

# Learning from Customer Knowledge in Engineering Consulting Firms

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## Abstract

Knowledge intensive business service (KIBS) firms usually have very close business relationships with their clients. Customers can even be co-producers of innovations if service firms design their products in interaction with the user. In order to develop new services and gain competitive advantage through new innovations, it is therefore extremely important to effectively manage customer knowledge. While the apparent significance of customer knowledge in the development of services has been recognized in KIBS research, relatively few case studies have been conducted in this area. Moreover, although previous studies have examined organizational learning in general in KIBS firms, these have not addressed learning about customers or from customer knowledge. In this study we will examine customer knowledge management in an engineering consulting firm and identify different organizational learning mechanisms for acquiring, distributing and interpreting customer information which has accumulated from different sources during business relationships. The study suggests that the observed learning mechanisms will result in more customer-focused innovation activities in engineering consulting firms and that these mechanisms are also of great value in promoting organizational learning in knowledge intensive business services in general.

## Keywords

organizational learning, customer knowledge, knowledge intensive business services

## Introduction

Many recent management books and trends have emphasized that organizations must be customer-focused or “market-driven.” While this is a fairly obvious concern for all businesses, a customer-driven approach is especially important for service firms as they are more thoroughly connected to their customers than is usual for most manufacturing industries. Customers can even be co-producers of innovations if service firms design their products in interaction with the user. This is often the case with knowledge intensive business service (KIBS) firms which are highly innovative and also facilitate innovation in other economic sectors through their almost symbiotic relationship with client firms (den Hertog 2000).

One important KIBS sector is engineering consulting services. In this sector a close business relationship between a client and an engineering company can be clearly seen in the innovation process as customers are often actively involved in various phases of planning and design (Baark 2001). An engineering consultancy may get feedback in various forms (e.g.

complaints, insights about the current service, ideas for innovations and future needs) from the customer in different phases of a project and also during contract negotiations. In addition, an engineering consultancy may measure customer satisfaction with questionnaires and/or interviews after the project. Extracting relevant knowledge from all this information thus poses a great challenge for a firm. The fact that there are usually several persons involved both from the engineering firm and the customer firm in negotiations and project meetings further calls for an integrated customer knowledge management process.

While the apparent significance of customer knowledge in the development of services has been recognized in KIBS research, relatively few case studies have been conducted in this area. Especially the link between customer feedback and organizational learning requires more research work. This link is important not only because firms can learn from the customer feedback, but also because organizational learning has an influence on service quality and subsequently on customer satisfaction and loyalty. Previous studies have examined organizational learning and knowledge management in general (e.g. Gann & Salter 1998; Sverlinger 2000) as well as organizational memory (e.g. Karsten 1999) in project-based KIBS firms, but these have not addressed learning about customers or from customer knowledge. In this study we will examine customer knowledge management in an engineering consulting firm and identify different organizational learning mechanisms for acquiring, distributing and interpreting customer information which has accumulated from different sources during business relationships. The framework for analysis and classification of different learning mechanisms is mainly based on the organizational learning model developed by Huber (1991).

## Literature review

The concept of organizational learning refers to acquiring information (knowledge, understanding, know-how, techniques, or practices) to improve organizational adaptation and performance (e.g. Argyris & Schön 1996; Dodgson 1993). There are various sources of information that can be turned into usable knowledge, but companies are increasingly using their employees and customers for learning purposes (Mai 1996). Since customers can contribute significantly to knowledge creation and organizational renewal, a firm must foster means by which to effectively manage customer knowledge.

### Customer knowledge

Customer relationship management (CRM) is a process or system through which a firm can reconfigure various activities around the customer. CRM is also about managing customer knowledge in order to better understand customers' needs. According to Gebert et al. (2003, 109) CRM processes are knowledge-oriented and knowledge flows in these can be classified into the following three categories:

- *Knowledge for customers* which is required to satisfy knowledge needs of customers (examples include knowledge about products, markets and suppliers).
- *Knowledge about customers* which is needed to understand motivations of customers and to address them in a personalized way (e.g. customer histories, connections, requirements, expectations, and purchasing activity).

- *Knowledge from customers* which means customers' knowledge about products, suppliers and markets. Through interactions with customers this knowledge can be used to improve services and develop new products. It is therefore important that this knowledge is channeled back into an enterprise.

CRM has traditionally focused on gaining knowledge *about* the customer. However, there have recently been discussions about the concept of *customer knowledge management* which puts more emphasis on gaining knowledge directly *from* the customer (e.g. Gibbert et al. 2002). In fact, von Hippel (1978) found already in 70s that innovation-related activities are not always performed by the manufacturing firm alone and that in some industries end-users play a dominant role in the innovation development process. Gibbert et al. (2002, 465) point out, however, that the major breakthroughs often come from mutual and closely integrated innovation practices; just asking customers about their future needs doesn't usually lead to new products. They thus conclude that the aim of the customer knowledge management is to create new knowledge sharing platforms and processes between companies and their customers.

By managing the knowledge of customers companies have a greater ability to sense the latent customer needs as well as emerging market opportunities before the competition. Knowledge sharing can also result in enhanced commitment to market experimentation and organizational learning. Indeed, the research work on market/customer orientation has extended the organizational learning theory to address learning about market development and customers (e.g. Day 1994; Kohli & Jaworski 1990; Slater & Narver 1995).

### **Organizational learning and customer orientation**

Organizational learning is enabled by learning processes which are essentially information processing capabilities. But organizational learning depends also on structural and cultural organizational capabilities (Zahay & Griffin 2004). Market or customer orientation has been seen as a cultural capability that provides strong norms for developing and sharing information about customers and competitors (Kohli & Jaworski 1990; Sinkula 1994). Slater and Narver (1995) have even argued that market orientation is the principle cultural foundation of the learning organization. According to Slater and Narver (1995, 67), "a market orientation is inherently a learning orientation" and these two should be combined in order to enhance performance. There has been some controversy about the nature of causality between market orientation and organizational learning, however. That is, while Slater and Narver (1995) argue that market-oriented organizations provide the cultural framework for learning, e.g. in Day's (1994) view market orientation is only possible if learning processes are examined and modified in a way that enables firms to "learn to learn" about markets. In other words, a firm must question both its market information processing mechanisms and the way information is interpreted to draw implications for future. Similarly Hamel and Prahalad (1994) argue that a market orientation may limit a company's learning to adaptive (single-loop) learning, since only current customers' needs are taken into account. Baker and Sinkula (1999a, 1999b) in turn point out that in order to foster a competitive advantage firms need an appropriate learning environment or *learning orientation* which encourages generative (double-loop) learning and thereby allows them to be consistently first to market with differentiated successful innovations. These studies therefore suggest that market-oriented processes alone are necessary but not sufficient to maintain competitive advantage. Market

orientation and learning orientation working synergistically should, however, give organizations a greater likelihood of creating a sustainable competitive advantage.

Market-oriented organizational learning differs in several ways from other types of organizational learning. Sinkula (1994, 37-38) lists at least the following differences:

1. Market-oriented organizational learning is focused on the firm's external environment and is therefore less visible to the observer than internally derived learning.
2. Market-oriented organizational learning more likely results in a competitive advantage for the organization, since a firm needs higher order learning processes in order to utilize the complex external information.
3. In market-oriented organizational learning the observation of competitors is essential.
4. Information attributed to the environment and stored within the organization's memory is typically more difficult to assess and apply than internally generated information.
5. Environmentally derived information is also more equivocal. The interpretation is therefore difficult and prone to error.

These characteristics also make the modeling of organizational learning difficult. Sinkula et al. (1997) have therefore emphasized the need to examine the interrelationships among the three key elements to organizational learning: organizational values (commitment, shared vision and open-mindedness), market information processing and organizational actions (i.e. the changes in organizational systems, procedures, and market behaviours that reflect organizational learning). Sinkula et al. (1997) propose a framework where the process of transferring information into action involves first its initial generation, sharing and dissemination (both horizontally and vertically) throughout the organization. Information is then given a meaning, stored in organizational memory and finally recalled when needed.

### **Sub-processes of organizational learning**

When examining what kind of learning mechanisms contribute to successful customer knowledge utilization, it is useful to consider sub-processes or constructs of organizational learning. There is some variance in the classification of different constructs between authors but organizational learning scholars typically conceptualize information processing as including e.g. information acquisition (or generation), information dissemination, information interpretation, information storage, organizational memory and information retrieval (Day 1994; Dixon 1992; Huber 1991; Walsh & Ungson 1991). In his literature review on organizational learning, Huber (1991) describes four constructs or sub-processes as integrally linked to organizational learning: knowledge acquisition, information distribution, information interpretation, and organizational memory.

#### *Knowledge acquisition*

A firm may acquire information from the external environment as well as by rearranging existing knowledge in the organization. Information acquisition from external sources encompasses such practices as searching, patent watching, benchmarking, networking and forming alliances, working with customers, recruitment, and education and training (Dodgson 1993; Slater & Narver 1995). In the case of customers, information acquisition is particularly challenging since customers usually have multiple channels to communicate with a firm and can interact with different people in different departments. Internal information acquisition, on the other hand, may occur e.g. by learning from experience, by experimenting (R&D, pilot

projects, etc.), by process improvements or by critical reflection (through dialogue, questioning organizational norms and assumptions, etc.; Dixon 1992; Sverlinger, 2000).

#### *Information distribution*

Information distribution is the process by which information from different sources is shared between different units and members within the organization. According to Dixon (1992), information distribution can be intentional and unintentional. Intentional information distribution includes written communication, internal publications, training (e.g. courses and on-the-job training) as well as briefings and internal conferences. Unintentional distribution encompasses e.g. job rotation, stories, task forces and informal networks (Sverlinger 2000, 64). Especially informal networks are important for information sharing: Brown and Duguid (1991) call these groups or work teams ‘communities of practice’.

#### *Information interpretation*

Distributed information must be given one or more commonly understood meanings (become knowledge) before it can affect learning. Dixon (1992) argues that dialogue, critical reflection, process checks, and unlearning are examples of actions that lead to shared interpretation. According to Dixon (1992), information interpretation is only one perspective in the “making meaning”, however. The other is the systems structural perspective in which learning methods include rational analysis, problem solving processes, extrapolating from past events, and strategy formulation. Information technology such as decision support systems can also be used (Sverlinger 2000, 65).

#### *Organizational memory*

Organizational memory is the means by which knowledge is stored for future use. In addition to individual memory it encompasses e.g. organizational culture, transformations (in work procedures, rules and formalized systems), structure (organizational roles), workplace ecology (physical structure) and internal and external information archives (Walsh & Ungson 1991). Following Walsh and Ungson (1991), Dixon (1992) divides organizational memory into internal and external memory. The internal memory includes both intentional knowledge base (e.g., expert systems, databases, records and reports) and unintentional, tacit knowledge base (individual’s experiences, organizational culture, etc.). External sources of knowledge include e.g. competitors, customers, financial reports, and former members of the organization. One must note that these store information only about the past of the organization – they are not parts of the organizational memory per se (Sverlinger 2000). The major challenge for firms is to create organizational memory from which important information (in particular information ‘with a meaning’) can be easily accessed and retrieved.

### **Organizational learning in project-based organizations**

As many businesses are becoming more project-oriented, learning from projects has become an increasingly important form of organizational learning not only in project-based organizations but also in non-project organizations. Project-based learning has been frequently emphasized in the literature as well (e.g. Ayas & Zeniuk 2001; Keegan & Turner 2001). Since Ayas and Zeniuk (2001, 64) make a distinction between project-based learning and learning in project-based organizations (i.e., learning is not a natural outcome of projects and project-based organizations are not necessarily conducive to learning), it should be emphasized here that project-based learning is only one form of learning in project-based

organizations. Although literature has mainly focused on project-based learning mechanisms (such as project reviews), there have also been some discussions about e.g. inter-project learning. Inter-project learning is one way to look at how projects generally contribute to the practice of learning in organizations.

While organizations are increasingly using projects to conduct different activities, there are often difficulties in learning from them. Indeed, Schindler and Eppler (2003) argue on the basis of their research that knowledge and experiences from different projects are not systematically integrated into the organizational knowledge base. There are several potential problems. Schindler and Eppler (2003, 219-220) mention e.g. that individuals' experiences are typically not documented and are therefore only accessible through informal networks. This means that experiences are not necessarily transferred to other people during the course of a project. Project documentation is also often superficial and focused only on standardized business figures. Furthermore, collective learning often stops at the end of the project as project group is disintegrated.

Recent research also shows that project lessons are too infrequently reviewed during the progress of the project and there is too often inadequate review of the project upon completion (e.g. Williams 2003, 2004; von Zedtwitz 2002). According to von Zedtwitz (2002), project reviews are typically constrained by lack of time and motivation, and they focus mostly on technical output and bureaucratic measurements. In addition, the problem with project reviews often seems to be the confusion *how* they should be carried out.

A simple advice for project-based learning can be found e.g. from the *Project Management Body of Knowledge* –book. It suggests that “the causes of variances, the reasoning behind the corrective action chosen and other types of lessons learned should be documented so that they become part of the historical database...” (quoted from Williams 2003, 445). Project reviews, on the other hand, should generally gather information on what worked well and what did not, and what areas of the project should be improved (planning, scheduling, communication, documentation, etc.). They can be conducted at regular intervals or at the end of each phase of the project – in particular if the project is implemented as a ‘stage gate’ process. More importantly, there should be a *post*-project review after every project. Post-project reviews are a crucial part in capturing experience and disseminating lessons learned within project-based organizations.

While project reviews are extremely practical tools to improve organizational learning at the project group level, some researchers suggest that post-project reviews are also very important enablers of inter-project learning (e.g. Bartezzaghi et al. 1997). Their usefulness is highlighted by the fact that lessons learned from projects are not often effectively utilized elsewhere in the organization. In the case of project-based organizations, there is often a problem that learning achieved from one project will not be utilized in the other. Kotnour (1999, 34) argues that combining and sharing lessons learned across projects can be supported e.g. by IT-tools and employee groups specifically aimed at knowledge sharing across organization. Newell (2004), on the other hand, has found that information technology is not very effective means in supporting inter-project learning. Instead Newell (2004) suggests that learning across projects can be enhanced if successfully used project processes and procedures are shared through social networks within the organization. In any case, an

organization should focus on information sharing mechanisms as well as the development of organizational memory in order to enable more efficient inter-project learning.

## Research design

The purpose of the empirical part of the study was to identify and analyze the relevancy of different organizational learning mechanisms in the context of customer knowledge management in an engineering consulting firm. The analysis was conducted as a preliminary case study in the engineering firm (the Firm). The selected case organization is a typical example of an engineering consultancy, i.e. a relatively small KIBS-firm strongly dependent on the success of management of customer relationships. The Firm has 27 employees specializing in technical engineering. The company serves the forest cluster locally and globally. Their engineering services encompass process, mill and energy technological engineering. Along with their expertise and experience in the industry the company stresses the importance of trustworthiness which is built on long-term relationships with customers and partners.

Qualitative case study method (see e.g. Yin 1994; Eisenhardt 1989) was conducted in our study. The primary motive for conducting a case study research is related to the complexity of the studied subject and need to increase the understanding on the research topic. Our attempt is to emphasize the nature of the studied phenomena to be able to provide insights and generate proposals for the further theory development. As argued by Eisenhardt (1989), cases bring some strengths to theory building, e.g. likelihood of generating novel theory, testability, and empirical validity, which arise from the intimate linkage with empirical evidence. Second, case study research is particularly well-suited to new research areas or research areas for which existing theory seems inadequate (Eisenhardt 1989).

In the conduction of case studies we can have several methods for data and evidence collection, e.g. documents, archival records, interviews, direct observations or participant-observations can be utilized (see e.g. Yin 1994). In the present study, customer relationship management in the case organization was studied by interviewing management and project leaders. We used both semi-structured interviews and expert workshops to model customer feedback process in the firm. Interviewed persons were chosen on the basis of previous knowledge of the firm. The interview protocol consisted of a set of structured, open-ended questions asking informants to describe e.g. communication with customers during projects, methods for measuring customer satisfaction, the mechanisms for transferring and disseminating customer feedback within the organization, and how the firm has analyzed the gathered data. Expert workshops were then held in order to validate the findings.

In order to identify the most important mechanisms that contribute to learning from customer knowledge, the interviews were centered on the following questions:

- How relevant customer knowledge is acquired and integrated?
- What kind of routines are needed to distribute customer information within and across the organization (which are the most usable formats to communicate knowledge)?
- How to interpret information and translate customer feedback into customer-oriented decisions and action plans?

- Which persons possess (tacit) knowledge and experiences of customers (organizational memory)

These questions were addressed in the interview protocol as they are significant for analyzing the sub-processes of organizational learning, i.e. knowledge acquisition, distribution, interpretation and organizational memory in the engineering and consulting services and their links to customer relationship management. The information technology-based systems in CRM were not emphasized in the gathering of the data for the preliminary case study and theory development of the proposed process model, and therefore, they were left outside of the scope of the present study.

## **Research results**

### **Learning mechanisms related to knowledge acquisition**

Although technical engineering consultancies typically have intensive communication and data-sharing with customers during projects, they do not often have advanced mechanisms for managing customer relationships or assessing customer needs. This fact has also been observed by the Firm's management. The interviewed persons also said that while systematic customer satisfaction surveys might be useful for the development of services, the problem with these is that customers usually do not like them very much. Therefore other means of acquiring and utilizing customer knowledge had to be invented.

As an efficient way for managing customer relationships and customer knowledge the Firm adopted a "contact person" system. This means that some engineers or project leaders are assigned as contact persons who account for communication and information sharing with a customer during a project. Usually these same persons are also responsible for a given customer relationship for a longer time. This means that they may contact long-time customers between projects in order to ask about the quality and functionality of the solutions designed in previous projects, and/or to discuss possible future projects. Although the management of the Firm obviously also participates in the contract negotiations and project reviews, the success of customer relationship management is highly dependent on the communication skills of contact persons. Therefore, when the Firm assigns a new contact person, this employee will be given guidelines on how to communicate with customers. For example, a contact person is advised what kind of information should be acquired. Generally, objective assessment of the customer needs and expectations is also emphasized. On the other hand, it is stressed that one should not ask "too many" questions.

One important issue in the acquisition of customer knowledge is contact persons' detailed knowledge of project tasks and available resources for a project. If a contact person cannot estimate needed resources for a project the customer is proposing, it is likely that the engineering consultancy will not be able to complete the project on time and on budget. A contact person also has to have as thorough understanding as possible of different technical issues in order to be able to get the customer's requirements and needs right. For this reason, it is necessary that a contact person is a project manager or a very experienced engineer.

Finally, the interviewed persons emphasized the usefulness of carefully designed and relative simple customer feedback questionnaires. Although the Firm does not do satisfaction surveys per se, there are customer feedback forms which are sent to customers after the projects. Since customers usually do not want to spend too much time filling these questionnaires, it is important that there are only a few evaluation criteria. These include e.g. effectiveness, establishing and matching requirements, the quality of the solution, and the ease and clarity of communication.

### **Learning mechanisms related to information distribution**

The Firm's contact person system obviously means that most of the customer knowledge is in the hands of a few individuals. More importantly, only one engineer or project manager has deeper knowledge of a given customer. For organizational learning it is therefore crucial that this knowledge is objectively distributed to the management and other employees. As the interviewed persons mentioned, however, it is difficult to ensure that all relevant customer knowledge is distributed within the organization. For example, one may sometimes hear negative customer feedback from a source other than the contact person.

In the Firm there are several mechanisms for sharing customer knowledge. First of all, there are regular project meetings in which engineers and project managers discuss the project progression and whether the customer requirements and needs have been fulfilled. Since the Firm is relatively small, most of the meetings are held within project groups. On the other hand, in larger projects there has to be knowledge sharing also between design departments and project groups. The interviewed persons admitted that although knowledge sharing generally works very well in a company of this size, they would have to put more emphasis on knowledge sharing mechanisms in a bigger company. The knowledge sharing mechanisms also depend on the size of the project. For example, the Firm's local small projects differ considerably from their international assignments in terms of project progress, work tasks and personnel. Moreover, in larger projects there are also project reviews and project risk analyses in which customer representatives and management of the Firm are present.

At a more strategic level (of learning) the Firm has held business development discussions between contact persons and management. The aim of these meetings is to learn from customers' businesses and, especially before contract negotiations, to gather all available (internal and external) customer knowledge to better understand customer's requirements. On the other hand, these business development discussions are held not only to share customer knowledge, but also to help developing customer strategies. It is of course important that these strategic directions are communicated across organizational levels (from management to engineers). In the Firm, management's reporting of customer strategies and customer-oriented decisions was therefore seen as another important form of information distribution. Finally, project meetings were seen as an effective way to transfer information from the designing engineers to project managers and to the Firm's management. This is an important mechanism of organizational learning since engineers often have ideas about how to improve the process, but don't necessarily have ways to get them to upper-level management where the change can occur.

### **Learning mechanisms related to information interpretation**

As mentioned, contact persons have the best knowledge about the customers in the Firm. Although they try to objectively share this knowledge within the organization, interpretational issues may sometimes hamper the efficiency of information distribution. That is, managers, contact persons/project leaders and engineers may have differing views of customer needs and requirements, and this leads them to interpret shared information differently. Regular project reviews and team discussions were seen helpful in this regard, but it was observed that contact persons' detailed knowledge of project tasks is a more important means to promote a shared interpretation. In other words, contact persons who are usually project managers should know as much as possible about e.g. designing engineers' tasks and tools. Similarly, managers should be familiar with the "ground level work." In the case of the Firm project managers had all varying degree of experience of actual design work, so this was seen a potential problem in a bigger organization in which project management and salespersons may not have much knowledge of the work tasks at the design process level.

Interviewed persons also pointed out that unlearning and critical reflection on past projects are sometimes needed in order avoid interpretational problems. That is, although projects differ from one to another, many routines are repeated and engineers tend to interpret new information in terms of old customer knowledge. This is partly because the project teams must focus on short-term results and often have to move on to the next project without the opportunity for reflection.

### **Organizational memory**

Although much of the project information in engineering consultancies can be stored in reports, files and databases, organizational memory also consists of individual employees' knowledge bases. This concerns not only design and project knowledge but customer knowledge as well. During the interviews it was noted that the contact persons usually do not write down context dependent information from customer interactions and that most of the customer knowledge in the Firm is not codified. Of course, customer information will be stored if it is already in documented/codified form. For example, results from customer feedback questionnaires are stored for later use.

One can also argue that the organizational structure and organizational roles form an important part of organizational memory in the Firm. This is because the contact persons have such an essential role in ensuring a well functioning customer knowledge capture and distribution. This fact was especially emphasized in the interviews.

As a summary of the observed organizational learning mechanisms in the Firm, we have collected them in the following table 1:

Table 1. Observed learning mechanisms in the case study.

<b>Knowledge acquisition</b>	<b>Information distribution</b>	<b>Information interpretation</b>	<b>Organizational memory</b>
<ul style="list-style-type: none"> <li>▪ “contact persons” that account for communication with customers</li> <li>▪ guidelines on how to communicate</li> <li>▪ contact persons’ detailed knowledge of project tasks and available resources for a project</li> <li>▪ carefully designed and relative simple customer feedback questionnaires</li> </ul>	<ul style="list-style-type: none"> <li>▪ project meetings and reviews</li> <li>▪ business development discussions between management and contact persons</li> <li>▪ management’s reporting of customer-oriented decisions and customer strategies</li> </ul>	<ul style="list-style-type: none"> <li>▪ employees’ knowledge about each others’ tasks</li> <li>▪ unlearning and critical reflection on past projects</li> </ul>	<ul style="list-style-type: none"> <li>▪ individual employees’ knowledge bases</li> <li>▪ documented customer information, e.g. in the case of results from customer feedback questionnaires</li> <li>▪ organizational structure and organizational roles</li> </ul>

## Discussion

Engineering consultancies, e.g. the Firm in our case study, are strongly dependent on the quality of knowledge that they can efficiently have for the customer, about the customer and from the customer. Especially the knowledge *from* the customer is in the crucial role in the service provider of the studied industry for developing the new services and gaining competitive advantage through new innovations. Therefore, understanding the existing and needed mechanisms for acquiring, distributing and interpreting information and knowledge from the customer for the future use is of great value.

In this study we examined different mechanisms that contribute to learning from customer knowledge. Since the selected case organization has been highly successful in utilizing customer knowledge in its service development, the research suggests that the observed learning mechanisms are important in customer-focused innovation activities in engineering consulting firms. Of course, these learning mechanisms can also be utilized for organization-specific purposes of different types of knowledge-intensive business services. However, the validity of the learning mechanisms identified by the preliminary case study needs to be improved in further studies with the help of the larger sample of studied organizations. The results of this study will hence facilitate hypothesis building for further research.

Bottlenecks regarding the effective use of the observed learning mechanisms can be found in various phases and situations, for example in the interfaces of each sub-process of organizational learning. The use of “contact persons” in projects of the Firm seems to be an efficient way for the company to manage customer knowledge. However, the success in utilization of this knowledge depends on the socialization of it and efficiency to disseminate and interpret the knowledge at different levels, i.e. in project meetings with the colleagues and discussions with the higher management. An essential bottleneck in the process as a whole

can also lie in the conventional ways to work and traditional routines which can cause the change rejection in the engineers. However, in addition to traditional types of innovation, i.e. product- or process-related innovations, the KIBS-companies increasingly can gain value from the *organizational innovations*, e.g. new ways to manage with customer feedback and knowledge. Additionally, even though all the mechanisms would be in place in right phases of the learning process, the value added finally depends on the management ability to utilize all the essential knowledge in existing and emerging businesses. The use of the new types of mechanisms needs to be carefully grounded in the organization as their effect on the organizational performance is difficult to measure.

Nevertheless, the implementation of the above mentioned learning mechanisms should eventually result in more customer-focused innovation activities in engineering consulting firms. Improved learning from customer knowledge should also help managers have an increased awareness of customer needs at the strategic level and respond to market changes more quickly.

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