Chapter 15
Customer Integration in Innovation Processes via Operating Information Systems

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ABSTRACT
The positive effects of customer integration in corporate innovation activities are undisputed. Further, several concepts for an improved cooperation with customers have already been developed and even implemented in many cases. Most of these methods target a special group of customers, the so-called lead-users. Besides being proven as beneficial, this selected integration neglects the majority of a company’s human client interactions which occur in the often centralized service centers, for example call centers. Many studies confirm the innovation potential of these existing, regular customer interactions. This paper presents detailed requirements as well as an overall solution system for the integration of these customer contacts via service centers. Therefore, existing research was combined with quality function deployment and service system modeling.

CUSTOMER INTEGRATION AS PART OF AN OPEN INNOVATION STRATEGY
In a globalized world with increasing development costs but shorter lead times and an ever increasing competition between companies and economic regions, innovation management is more relevant than ever before. In the past, self-contained internal innovation structures were a very successful strategy for quite some time. Now companies increasingly open up their innovative processes (open innovation) (Gassmann & Ellen, 2006), which promotes cooperation and an exchange of ideas that goes beyond the internal company structures (Chesbrough, 2003). This trend toward open innovation systems is also apparent in the field of customer integration in
innovation processes (Picot & Doeblin, 2009). Studies confirm that open innovation processes and customer orientation positively affect a company’s capacity for innovation (Bullinger, Haller, & Moeslein, 2009; Akman & Yilmaz, 2008, p. 85ff, p. 95f).

Technical developments in information and communication technology play a major role in customer-driven innovation, especially in software development (e.g., design tools) and communication and networking (e.g., social media). Von Hippel calls this trend democratizing of innovations (Von Hippel, 2009). He claims that 10 to 40 percent of customers in a sector develop products themselves or at least modify them to meet their specific needs (Von Hippel, 2009). Interestingly, numerous authors and studies have already examined not only the benefits and advantages of active customer integration in the innovation process but also the resulting problems and pitfalls.

**POTENTIAL AND CHALLENGES OF CUSTOMER INTEGRATION IN INNOVATION PROCESSES**

One of the advantages is the increased efficiency and shortened innovation cycles. Including the customer in the process not only raises the number of absolute ideas for new innovation projects but also produces ideas that are more realistic, more significant, and more likely to be implemented successfully. Actively involving the customer reduces uncertainties in the market and lowers the risk of not meeting the demands of the target audience (Herstatt, Stockstrom, Verworn, & Nagahira, 2006, p. 48). Reciprocal learning processes and the joint creation of offers also allow further knowledge to flow into the innovation process, give the customer additional product knowledge, and convey an increased sense of customer proximity (Luettgens & Gross, 2008, p. 32). When developing new services, it can be particularly important to include customers because they represent such a major part of the service itself. Observations suggest that companies involving customers in the development process tend to offer higher quality services than those that do not. A study performed by Matthing et al. (2004, p. 488) shows that customer ideas in the service sector are more innovative in a joint development setting with instruction provided by company employees. In summary, one can state that customer integration positively affects the efficiency of new services (Alman, 2006).

Science knows two problems that are not sufficiently taken into account when designing innovative processes. On the one hand, R&D departments focus too much on their own capability and the familiar solution space (“local search bias”). On the other hand, customers possess information about customer demand. This implicit knowledge is hardly accessible for the company (“sticky information”). By involving customers, this information can be obtained more easily and thus be incorporated in the solution finding process. The knowledge base created this way is difficult to imitate, which makes it a long-term competitive advantage. The customer therefore plays a central role in open innovation processes (Luettgens & Gross, 2008, p. 30ff). Companies should value their customers’ opinions highly, incorporate them in the process early on, and aim for a close level of customer cooperation (Tan, Xie, & Shen, 1999, p. 284).

**METHODS FOR CUSTOMER INTEGRATION IN INNOVATION PROCESSES**

According to Pals et al., there are three categories used to classify methods for integration of customer needs in innovation processes (Pals, Steen, Langley, & Kort, 2008, p. 275f). The category “no direct user involvement” includes approaches that