on the side of technology innovations, which calls for corresponding innovation research. We need more information on creating successful service concepts.

The transformation from product based business logic towards service based business logic is being promoted by a large number of powerful change agents including, e.g., national agencies, universities, and multinational corporations. As a result we are witnessing the growth of a new type of service science that is no longer confined to the traditional service businesses. Instead it also covers the traditional technology businesses. The issues discussed in this paper are situated in the cross-section of service research and innovation research.

Industrial companies' interest for service innovation is great, especially in northern parts of Europe. Industrial companies within business-to-business markets often find service business more profitable and faster growing than traditional product business. In some cases service business also seems to be holding up better in recession than product business. Many companies have succeeded extremely well in the transition towards service and they inspire others to follow. According to a benchmark study by Deloitte (2006) services revenues represented an average of more than 25 percent of the total business of manufacturing companies and in many companies, as for Rolls-Royce plc and Xerox Corporation, the service business contributed 50 percent or more of total revenues. Service business was especially important for manufacturing companies because the average profitability of the service businesses was more than 75 percent higher than overall business unit profitability (ibid).

However, we have noticed that many companies aiming to create new service business stumble in their service innovation efforts as their customers are not willing to adopt the new services. A great number of industrial companies also have difficulties persuading customers to take part in joint innovation practices that are seen as beneficial in the development of new services. Some customers adopt new service innovations and collaborative innovation practices eagerly whereas some others are more reluctant to change. The ability of the industrial companies to add new innovative services to their offering is dependent on their clients' acceptance of these new modes of doing business. The new service concepts will never turn into reality and they will never result in income and competitiveness if they are rejected by customers. This is a very important issue as the companies and also the change agents are investing a lot in the transformation towards service business.

The purpose of this paper is to take a closer look at customer companies' resistance to industrial service innovations. We will start by discussing industrial service innovations as a special form of innovation different from, e.g., technological innovation. The nature of industrial service innovations has implications for their diffusion. We will continue by discussing innovation adoption and rejection and the importance of understanding resistance. After that we will describe our case research about Finnish companies adding industrial services to their offering. We will present the results of our study and discuss their implications for innovation research and companies.

2 Industrial Service as Innovation

In line with Tekes (2010) we define industrial services as services that support customer companies' industrial value creation processes or customer companies' use of industrial products. Companies within Finnish machine industry often view service business as a

possibility to transform their business model from being machine suppliers into being solutions providers, maintenance partners, performance partners, and value partners (Technology Industries of Finland, 2003). Oliva and Kallenberg (2003) describe the transformation through four phases: consolidating product-related services, entering the installed-base service market, expanding to relationship-based or process-centred services, and taking over the end-user's operations. Some examples of industrial services provided by machine industry are: maintenance, repair, 24-h emergency service, spare part services, operating, machinery refurbishment and re-sale, modernizations, training, process consultation, project engineering, installation and start-up. Industrial services can also be offered by other industries and they can include, e.g., transport and logistics services, manufacturing services, industrial cleaning and property maintenance, waste management and recycling services, and security services.

As innovations, industrial services are typically not totally new to the world. The ideas have often been adapted from other industries or manufacturers of other types of products. What makes industrial services innovations is that they are some how new to the customer or the supplier. Service innovations are a form of organizational innovation involving two or more organizations. Organizational innovation refers to the adoption of an idea or behaviour that is new to the organization (Daft, 1978; Damanpour, 1996).

Often industrial services are about some sort of outsourcing, where the customer company has formerly done the process itself and then it outsources it to a company that provides it as a service. E.g., the customer may have previously done repairs itself, but it decides to purchase preventive maintenance and repair as a service from a supplier instead. Also the supplier could have previously priced the maintenance based on the amount of work needed and the new idea within the service innovation could be performance based pricing even though the work content still remains maintenance. If a customer is simply replacing one supplier with another without any changes to what is traded or how the trade is done, we do not consider it an innovation. Instead, when there is a novel change to processes or the way of doing business between the customer and the supplier, there is distinct novelty and we call it an innovation. The degree of novelty can range from incremental to radical within industrial service innovations.

Service science emphasizes customers' role in service innovation and production. This is a consequence of the foundational premise of service-dominant logic stating that the customer is always a co-producer and that value is always co-created (Vargo and Lusch, 2004). Customers are a major source of all types of innovation (Chesbrough, 2003; von Hippel, 1986, 2005). Customer understanding and voice of customer are seen as vital for innovation success and diffusion. Integrating customers in the innovation process is becoming best practice in all businesses. Yet, identifying and responding to customer needs is often seen especially critical for service innovation (de Brentani, 1991, 1995; Edgett, 1994; Alam and Perry, 2002; Alam, 2006).

Earlier research tells us that service innovations diffuse at a lower rate than product innovations (Herbig and Day, 1992). Services differ from products in intangibility, inseparability of production and consumption, heterogeneity and perishability of the services offering (Zeithaml et al., 1985; Lovelock, 1983). These qualities of service make it difficult to communicate the properties and utility of service innovations. Service innovations also frequently cause wide spreading changes in different areas of the customer companies' processes. These issues can be seen to cause services' low rate of diffusion.

3 Innovation Adoption and Rejection

Innovation Decision

Adoption or rejection of an innovation follows from an innovation-decision process. Within individual decision settings, innovation-decision can be viewed as a five step process comprised of knowledge, persuasion, decision, implementation and confirmation. Within organizational settings, innovation-decision processes are comprised of agenda-setting, matching, redefining or restructuring, clarifying, and routinizing. Organizational innovation-decisions can be classified as: optional innovation-decisions, where choices are made by an individual independent of the other members of the system; collective innovation-decisions, where choices are made by consensus; authority innovation-decisions, where choices are made by relatively few people who possess power, high social status or expertise; and contingent innovation-decisions, where choices to adopt or reject can be made only after a prior innovation-decision. (Rogers, 2003)

Innovation Diffusion

Innovations spread as actors decide on adoption or rejection. Innovation diffusion research needs to take into account at least four distinct factor types: factors related to the innovator, factors related to the adopter, factors related to the innovation, and factors related to the environment or context (Gatignon and Robertson, 1985; Wejnert, 2002). Five innovation characteristics explain 49 to 87 percent of the variance in the rate of adoption of an innovation: relative advantage, compatibility, complexity, trialability and observability (Rogers, 2003; Tidd, 2010). Relative advantage is the degree to which the innovation is perceived as better than what it supersedes; compatibility denotes the degree of perceived consistency with the existing skills, practices, values and norms, past experiences, and needs of potential adopters; complexity is the degree of perceived difficulty to understand or use the innovation; trialability is the degree to which one can experiment with the innovation on a limited basis; and observability is the degree to which the results of an innovation are visible to others (ibid.). Similarly as in the case of consumer innovations, the speed of diffusion in an industrial context is likely to relate positively to relative advantage, compatibility, trialability, and observability and negatively to complexity and perceived risk (Gatignon and Robertson, 1985). Some characteristics of an innovation like relative advantage and compatibility may vary from one adopter to another, being contingent upon the perceptions and context of adopters (Tidd, 2010). Characteristics of an organizational innovation adopter may be issues like size, centralization, formalization, members' attitudes, decision making practices, training, needs etc. Environmental factors include, e.g., economic trends, competitive pressure, market uncertainty, and communication networks.

Day and Herbig (1990) claim that industrial innovations in general diffuse slower than consumer innovations, but have more staying power. However, organizational adoption is much more complex than individual adoption (Ozanne and Churchill, 1971), though the same influencing factors, relative advantage, tolerance to risk, level of aspiration and access to information have been considered (Webster, 1969). Furthermore, as the implementation of service innovations often requires redesigning the value chain (Chesbrough, 2011) and redefining the activities and functions between the customer and

the service provider (Vermeulen and van der Aa, 2003), they change the mental models of what organizations do. Therefore these innovations should usually not be considered as mere service or process innovations, but instead as paradigm innovations described by Tidd et al. (2005). These systemic changes almost invariably raise initial resistance. To lower this resistance and to speed up diffusion, service innovation co-development has been suggested (Vermeulen and van der Aa, 2003; Chesbrough, 2011).

Some researchers suggest that organizational innovation adoption itself leads to further accelerating adoption (Brand and Huizingh, 2008; Huizingh and Brand, 2009) by making wider and further utilization of innovative solutions step-wise, at least in the case of technological innovations. This might relate to the previous conclusions of compatibility (Gatignon and Robertson, 1985), access to information on the innovation (Webster, 1969), capacity to adopt and evaluate innovation-related information (Jensen, 1988) or organizational innovativeness in general (Gauvin and Sinha, 1993) having a role in organizational tendency to adopt innovations. Kitchell (1995) addresses the role of corporate culture, whereas Klein and Sorra (1996) underline the importance of values in organizational innovation adoption. However, not only the characteristics of the potential adopter, but also the supplier, should be taken into account – the perceived customizability of the innovation and the marketing strategy of the supplier play an important role in innovation adoption (Frambach et al., 1998). Forward and backward integration of the adopter has also been listed as antecedents for innovation adoption (Boeker and Huo, 1998). The interdependence of some or all of these characteristics is likely but largely unexplored. Although in most of these studies only the adoption of technological innovations is analyzed, organizational adoption of service innovations should share some similarities.

Innovation Resistance

The majority of innovation diffusion research has been done from the standpoint of successful adoption (Rogers, 2003). This is caused by the pro-innovation bias. Innovation resistance needs to be considered as a separate phenomenon from the more studied innovation adoption (Frambach and Schillewaert, 2002), and can be divided into three distinct types: rejection, postponement and opposition (Ram and Sheth, 1989). Tidd (2010) lists four major categories of barriers to adoption: economic barriers, behavioural barriers, organizational barriers, and structural barriers. Rejection and discontinuation of innovation is frequently considered more difficult to study than successful innovation and there is also less funding for this type of research. Therefore resistance is most often seen in innovation studies as non-adoption, which does not fully reveal its dynamics. It would be wise to look at rejection and resistance more closely. If the innovation only reaches the early adopters, it will never become a widely adopted success. Taking this point-of-view, the spread of an innovation is actually determined by the resisting and lagging non-adopters. Tackling the resistance of late majority and laggards creates great potential for increasing adoption. They are also the most rational adopters and the ones with less innovation bias (Tidd, 2010) and therefore can better help improve innovations.

Companies frequently think that customers do not adopt their industrial service innovations since customers simply do not have enough information about the benefits of the innovation. It is true that customers must be made aware of the innovation's advantages in order for adoption to occur. It is also true that customers' perceptions of the innovation can be influenced through deliberate communication. It must be understood

however, that there is also real resistance among customers to changes that these innovations bring about. This resistance is a normal human response, and it occurs also in an organizational context (Mirvis et al., 1991; Cutcher, 2009; Zwick, 2002). Individual as well as organizational customers may resist innovations that cause changes in their behavioural patterns, norms, habits and traditions. They often also resist innovations that cause psychological conflicts or problems. Customer perceived value is imperative for innovation adoption. Novelty, radicalism and complexity are related to resistance whereas familiarity and compatibility are linked to adoption. People in general do not desire changes when they are satisfied (Judge et al., 1999; Wanberg and Banas, 2000) or close to their aspiration level (Greve, 1998). They also try to avoid risks related to innovation adoption. The degree of perceived risk is highly negatively related to the rate of diffusion (Herbig and Day, 1992), and its influence has been shown to be great also in the context of organizational buying (Johnston and Levin, 1996). Though the innovation non-adoption is not a symmetrical opposite process of adoption, the antecedents for it are likely to be related to the barriers of adoption. To put it shortly, the innovation will not be adopted if it is considered too challenging to adopt or if it is not considered useful (MacVaugh and Schiavone, 2010).

Innovation resistance is an example of resistance to change. Organizational resistance to innovation is organizational behaviour that serves to prevent a firm from purchasing an innovation. Resistance is not a negative concept in general, since change is not inherently beneficial for organizations (Pardo del Val and Martinez Fuentes, 2003). It is also common that there is ambivalence in response to a change proposal (Piderit, 2000). The customer may experience the innovation simultaneously positively and negatively.

Although consumer resistance to innovations has been explained to some extent, little is known of innovation resistance among organizational buyers (Bao, 2009). The process for adoption of innovation is more complicated for organizations than for individual consumers. An organization consists of multiple actors, each of them having different views about the innovation and different kind of influence in the innovation-decision process. Functional roles influence perception on the factors that affect innovation diffusion (Häggman, 2009), and the collective decision on adoption is done in an interactive process. Individual actors can gate or advance the process towards adoption (ibid). Employees' change resistance is a complex phenomenon not yet fully understood (Cutcher, 2009). Many explanations have been suggested, including the sunken costs related to past human capital investments (Zwick, 2002), psychological defence mechanisms (Bovey and Hede, 2001), as well as the organizational culture (Mirvis et al., 1991) and personal identity in and out of workplace (Cutcher, 2009).

To successfully implement a service innovation, it is of utmost importance to overcome this resistance on both the organizational and individual levels. In the case of technological innovation a distinction between the organization and the employees adopting an innovation might be reasonable (Gallivan, 2001), but in the case of service innovation it is less so. Gallivan (2001) points out, that as important as employees may be in the successful implementation of an organizational innovation, they are ultimately often not the decision makers in the adoption of a technological innovation. However, as service value is always co-created (Vargo and Lusch, 2004) industrial service performance is typically highly affected by the actions of customer companies' employees. Industrial services – especially paradigmatic service innovations – often comprise such large operational areas that employees' opinions need to be taken into account. Organizational changes should always be thoroughly communicated internally

(Schweiger and DeNisi, 1991). Commercial success of a service innovation is not possible without employees that readily adopt the new innovation.

4 Methodology

Research Approach

This research aims to understand corporate customers' resistance to adopt industrial service innovations. As research on resistance of service innovations within organizational settings is limited, we found an explorative case study an appropriate methodology. Case studies are particularly useful for increasing understanding of topics that are previously underinvestigated (Gummesson, 2000). They are well suited for studying complex organizational processes in real life context (Yin, 1994). They shed light on the detail of social processes in their appropriate context (Hartley, 1994) studying the particularity and complexity of each case (Stake, 1995). The case study was carried out within Finnish industrial companies and it was combined with a literature study.

Case Companies

There were nine supplier companies providing industrial services within the study. They were not directly competing with each other and they came from different industrial fields. Their sizes ranged from small companies to large corporations, as shown in table 1. The smallest ones were operating mainly in domestic markets whereas the larger ones were clearly global companies. The maturity of these supplier companies as service providers varied from highly advanced to beginners. Each supplier company was asked to name one to three interesting customer companies. Also the customers came from many different industries and their size as well as their level of internationalization varied. Altogether 13 customer companies were interviewed. These companies are listed in table 2.

Table 1 The industries, the numbers of employees and of interviewed people in each interviewed supplier company

<i>Service provider company</i>	<i>Industry</i>	<i>Number of employees</i>	<i>Number of interviewed people</i>
S1	Machine building	10 000 – 50 000	3
S2	Machine building	10 000 – 50 000	4
S3	Mining	1 000 – 5 000	3
S4	Material handling and logistics	10 000 – 50 000	3
S5	Automation	100 – 500	4
S6	Electrical	< 100	2
S7	Technical trade	< 100	2
S8	Environmental management	5 000 – 10 000	4
S9	Shipping	500 – 1 000	3

Table 2 The industries, the numbers of employees and of interviewed people in each interviewed customer company

<i>Client company</i>	<i>Industry</i>	<i>Number of employees</i>	<i>Number of interviewed people</i>
C1	Mining	10 000 – 50 000	1
C2	Metal	1 000 – 5 000	1
C3	Energy	10 000 – 50 000	1
C4	Chemical	5 000 – 10 000	1
C5	Petroleum	5 000 – 10 000	1
C6	Real estate	< 100	1
C7	Forest	10 000 – 50 000	3
C8	Forest	100 – 500	1
C9	Material handling and logistics	10 000 – 50 000	1
C10	Transportation equipment	1 000 – 5 000	1
C11	Machine building	10 000 – 50 000	1
C12	Medical	1 000 – 5 000	1
C13	Medical	1 000 – 5 000	2

Data Collection and Analysis

The case data comes from a research project that focused on understanding customers that buy industrial services. The data was collected through qualitative interviews and a series of round table and results workshops. The research project started in June 2008 and ended in February 2010. The semi-structured interviews were made between autumn 2008 and summer 2009. They typically lasted between an hour and two hours. The interviews were conducted by four researchers each being responsible for certain suppliers and their customers. The interviews were recorded and also notes were taken during them. Five conversational round table workshops of about three hours each were held between summer 2008 and winter 2009. Nine interactive results workshops typically lasting between three and four hours each were held during winter 2009-2010. The researchers took part in the workshops together with the supplier companies discussing and taking notes.

Both companies trying to sell industrial service innovations and companies that represented the potential adopters of industrial service innovations were contacted during data collection. The research team interviewed 28 chosen employees from nine industrial case companies that wanted to add new innovative services to their offering. The employees represented various organizational roles, but some very typical roles were Service Director, Service Manager, Sales & Marketing Director, Sales Manager, and Customer Manager. Then 16 chosen representatives from their customer companies were interviewed. Common organizational roles in the customer companies were Sourcing Director, Sourcing Manager, and different management positions related to production. Altogether 44 people in key positions were interviewed in the supplier and customer organizations. Gaining the perspective of both sides and varying organizational roles

increases the validity of the study. Customers were selected so that they represented varying situations in regard to adoption. Some had adopted an industrial service innovation, some had rejected one while others were potential customers not yet aware of any innovation. This brings into being a more vivid picture of resistance.

The first interviews were done within the supplier companies and our research created knowledge for them about their customers. The supplier and customer companies formed pairs so that the suppliers named customer companies that were especially interesting for them. Then the supplier companies contacted the customer companies asking for permission for the researchers to go and interview them. Some customers did not agree to being interviewed and we can only try and guess the factors behind their resistance based on the interviews of their suppliers. Most customers however were willing to take part in the study and reacted positively to the interviews.

The main focus of the semi-structured interviews was on customer organizations' buying behaviour in the context of industrial services. We use this data to study the factors influencing buying and rejection decisions of new service innovations as we see that innovation adoption or rejection is in its plainest manifested in the decision to buy or not to buy. Within diffusion research adoption is usually considered to be the decision to do or acquire something (Tidd, 2010).

The supplier companies were asked to describe how they view the service buying behaviour of their customers in general and the service buying behaviour of these specific customers. They were also asked to choose a specific industrial service from their offering that they considered novel and potentially strategic to their customers, and to describe their customers' buying behaviour of this type of services. Then the customer companies were asked how they generally perceive their own buying behaviour of new services. They were also asked about their business relations and buying related to the specific supplier taking part in the study and related to the specific novel industrial service named by the supplier.

The conversational round table workshops were organized overlapping with the interviews. The nine service provider companies gathered together with each others and the researchers to discuss industrial service business development and customers' buying behaviour. The joint view about the phenomenon grew during these discussions and notes were taken.

Throughout the project the researchers also arranged internal project meetings to discuss the content of the interviews and refine their understanding on customer companies' buying of industrial services. The results were presented to the nine participating service provider companies in the end of the research project in company specific results workshops. These workshops were interactive with personnel from the supplier companies commenting the results. The purpose was not only to present the results, but also to discuss and validate them with a wide participation from the companies providing an opportunity for people to ask questions and correct or expand on issues raised. The employees taking part in the results workshops were typically people working in the customer front line and people working in the service development.

No emphasis was made on either adoption or rejection in the actual interviews and the focus of the research project was customer understanding and buying behaviour of industrial services. The results have been analysed from the point of view of rejection and resistance for the purposes of this paper.

5 Findings

Both customers and service providers told us that the decision to buy industrial services is to a high degree dependent on the perceived utility and expenses of the service. Organizational buyers look for services that enhance their companies' performance. They appreciate high return on capital, high profits and low expenses. There is resistance to paying. In many cases they would not like to pay anything for the services, instead they would often like to receive services as free giveaways on the side of the physical product.

Taken the price sensitivity of many customers, one has to ask, does the utility of the service innovations offered actually outweigh the expenses attached to them and have the service providers been able to correctly assess the utility and expenses of their offering from the customer's point of view. The provider companies may have developed their services to cater for the technically sophisticated and risk taking customers whereas a large part of customers may actually be more price sensitive and risk averse. It may be that some service providers are so occupied with the high quality features of their service innovations that they do not fully notice that the service does not meet the needs of the majority of customers.

The benefits, expenses and risks of a novel service were seen differently by different customers depending on the customer company itself, on the environmental context, on the service innovation, and on the supplier company. We view that there is a need for a fit between these elements in order for the adoption of an industrial service to occur. In this chapter we discuss the influence of the fit of an industrial service innovation from four different angles: customers' business environment, the customers themselves, the supplier, and the innovation.

Influence of Customers' Business Environment

The interviews were carried out in 2008-2009, right in the middle of a great recession that was preceded by a high market boom. The significance of the general economy on service innovation adoption was clearly evident.

During the boom the Finnish industry had full order logs causing delivery times to peak. This forced companies to outsource and look for service solutions that would enable them to keep up with the rapid market growth. New market opportunities were created for both simple basic services and for more sophisticated services like knowledge intensive or performance-based services.

As the downturn hit and substantially impeded the flow of capital, it simultaneously advanced and hindered adoption of industrial service innovations and partially changed the type of services that customers were willing to adopt. Clients that would normally have invested in new production equipment became very interested in services in the areas of maintenance and modernization of old equipment in order to avoid large capital investments. As long as customers' factories were not closed down, they needed services supporting production. This is epitomized by the statement "*The finance crisis can not be seen in maintenance business – yet – as production sites haven't been shut down. But we are loosing business quickly in project type services, especially in larger projects. Old sites are being modernized instead.*" As order levels declined, clients started to think that it was quite acceptable for them to have process interruptions and slow and ineffective production in their factories. For this reason clients lost their interest in preventive maintenance, and repair services were used instead if necessary.

As the overall demand declined, there was less need for all kinds of supply. Customers lost their interest for the resource freeing services that had been developed for the boom market. Instead, they were doing as much as possible in-house in order to arrange work for own employees. Customers were also looking for possibilities to downscale the level of services bought.

Cash management became the most important business issue, much more important than long term and even short term profitability. The situation clearly inhibited the adoption of profitable service innovations that otherwise would have been adopted. Many people expressed a social pressure: they were afraid of being seen as professionally incompetent by their colleagues had they suggested any kind of new investments, even very profitable ones. The level of bureaucracy concerning expenses was raised. Even very small costs had to be approved very high up in organizations. One supplier described the sentiment saying *“The focus is on savings. This is really not a time for ideation.”*

Competitive pressure also seems to be able to both advance and hinder the adoption of industrial service innovations. Fierce rivalry forces companies to seek new solutions for gaining competitive advantage. This may increase clients' interest for such innovations that they perceive to solve their immediate problems. Yet it may decrease clients' interest for innovations for which they do not see the need as acute. Companies that have a difficult competitive situation must consider carefully where to invest their money. They may seek for a novel solution just as well either upscaling or downscaling services. For instance one customer operating in a highly competitive business found it very important to strengthen its own technical know-how and to divide outsourced services into small segments that could be bought based on an hourly cost. Another customer operating in a very similar business had a totally opposite strategy. They wanted to reduce the number of own technical personnel and to outsource large service entities with a fixed price.

The interviews also included views stating that some customers that had an outstanding market position and financial situation did not seem to be very interested in the improvements that service innovations would bring about. Supplier companies' sales people felt that these customers often did not feel the urge to strive. Even some customers themselves admitted that they had it so easy before the downturn that they did not really need to think about efficiency improving services. Companies operating close to their aspiration level may not value the utility of a performance improving service as high as companies that have a greater gap between their performance level and aspiration level.

Influence of Characteristics Related to Customers

The perceived needs varied to a great deal in some very similar customer companies competing in same markets, producing products of the same kind and having similar size organizations. What differed in these companies was the deeper structure of their business model: what did they consider as their core competence, what was their outsourcing and purchasing strategy, and how were they planning to compete and make profit.

A classic example of service innovation resistance that we have seen in many companies is when the service is too close to the core business of the customer company. Suppliers often either ignore this important issue or they are simply not aware of the confines of customer's core business. Many customers do not even want to publicly

announce their core business. In these cases the supplier's offering may actually be somehow better than what the customer is already doing, yet it is not appealing to the customer. Customers do not wish their suppliers to take over their business. Attempts to do so will easily result in strong opposition and even defensive attack.

The willingness to adopt an innovation requires that the customer feels some sort of need or want that leads the customer to an action for adoption. This may take the form of a gap between the organization's expectations and its actual performance. Expectations can often be raised and a problem created by presenting a beneficial solution. This is not always that easy though. Companies that feel that they are already doing fine seem to be less interested in taking the risks and making the effort associated with adopting a service innovation.

The business customs, culture and knowledge level of the customer also has an effect on how attractive a service innovation seems. There are, e.g., differences between developed countries and the developing countries in understanding the significance of preventive maintenance making it difficult to sell this kind of service innovations to developing countries. Business habits and culture are changing though as more and more corporate managers from developing countries are educated in the western countries and as the amount of foreign, globally operating companies is growing in the developing countries.

Different customer companies have different practices of decision making that lead to differences in their adoption of service innovations. For example some companies give a lot of decision power to centralized purchasing organizations whereas in some other companies production units make their own purchasing decisions independently. Purchasing organizations and production units often have different views and attitudes concerning the novel industrial services. Suppliers eagerly innovate to serve the efficiency improvement needs of customers' operations. These innovations are easily rejected if they do not conform to customer's purchasing strategy and the customer has a strong purchasing organization. On the other hand some customer companies have very progressive purchasing departments that may actually favour innovative suppliers. One customer described the difference between the thinking of purchasing department and production site concerning services purchasing as following *"We started global sourcing four years ago. To put it mildly there was a lot of grumbling. One had to fight in every little detail."*

In order for an organization to adopt a service innovation, individuals within that organization also need to adopt the service. Decisions on industrial service innovations often affect a lot of people in different functions and levels of an organization, e.g., operational level and higher management, production, purchasing, and strategic planning. The employee roles and tasks within customer organizations vary and therefore different people experience the service differently. A service innovation that is seen as beneficial in one part of the organization may cause problems and innovation resistance in another part of the same organization. One supplier described this phenomenon as following *"A lot depends on for whom you get to sell. A superintendent will only look at the budget. The fleet director or the CEO may look at total business."*

Service providers often hope to find one decision maker for whom to sell the service and they try to go up the management chain to find one, but often such a person cannot be found. Instead multiple decision makers are typically involved. In most cases the innovation adoption decision is actually the result of a collective sense-making and decision making process within the customer organization. It is rare for even highest

management to make authoritarian decisions on issues like complex industrial service without considering the opinion of different affected functions.

This often makes the adoption decision process of an industrial service gradual and iterative. Some parts of the customer organization may be in favour and others against the innovation. Individual people may also simultaneously find both positive and negative aspects in the innovation. The organizational sentiment towards a novel industrial service can be ambivalent and change over time. It is very usual that during the adoption negotiation process the industrial service is changed, specified and tailored by the supplier to better fit the different expectations in different parts of the customer organization. These changes may be imperative for the adoption of complex industrial services to occur.

The people in customers' organizations have individual emotional experiences of the industrial services offered. These experiences often deal with the professional identity of customers' employees. Issues of division of work and changes in the content, demands and image of work are very emotional and may cause strong opposition to the service innovation. For example the adoption of outsourced maintenance service typically requires that the service provider employs the customers' maintenance people and solves potentially difficult personnel issues.

Adopting industrial service innovations usually requires that someone in the customer organization gets personally involved with the issue, works as a champion and organizes the resources for the adoption and implementation. Personal involvement is a limited resource in today's streamlined organizations. One customer expressed the feeling of many by explaining that he found a lot of potential in industrial services and that there is a lot to be developed together with service providers "...but time just goes into other things, to the daily work, and I simply can't make it." Even very profitable proposals can be turned down as they do not surpass the level needed to wake up real interest. One customer described the bar for interest during the busy and lucrative market boom with the words "A year ago we were not interested in savings of 100 000 euros."

If the service innovation does not raise a high level of personal interest within the customer organization it may result in non-adoption despite the benefits as no-one is willing to take the effort. Often the benefits are experienced by a different person than the one who has to put in the effort. This easily leads to innovation resistance. It is quite usual that the adoption of a novel industrial service is opposed by a project manager or a development manager who needs to give his or her team's resources to the specification and implementation process, but who does not get the credit or benefit from the service.

Influence of Characteristics Related to the Supplier

The service provider company itself, its compatibility with the customer and its credibility have an influence in the adoption of industrial services. Most customers described that they want to minimize the number of suppliers they work with, but on the other hand they do not want to be fully dependent on single sources. Therefore sales of novel services is easier for those suppliers that already have a business relationship with the customer, and that can cater a wide range of the customer's needs.

It is very important that the service provider is credible for delivering what it promises. Credibility is gained through references or through a long term relationship with the customer. Trust and depth of the relationship between the customer and the

supplier has an important effect for the adoption of a novel service. The following examples describe how customers saw these issues:

”There’s a risk if the partner doesn’t understand the meaning of service. That they are there to support the customer and take responsibility.”

“If human relations work, then the service starts fine.”

“Credibility is not created in the negotiation room, but in what you get done.”

“Credibility comes from experience, financial situation and references.”

“It’s easier to do business with people you know.”

“We don’t easily replace suppliers that we have good experiences of.”

Influence of Characteristics Related to the Innovation

Complexity, Trialability and Observability

Complexity is the degree to which an innovation is perceived as relatively difficult to understand and use. Industrial service providers try to develop their services to be easy to use. Often customer companies actually need less technical personnel after adopting an industrial service. However, as industrial services are often paradigmatic innovations or systemic innovations, it is often difficult to assess the actual consequences of adopting them. The threshold of adoption is further raised by common requirements for the customer to change itself.

It is also difficult for service providers to describe the content of their services. Service brochures and net sites are written using fancy marketing terms that do not yet have a common accepted meaning. It is also difficult for the personnel of service companies themselves to understand the content of the services they offer. Therefore sales people do not know how to sell them.

For some customer companies it is clearly difficult to buy anything that is not tangible. *”We don’t buy air.”* said one of the customers. Another customer’s purchasing director was described by a supplier with the words *”It’s hard for him to perceive the difference between service and material.”* Yet all customers need some services. Customers can be divided into two main categories. Customers in the first category are willing to buy products and services separately and also to pay for service. Customers in the second category agree on buying products only. They have to pay for the services they need within the price of the products.

In many cases it is difficult and expensive to recall industrial service decisions. Therefore industrial services often have a low level of trialability. The effect of this is reduced by industrial services typically being based on long term relationships between customers and service suppliers. The relationships develop over time as both customers and suppliers learn about each others’ capabilities. It is also quite normal that every aspect of an industrial service has not been defined at the time when agreements are made. Industrial services are shaped and moulded throughout service relationships.

Observability of industrial services is limited by the confidentiality of service relationships. It is often also difficult for the partners themselves to measure the benefits

of adopting an industrial service. The value of a service is not only dependent on the service itself or the actions of the service provider, but the customer and the environment also have a strong effect on it. It is often difficult to evaluate which part of a performance improvement (or decrease) is the result of adopting an industrial service and which part is due to other factors.

Relative Advantage and Compatibility

Relative advantage of an industrial service innovation is the degree to which the service is perceived as being better than the way of operation it supersedes, or possible competing ways of operating. Relative advantage of an industrial service innovation clearly differs depending on the customer and its context. It also differs depending on from whom you ask in the customer organization. The essence of service lies in the customer being the focus of attention and in the service provider being able to come up with a solution that suits each specific customer in its own business context. This does not mean that the service would always have to be tailored differently for each customer, but it means that one has to find the type of service that fits the customer best – the type of service that is relatively advantageous to the customer.

Financial benefits and costs are extremely important in determining the relative advantage of a service innovation for industrial customers. Yet there are other types of issues that also count especially when it comes to innovation resistance. Changes in one's habits or company's practices require efforts that are often seen as heavy and unpleasant. Industrial service innovations often require changes in the customer's organization that may cause innovation resistance. Customers are also concerned about the effect of adopting a service on their professional identity. For example one of the customers explained to us that he used information that he had gained from a service to provide it for his superiors for decision making. It turned out that the information had been faulty and wrong decisions were made. This made him look bad in front of his superiors and affected his willingness to continue the use of the service. Outsourcing in general often has a strong effect on employees' professional identity that may cause organizational resistance. Many people in management positions explained that thorough investment calculations are needed in order to get a positive decision but also to cover one's back. Customers want to make sure that they do right decisions and that nothing goes wrong, but in case something does go wrong they are able to refer to the calculations for their defence and protect their professional status. Customers also want to enjoy what they are doing. It is always nicer to do business with someone you like, whom you trust and who does not cause you trouble. Reaching for good enough is much more rewarding than slaving for perfection. Often the utility of an industrial service actually comes from decreasing some sort of discomfort or releasing pressure. For instance there are examples where customers have turned into outsourced service because of bad employee relations or other stressful problems. Whether the price of a service is seen as fair also affects customers' willingness to buy, which may cause a problem for those service providers who are trying to raise margins by converting into value based pricing.

These issues described above have to do with the emotions of individual people working in the customer organizations. The supplier companies that participated in this study, and very many other Finnish technology companies, believe that emotional issues have a strong influence on organizational acceptance of novel services. When assessing the relative advantage of an industrial service innovation one has to look at the financial

utility and costs, but one also has to look at other aspects like how the different parts of customer organization feel about the service or what is their service experience.

Resistance towards service innovations is highly influenced by the perceived risk of adopting them. Both personal risks and organizational risks matter. The risks are minimized and managed, e.g., through careful investment calculations, well considered contracts and the choice of capable and trustworthy partners. Organizational changes are always risky. Industrial service decisions are typically difficult and expensive to recall. The risks associated with utility and expenses of the service are realized on a different time span. The expenses of industrial services are typically realized early and with a certainty whereas the benefits are uncertain and realized with a delay. This can be alleviated through careful design of services. The feeling of risk attached to an otherwise tempting service innovation may cause the customer company to postpone the adoption to the point of rejection.

In addition to the likelihood of a risk, one also has to consider the criticality of a risk. Some risks are tolerable even though their probability is quite high while some others are intolerable even though they have a small probability of occurrence. Different customers have different profiles in their overall tolerance to risks and to the type of risks they tolerate. This affects the acceptability of the risk level of a service when it is offered, e.g., for a nuclear plant or a paper plant. Also customers' business situation affects their ability to tolerate different risks. The following quotes give an idea of how the customers viewed some of the critical risks related to the industrial services.

“We can't outsource, because... anyone could learn the job and that could lead to us losing our competitive edge.”

“We would lose our technological know-how if we were to outsource maintenance.”

“There are big safety and liability issues with running our production. Who would be liable if something happened?”

Suppliers often seem to propose service innovations that offer only limited benefits. Organizations are not willing to use a lot of resources in small improvements. If the service innovation lacks the potential for substantial improvements, it may be reason for rejection.

In the end it all comes down to the issue of compatibility. Summarizing what has been written above about the influence of customer's business environment, of the customer itself, of the supplier, and of the innovation, compatibility or fit of the innovation matters to a very great degree. Compatibility manifests itself in industrial service innovations in very many ways. Compatibility is not just a characteristic of the service itself. It is the compatibility of the service to the customer's organization, to the customer's business situation, to the customer's needs and to the supplier. It is also the compatibility of the customer and the service provider to each other. Resistance may result from the supplier offering a service that is not actually compatible. The supplier may have a wrong initial perception about the need of the customer or how the customer views the costs related to the service.

6 Discussion

In this paper we have contributed to the discussion on innovation diffusion from a perspective that combines issues that are widely accepted to be important – yet less studied. These issues are industrial service business innovation and organizational resistance to innovation.

The study has been conducted within the context of industrial service innovation. Yet we believe that it is of interest in the general context of business-to-business market innovations. The study helps companies that try to avoid the pitfalls of innovation rejection. Innovation rejection can be a problem both to suppliers and the customers. The results are also interesting for policy makers and change agents promoting the transformation of industry towards service business logic.

The case study within this research included many different types of industrial service providers and many different types of customers, which enriched our view of innovation resistance. The interviews also covered both the customers' and the suppliers' views. Case studies are rich, empirical descriptions of particular instances of a phenomenon (Yin, 1994). Our sample was small so it is not meaningful to use it for statistical hypothesis testing. The strength of our methodology lies in each supplier-customer pair being a distinct rich experiment. Also the use of round table discussions and workshops improves the validity of our results as these meetings allowed for multiple people from different organizations to reflect the results together. However, as innovation-decision process is a very complicated process especially in organizations, we do not assume that we have reached an extensive understanding of the phenomenon. We have merely scratched the surface and call for more research.

In terms of future research we believe that there is a clear need to better understand the dynamics of industrial service business innovations. We believe that there are unaddressed issues in the customer companies' resistance to adopt new innovations offered by suppliers. This resistance is not only important from the point-of-view of supplier organizations. It is also important from the point-of-view of the customer companies themselves as they are struggling to innovate in the global competition.

Despite the growing interest in open innovation and collaboration for innovation, customers' role in innovation is not fully understood. Issues like barriers to users becoming active innovators have remained largely unexplored (Raasch et al., 2008). Collaboration for innovation can be seen as an innovative practice per se. Therefore it is possible to discuss resistance to participate in collaborative working practices as a special case of innovation resistance. It is very possible that the same kind of issues that cause resistance to service innovations also cause resistance to customers participating in collaboration for innovation.

Our results emphasize that an organization as an adopter is actually a network of individuals and teams having different roles and experiencing the service differently. Even though financial benefits and costs are very important in determining the relative advantage of an industrial service innovation, also other aspects including emotional issues and risk aversion have a strong influence. For these reasons an organization's sentiment towards adopting an innovation is often ambivalent.

Industrial service customers are clearly very different from each other. We find the fit between the service, the customer, the supplier, and the business context very important for the adoption to occur. Reaching for a fit calls for new ways of segmentation based on customers' needs, organizations, business environments, and business models. Different

types of services and service levels can be offered for different customer segments. Development of service customizability helps in doing this efficiently.

Resistance is not simply a negative thing or result of ignorance. Resistance reveals important drawbacks of an innovation that should not be simply ignored or compensated by adding new benefits. We find understanding resistance an important part of managing the art of innovation. When creating new innovative concepts, it is important to know also customers' negative affects, not only the positive ones. It is the total service experience that counts, not the individual service characteristics. Understanding customers' total experience and resistance of new innovations and utilizing that information to the development of services and products will lead to better innovations that not only diffuse rapidly, but even more importantly they serve customers better.

Acknowledgements

The authors wish to thank the following colleagues for their contribution to this work: Tiina Apilo, Jari Kettunen, and Tiina Valjakka of VTT Technical Research Centre of Finland. The research has been funded by Tekes (the Finnish Funding Agency for Technology and Innovation) and VTT Technical Research Centre of Finland.

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