CUSTOMER INTERACTION IN SERVICE INNOVATION: SELDOM INTENSIVE BUT OFTEN DECISIVE. CASE STUDIES IN THREE BUSINESS SERVICE SECTORS.

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ABSTRACT

The purpose of this study was to develop the yet limited empirical knowledge on the intensity of customer interaction and on specific customer roles in service innovation processes. An empirical study of twelve (12) business service innovation projects was conducted in cleaning and security, financial, and ICT services. Overall, direct customer interaction in service development can be characterised as being limited and focused on specific, well-defined tasks in these service sectors, which offer support *services to their customers.*

In the analysis, three highly important customer roles emerged: 1. Customers act as catalysts of service development processes. 2. Customer feedback is often decisive in nature, allowing for go/kill decisions and directing other key decisions. 3. Customers have a key role in internal marketing of the new service idea within the provider organisation.

The study also proposes a new variant of a concurrent service innovation process to existing service innovation literature.

Keywords: service innovation, business-to-business services, customer roles.

1. INTRODUCTION

Customer interaction has been argued to be a key feature of service innovation activities (Gadrey et al. 1995; Hauknes 1999; Sundbo & Gallouj 2000). Empirical evidence shows that customers are involved in and provide important contributions to service innovation processes within companies (e.g., Alam & Perry 2002; Magnusson 2003; Matthing et al. 2006). Recently, however, the stress laid on customer intensity in service innovation has also been criticised. As Howells (2006) points out, while customer intensity in service innovation seems to be typical of knowledge-intensive business services (KIBS), in which the service itself is co-produced in customer relationships, customer interaction in service innovation may not be as evident in other types of service situations.

This study examines customer interaction in service innovation in three business service sectors: cleaning and security, financial services industry (FSI), and information and

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communications technology (ICT) services. The sectors as such are not of primary interest; the purpose is to examine services, *which do not typically necessitate intensive person-to-person interaction in service production*. Rather, the role of the customer can often be characterised as one of 'making use of' a service solution organised and supplied by the service provider. Or, in some cases the customer may even wish not to be directly involved at all if and when the service is running smoothly, as the service is rendered vis-à-vis the customer's physical premises, customer's money, or customer's computer equipment. The extent to which the customer needs to manage the service could even be a criterion for the service quality—the less the better.

The purpose of the study is to develop our yet limited knowledge on the intensity, significance, and different roles of customers in service innovation. The underlying assumption is that when the service itself is not produced in intensive customer contact, customer interaction in service innovation may be less intensive and may need to be organised and managed separately from the service process (see e.g., Sundbo & Gallouj 2000). As we also know that formally structured innovation processes are relatively rare in service firms (de Jong et al. 2003), it is highly interesting to further explore how customers actually become integrated into service innovation activities, and, whether and how customer interaction with these activities shapes the firm's innovation process.

In the next two Sections, we briefly discuss different models of service innovation (Section 2) and the role of customers in service innovation (Section 3) based on existing research literature. Section 4 defines our research questions. Section 5 describes the methodology and Section 6 the cases. Research findings are presented in Section 7 and Section 8 concludes the paper.

2. MODELLING SERVICE INNOVATION PROCESS

There is no single best way to characterise how service innovations are generated, as empirical evidence shows that service innovation processes are multiform (Sundbo & Gallouj 2000; Toivonen & Tuominen 2006). When *service innovation processes* have been examined, two basic types of processes have been distinguished: *ad hoc* processes and *formalised* development processes. For many firms, service innovation activities are *ad hoc* (Gallouj & Weinstein 1997; Sundbo 1997; de Jong et al. 2003). This means that innovation activities are not guided by a structured, formally managed process, but they 'happen' as a response to a particular situation. The ad hoc pattern of innovation is particularly relevant to professional services: the service production and innovation processes take place simultaneously, and "the client's problem (in its concrete sense) is the starting point of the innovation process" (Sundbo & Gallouj 2000, 55). Innovations may not even be a result of any a priori planning, but innovative elements are recognized as such only after the service process (e.g., Toivonen & Tuominen 2006).

However, the service innovation process can be planned but still not be well formalised: The management gets an idea of how to significantly improve its service and forms a team to develop the idea and concept further – without any systematic process model in mind. De Jong et al. (2003, 29) suggest that managers in the service sectors lack the motivation to follow more formal structures and processes, for reasons that are closely related to the distinctive characteristics of services: For instance, the intangibility of services, leading to the absence of patents and prototypes, makes service innovations relatively easy to imitate. Thus, the time to market becomes of essence, and hence the preference for ad hoc processes. Also, the simultaneity of service production and consumption means that when it is difficult to find 'natural' review points in the service

development process, it is important to quickly launch the service in order to be able to further develop it based on customer experience and feedback (Easingwood 1986).

For some firms and service sectors, *a formalised approach* to new service development is typical. In the FSI, new service development (NSD) often follows a sequential model, similar to the activity-stage models developed for and in use in manufacturing firms (de Jong & Vermeulen 2003; Alam & Perry 2002). Evidently, large firms with 'mass informational' product-services, in which information technology often plays an important role, benefit from a formalised development process. Alam and Perry (2002), in particular, have contributed to the understanding of the variants of sequential stage models in FSI. In addition to 'pure' sequential models, development activities are often carried out concurrently to speed up the development.

Some recent studies have taken to investigate the emergence of innovations in certain contexts 'in depth'. For instance, Toivonen and Tuominen (2006) identify three different processes leading to innovation in KIBS firms: The *R&D model* is the traditional development model with a separate development and testing stage before the new service is launched to the market. "In *the model of rapid application*, the idea is brought to the market very quickly, and if it succeeds, a more systematic development process is started." "In the practice-driven model, the process does not start from idea generation at all, but the idea is found subsequently to the implementation of a new service." (Toivonen & Tuominen 2006, p.14). The practice-driven model is particularly relevant for consultancy services (Gallouj & Weinstein 1997; Sundbo & Gallouj 2000).

To sum up here, certain key activities or phases are present in all (service) innovation processes. Such 'basic' activities include idea generation, evaluation, development, and implementation. However, these activities can relate to each other in different ways, take place in different orders, comprise different more specific activities, which in turn can overlap, coincide and be iterative (de Jong et al. 2003; Alam & Perry 2002; Toivonen & Tuominen 2006).

This study, too, investigates specific innovation processes and, in particular, customer roles in these processes. Our study set out to examine services, which do not typically necessitate intensive person-to-person interaction in service production. As will be discussed below, we chose the two-stage model suggested by de Jong and his co-authors (2003) as the baseline for our empirical analysis (Figure 1).
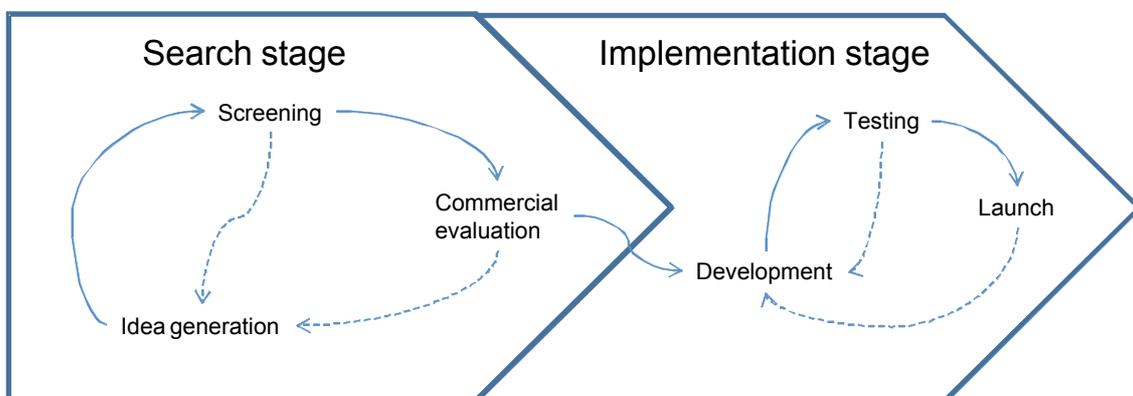

Figure 1. A model for new service development (de Jong et al., 2003, 33).

This new service development model by de Jong et al. (2003) *can be used* to describe very different types of innovation processes in services: Innovation activities can be

characterised in terms of two basic stages – a search stage and an implementation stage. The model also identifies six more specific activities. Further, the framework is applicable to describing innovation processes with varying degrees of formality. De Jong et al. emphasise that within the search and implementation stages the activities are likely to overlap or coincide. The model is essentially normative. However, de Jong et al. (2003) assume a clear transition from the search stage to the implementation stage: NSD properly starts once commercial evaluation has turned out to be positive, after which the profitability of the resulting service is no longer an issue in the NSD process. We do not wish to take that assumption for granted, nor do we expect to always find all six activities or that they would appear only in the sequence indicated by Figure 1. Instead, we wish to use the model and its constructs as a common vocabulary in order to compare and analyse different innovation processes and, in particular, customer roles in those processes.

3. CUSTOMER INTEGRATION IN SERVICE INNOVATION

Customer involvement in service innovation activities hasbeen examined from several perspectives. Whether, in which stages, and in which roles are customers involved in innovation processes (Alam & Perry 2002; Sundbo 2006)? What are the contributions and limitations of customer involvement, and how does the way in which customer involvement is implemented impact the outcome (Magnusson 2003)? How does customer 'status' – for instance, whether the project is initiated by the customer - influence the innovation process (Toivonen & Tuominen 2006)? What are the different ways in which customer participation can be organised and motivated (Alam & Perry 2002)?

This paper characterises innovation processes in terms of their key activities and their relative positions. The following dimensions of customer involvement will be empirically analysed against this backdrop: customer role in the initiation of the innovation activity; more specific customer roles in and contribution to different stages and activities; and the *impact of customer participation* and of distinct customer roles *on the innovation process* itself. The present study assumes that the innovation processes examined here are likely to be more 'in-house', that is, organised by the service provider, than co-produced with the customer. However, this does not mean that the processes should always be well pre-structured.

4. RESEARCH QUESTIONS

In the context of limited provider-customer interaction during the actual service process, two central research questions arise:

1. To what extent and in which forms are customers involved in service innovation activities? How do service innovators obtain customer input, or do they obtain it at all? Can new customer roles be identified?

2. In which ways does customer involvement in service innovation activities impact the service development process?

5. METHODOLOGY

The research was exploratory in nature. We thus opted for the extensive case study method (Yin, 1994; Eisenhardt, 1989). We considered it essential to have actual, particular innovation processes as the unit of analysis in order to obtain valid data. Data

was mainly obtained by retrospectively interviewing key persons who had been involved in the development of service innovations.

According to Yin (1994), sample selection should be guided by replication logic instead of a statistical one. Each case should be considered as an experiment in itself, subsequent cases being used either to confirm or refute previous findings. Cases should therefore be selected if they are expected to yield similar results (literal replication) or different results (theoretical replication) according to theory. Eisenhardt (1989, p. 537) largely concurs with Yin on this.

According to Yin, in case study research "theory development as part of the design phase is essential, whether the ensuing case study's purpose is to develop or to test theory" (1994, p. 27). Eisenhardt's position again is that "research is begun as close as possible to the ideal of no theory under consideration and no hypotheses to test" (1989, p. 536). To mitigate the risk of prior theoretical bias, while having *some* theoretically informed guidance for our research, we first examined different innovation process models and chose the model by de Jong et al. (2003) only as a starting point in structuring our analysis.

The choice of the service sectors was guided by our goal of examining services that do not typically necessitate intensive person-to-person interaction in service production. We took the target of identifying 4 to 5 cases in each sector, knowing that time and resources may limit our investigating of more than 15 cases in full. All the interviews were conducted in Finland and in the Finnish language.The pre-screening of potential cases was done on the basis of news articles in the daily press, customer magazines, and on the Internet. We then e-mailed the representatives of companies. If e-mailing didn't give a response, we tried reaching relevant persons by telephone. At that stage, some cases had to be dropped in the lack of interested informants, but roughly half of the so-initiated contacts resulted in at least one interview in the end. Continuous evaluation of the value of each case resulted in some cases being dropped and others added along the way. In the end, by May 2008, we had pursued 12 cases in the 3 service sectors.

We conducted 22 semi-structured interviews over six months. More than one person was interviewed in most cases: our goal was to have two one-on-one interviews on each case. At one extreme, we had to content ourselves with one interview, whereas at the other extreme, a single case involved a group interview with three persons, and another with a fourth person from another division in the same company. Sometimes the interviews for a single case were with people from different partnering organisations. Although we tried to include the customer view in many cases, the service providers were not forthcoming for the idea to take place in practice.

Each interview was transcribed. The internal validity of the method was further strengthened by the fact that most interviews, in their unabridged form, were read by both researchers. The data was further indexed, coded and analysed in tabular displays, in which we reused constructs from earlier literature, most notably from de Jong et al. (2003), Alam & Perry (2002), Toivonen & Tuominen (2006), and Sundbo (2006).

In short, triangulation was done at the level of informants (multiple interviews per case), investigators (two researchers) and theory (use of pre-existing frames of reference).

6. CASE DESCRIPTION

Table 1 summarises the 12 cases: the type of innovation and the nature of interaction in the service process are shortly outlined.

Service sector, case company	Type of innovation and service	Nature/locus of customer interaction in the service process
Security: Int'l group (A.1)	Web-based reporting system in a retail setting.	Mainly with the service provider's ICT application.
Cleaning: Facility services firm (A.2)	Two existing services combined into one: cleaning and maintenance services for institutional clients.	In the final service product between the service provider and customer's physical facilities. Personal interaction in service specification and quality control.
Cleaning: Int'l facility services group (A.3)	A new organisational concept integrating internal working practices, training and communication with customers.	In the final service product between the service provider and customer's physical facilities. Personal interaction when targets are set and outcomes measured.
Security: Small integrator (A.4)	A monitoring system for elderly peoples' homes integrating various 3rd-party elements in a patented, user-friendly way.	With the service provider's ICT system, which becomes essential for customer's daily operations. Extensive personal interaction in specification and training.
FSI: Large insurance company/ bank (C.1)	Financing that offers synergies to the provider: a loan is targeted at safety improvements in a specific sector, which reduces insurance payouts.	With the service provider's sales representatives and front office.
FSI: Insurance broker/consultancy (C.2)	A new type of auditing service in risk management consultancy.	In actual service production process throughout the process.
FSI: Large national bank (C.3)	A combination of KIBS and standard investment and other banking products, now also insurances.	As in a KIBS but takes place in punctual appointments face to face or over the phone, which are also sales events.
FSI: Large int'l bank (C.4)	Derivative based on foreign exchange options.	Mainly when selling.
ICT: Large integrator (D.1)	Communication and other IT services packaged into one: a managed IP-based unified communications and messaging platform.	In the final service product between the service provider's and customer's ICT infrastructures; helpdesk. Personal interaction in service specification and implementation.
ICT: Mid-size software house (D.2)	Software as a Service and flexible licensing: provider of CRM/HRM/ERP software allows its customers to use the functionality as a service and/or pay for it as in a service.	In final service product between the service provider's and customer's ICT infrastructures. Personal interaction in service specification and implementation; specification of the fee structure.
ICT: Small integrator (D.4)	Several ICT services combined into one: IP-based unified communications platform as a spearhead offering; ICT infrastructure management for SMEs.	In final service product between the service provider's and customer's ICT infrastructures; helpdesk. Personal interaction in service specification.
ICT: Small software house (D.5)	Software as a Service: a media production company turned software vendor now offers its media distribution platform as a service over the Internet.	In final service product between the service provider's and customer's ICT infrastructures. Personal interaction in service specification and implementation; in specification of the fee structure.

Table 1. Innovations examined.

7. RESULTS

7.1 TYPES OF INNOVATION PROCESSES AND CUSTOMER INTEGRATION INTO THEM

We expected to find mainly innovation processes that would be organised 'in-house' by the service provider and in which customers would rather be asked or persuaded to participate in innovation activities than be engaged in on their own initiative. This assumption seemed to hold well in the data: In 11 out of the 12 cases the service development *process* can be characterised as organised and driven by the service company, and customers were invited to provide their input.

The degree of formality of in the innovation processes varied significantly. In three FSI cases and in two ICT cases new service development followed a relatively well a pre-defined, clearly articulated structure. In the majority of the cases the innovation process was set up as a multifunctional project development team on an ad hoc basis (Coombs & Miles 2000). Typically, this project team was made up of the service provider's own employees, and customers were not included. Decisions on the roles and participation of customers in innovation activities were done in the course of the project.

The key phases of idea generation, evaluation, development, and implementation can be identified in the examined innovation processes. Also, they were basically in this order, with three precisions: first, we identified what might be called a 'pre-development' stage straight after the initiation of the project (see below); second, the new service idea was in several cases evaluated or tested by actually selling the idea to the customer before any further development took place; and, third, the phases of development and implementation very much overlapped in many cases. In all of the cases examined, the new service idea was generated before the implementation – that is, in none of the cases was the innovative idea 'found' in the actual service process as in the practice-driven model discussed by Toivonen and Tuominen (2006).

We identified the following types of activities in the innovation processes (cases A.3, A.4, C.2, D.2, D.4), which, to our knowledge, have not been adequately characterised in existing service innovation literature.

Incubation stage. The new idea is incubated for a relatively long period of time in the service organisation. *A concrete customer action triggers* the initiation of the development project, which means that a project team is set up.

Pre-development stage. Straight after the initiation of the development project, the service innovator quickly produces a full characterisation of service elements and the service process in order to be able to make a presentation of the new service to a potential customer.

Selling the idea to the customer. The attractiveness of the new service is evaluated in terms of actual customer decision to take in use or buy the new service. Customer commitment is needed to make the 'go' decision and to secure resources for further development within the service firm. In many cases, *customers have a key role in internal marketing of the new service idea*. This can mean two things: a) having gained firm customer commitment is a proof of viability that senior management wants to see before further service development is funded, and b) the customers can help the concept owners to sell the new service concept to their superiors, as well as employees who will be responsible for the implementation.

Second development and testing stage. Two basic variants exist: a) further development of the new service is conducted within the innovating service firm and

pilot customers are sought as evaluators and informants during the process, or b) development and testing coincide with the actual provisioning of the service to the customer.

Launch. When the service has been successfully implemented, it will be launched to a wider market.

7.2   CUSTOMER ROLES IN KEY INNOVATION ACTIVITIES

7.2.1   INITIATION

In this sample of 12 innovation processes, the idea was more often generated/born within the innovating firm than initiated by customers, partners or other actors (see Table 2). It can be inferred that the need for innovation was part of the strategy rather than reaction to a particular customer's needs. Key driving forces included increasing opportunities created by technology and market development, competitive pressures, pressures to try out new ways of generating revenue, and pressures to reduce costs. In three of the ICT cases, partners took the role of surrogate customers to some extent.

The above does not mean that customers would not have important role in the early phase of service innovation. The empirical case analysis reveals quite the opposite: customers act as important *catalysts* of service development processes. In particular, customer feedback, suggestion or request often *triggers* the initiation of the new service development project, which means that a project team with concrete objectives is established. Sometimes the customer directly suggests what it would like to see in the future; in some other cases, customer trigger is indirect (e.g., in one case, a long-term contract with an important customer was coming to an end, and there was a threat of loosing this customer). It seems that even in service firms, where the speed of innovation activities has been argued to be critical (Alam & Perry 2002), there is certain inertia until an outside actor or impulse triggers the innovation project. As one of the interviewees said, *"This has been in back of our minds for years, yet, in the end, it was a client comment which galvanised us into action."*

Case company	Customer	Inside the firm	Partner	Key drivers
A.1: security	X			Need to move away from sheer competition on the lowest price by differentiating the service offering.
A.2: cleaning		X		Improve internal efficiency by finding synergies in existing service businesses.
A.3: cleaning		X		Improve quality and efficiency of operations – a response to market pressures (some customers had been lost).
A.4: security		X	(X^2)	The founder of a new business was looking for a market niche, and actively developing a new type of solution.
C.1: insurance co/ bank	X^3			Decrease costs and meet new competition on the insurance market.
C.2: Insurance	X			Customer needs, provide new value to customers.
C.3: Private banking		X		Increasing market demand in this field, a strategic decision to increase market share in the segment.
C.4: Derivatives branch of an		X		Unmet demand on the market – customers asked for new solutions. Internal need to make use of investments made

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[2] An actor in the business network suggested a new market segment in which the idea could be applied.

[3] Not a 'real' customer, but someone who represents customers on the company's customer forum.

Case company	Customer	Inside the firm	Partner	Key drivers
international bank				in new systems in the bank.
D.1: Large ICT integrator		X	(X^4)	Better communicating a whole solution offering; integrating a bric-brac of piecemeal local solutions
D.2: Software service house		X	(X^5)	Pressure to try out new ways of generating revenue. SaaS on the background.
D.4: Small ICT integrator		X		Opportunity created by technology and market development allowing entry to the SME sector.
D.5: Software service house		X		Pressure to try out new ways of generating revenue. SaaS on the background.

Table 2. Source of idea and key drivers

In Figure 1, idea generation is followed by a screening stage. Clear screening activities were not always identified in our data. Obviously, some screening and selection activities had taken place (long) before the service development project team was 'officially' set up. For instance, university students had been employed to survey customer reactions to new service ideas, and these results were later utilised by the project team. However, there were also examples of a 'traditional' screening phase: customers representing different market segments were contacted for the purpose of obtaining their reactions to alternative service features and assessing purchase intentions. The following FSI example shows that feedback from even one customer can be *decisive*: a customer comment made the service innovator realise that by changing the maturity period of a financial instrument, the new service could reach a totally new market segment. Indeed, the insight provided by this one customer comment led to a highly successful new service.

7.2.2 EVALUATION

We found out that evaluation was not a separate activity but an overarching one. When service development followed a pre-structured model (C.1, C.3, C.4, D.1, D.4), market size and profitability were to an extent evaluated before a separate development stage. In other cases, evaluation of the new service was very much done along the way. In practice, customer commitment to take in use or buy the new service was often needed for the service innovator to make the 'go' decision. Indeed, customer commitment to the idea could be essential for the innovating team to secure resources to development: to convince important stakeholders, such as managers, and to overcome resistance to change from employees (and partners) responsible for the new service implementation. Hence, *customers can have a key role in internal marketing of the service in the innovating firm.*

When the new service needed be offered to customers at an early stage, as outlined above, this led to a high pressure to quickly define key service elements and the service process. Here, a 'pre-development' phase existed before evaluation. One of the interviewees characterised this as follows: *"What we had was no more than a power-point presentation, but the customer 'bought' the idea. Then we really started to put flesh on the bones of the idea."*

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[4] The platform as a technical product supplied by a partner

[5] Two partners are essential for the commercial offering, one supplying software technology and the other financing solutions.

Thereafter, profitability of the service continued to be evaluated when the service was implemented for the first customer. After that, the service provider had a proof of concept that they could (better) price and start offering to other customers as well, but still opportunistically. On the whole it seems that no such up-front investments were made in these development projects that would necessitate careful investment calculations: instead small steps are taken whenever there is a paying customer at close range. In case of small firms in particular, they may have to try to opportunistically do business with *any* service concept they find traction for, and then try to replicate that.

7.2.3 DEVELOPMENT AND TESTING

Two FSI cases with a pre-structured development process (C.1, C.4) differed from the rest of the cases in terms of customer involvement in development. In the former, customers did not have role in the actual development phase; their feedback had been obtained by earlier screening of desirable features.

In all the other cases, customers were involved in development. In some of the cases, development was first conducted within the innovating firm, and then pilot customers were sought and used to assess and provide feedback for further specification of the service (also, in Toivonen & Tuominen 2006). In other cases, development, application and testing very much took place simultaneously. This resembles the ad hoc model of innovation described by Sundbo and Gallouj (2000, 55). However, these were not necessarily "innovation projects tailored for a customer" (Toivonen & Tuominen 2006, 10) in a sense that the "client's problem (in its concrete sense) [would have been] the starting point of the innovation project" (Sundbo & Gallouj 2000, 55). Rather, the decision to merge development with implementation in a real customer context was viewed *by the service provider* as the best way to develop the new service. Sometimes customers were willing to pay for a project involving development and testing activities and thus shared some development risks. In one instance, the customer was not even aware that the service process included extensive development. As the interviewee said: *"You don't want to say to the customer: This is the first time we do this, so you are a kind of guinea pig here'. No, that's not possible."*

In case of ICT services, concrete work input from customers was needed in development: detailed requirements have to be captured from customers, and ultimately customers have to test the service—either explicitly (when errors or mismatches are found) or implicitly (when things run smoothly for the first time in real life).

7.2.4 LAUNCH

The activity of launching was rather ambiguous. There was often no clear separation between testing, implementation, and launching of the service to a wider market. When development was intertwined with implementation of the service for the 'first' customer, subsequent launch could mean offering the service 'one by one' to most potential customers – and further development of the service continued to take place while 'spreading' the new service to the market (as also indicated by 'after-innovation' in Sundbo 2006; and, 'the model of rapid application' in Toivonen & Tuominen 2006). Here, launch is a gradual process, not something taking place at a particular point in time. Often, after the service had been tested with potential customers or implemented for the first time, the service provider formalised the service a bit more, produced marketing material and, together with its partners, made publicity for it. The most concrete signs of something being launched onto the market included: pushing out a

press release, adding the service to the company's web site, and starting to offer the service for customers as a part of normal tendering process.

8. SUMMARY AND CONCLUSIONS

The study set out to examine direct customer involvement in service innovation activities in three business service sectors. The basic idea was to increase our understanding of customer roles in service innovation when there is limited provider-customer interaction in the actual service production process. As expected, innovation processes were mainly initiated and organised by the innovating service provider (cf. Tether 2003), and customers were invited to provide their input into specific activities. Overall, direct customer interaction in service development tends to be limited and focused on specific tasks in these service sectors, which offer support services for their customers.

However, customer input in service development can often be highly useful for the service innovator – even *decisive* in many cases. The study confirms that customer involvement is most important at the early stages of the innovation process (Alam & Perry 2002), even if it was not extensive. We identified two particularly important customer roles in the 'search stage' (de Jong et al. 2003) of service innovation activity. First, customers act as *catalysts* of innovation processes. The new service idea may have been incubated within the innovating service firm, but a concrete customer trigger is needed to initiate the innovation as a formal *project*. Second, customers have a key role in the *internal marketing* of the new service idea within the provider organisation. Indeed, positive customer response in terms of commitment to take in use or buy is often needed for the development team to obtain resources for actual development in their own organisation. Lacking a signed service contract, such commitment can in some cases be successfully replaced by middle managers transparently bringing in a customer in person to demonstrate the business case and customer commitment to more senior management. Early support from senior management is obviously important for the time to market and to reduce internal co-ordination costs.

The study sheds new light on the early stages of service innovation activities. The study shows that not only is the speed of innovation activities important (e.g., Alam & Perry 2002; de Jong et al. 2003), but right timing is essential as well. When a concrete customer action triggers the innovation process, customers are more likely to be receptive to the new service idea. Further, evaluation should not be a priori regarded as a separate stage in a development process. In many cases evaluation is an overarching activity: Evaluation can very much become intertwined with the selling of the service to a potential customer, and evaluation continues throughout service implementation with pilot customers. On the whole, it seems that when no extensive up-front investments are needed in development, new services can be implemented more opportunistically.

Somewhat unexpectedly, we also identified several instances in which the development, testing and implementation activities took place simultaneously. Such a pattern has been demonstrated in 'consultancy'-type KIBS (Sundbo & Gallouj 2002; Drejer 2004). The important distinction here is that these were not 'innovation projects tailored for a specific customer', but rather the decision to merge development and implementation was viewed by the service provider as the best way to develop the new service. Smaller firms, for instance, would not have resources for development without such customer support.

Considering how even the weak signals from clients can be often critical in the early stages, managers should use available methods to improve the "signal-to-noise ratio", either by quantitative analysis or qualitative, deeper probing of a single case, in order to avoid wasting resources on the one hand, and to more receptively capture new opportunities on the other. Motivating customers to get involved more and earlier in the process is an issue managers should pay attention to, and can be done, as demonstrated by one case company, by trying a more consultative approach with pilot customers rather than adopting a sales attitude in the beginning.

Finally, and particularly in the ICT sector, managers need to carefully consider when partners can provide *valid* 'customer feedback'.

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