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Inviting the world to innovate – managerial challenges and practices implementing web innovation tools

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Abstract

The practices of open innovation have been advocated as an efficient way to accelerate innovation processes and expanding the markets for innovations in turbulent times. One specific way of practicing open innovation is the use of web-based innovation tools whereby, among others, any user and customer in the world may be reached for the spawning ideas, sharing of experiences, testing of products and even designing products themselves. While research has been extensive on the opportunities these tools may provide, the managerial challenges and competences needed to implement and operate these tools have been scarce. The aim of the paper is to develop a framework of managerial challenges and competences related to the implementation of web innovation tools. The framework is based on previous research and a case study of a telecom company's web innovation site and management of this web site. The research reported in the paper intends to contribute to the research on web innovation tools and the management of web innovation tools.

Introduction

The practices of open innovation have been advocated as an efficient way to accelerate innovation processes and expanding the markets for innovations (Chesbrough, 2003; Chesbrough and Crowther, 2006). Open innovation entails practices where firms commercialize external, as well as internal, ideas by deploying outside, as well as inside, pathways to the market (Chesbrough, 2003; Chesbrough, Vanhaverbeke and West, 2006). One type of open innovation practice is to involve customers and users into the innovation process through web-based innovation tools. Web innovation tools can be used to involve users and customers into spawning ideas, share experiences, test products or design products themselves (Prandelli, Verona, and Raccagni, 2006). Empowering customers with design expertise, tools and technologies have however significant effects on the company's management and competences. As argued by Dodgson, Gann and Salter (2006) the change of the interface demands a change in the organizational ability to absorb, or assess the impressions from the outside. The company's competences may sometimes have to undergo serious alterations to adapt to a new innovation process. The issues of management and competence modifications have been recognized by some researchers (e.g., Dodgson et al, 2006) but have not received a proper investigation. This calls for explorative research to shed light on how and which competences have to be developed in order to successfully implement web innovation tools.

The aim of the paper is to develop a framework of managerial challenges and competences related to the implementation of web innovation tools. The research reported in the paper intends to contribute to the research on web innovation tools and the management of web innovation tools.

In order to develop the framework we have performed a case study of a telecom company that has decided to open up their innovation processes in different ways in order to accelerate their innovation processes and with higher accuracy introduce new mobile services into the market. Among their actions they have decided to introduce a web site called "InnovationWorld". On this web site the telecom company tries to involve mobile phone users in presenting and discussing ideas for new mobile phone services, discussing experiences of existing services, and trying out and reviewing beta-versions of new mobile services, mostly developed by third-party developers. The web site has also disclosed so called APIs (Application Interfaces) which enables any independent developer to develop software for mobile services. InnovationWorld has been in operation about one year and we have followed and documented the developments of this web innovation tool on the web site as well as on the internal side, i.e., interviewing the managers and employees about their experiences of InnovationWorld. InnovationWorld is a part of the telecom company's R&D-department.

Web innovation tools

In an empirical study covering the automotive, motorcycle, consumer electronics, food and beverages, and toiletries industries Prandelli et al (2006) identified 28 web-based methods available for companies for interacting with customers and users and classified them according to different stages of the innovation process (Prandelli et al, 2006). The classification showed how different methods of web innovation may benefit all stages of the innovation process. Piller and Ihl in their recent study (2009) also demonstrated that different user innovation methods benefit different phases of the innovation process. The development of user innovation promoted by information technologies resulted in existence of various types of customer-manufacturer relationship where customers play different roles in the innovation process.

Three modes of user participation in the innovation process can help to understand different roles of users when collaborating with companies (Piller, 2009). Mode 1 can be labeled as *design for users*. In this mode products are designed by manufacturers on behalf of customers and users. Firms exploit customer information from diverse input channels to explore needs. Such techniques as listening in the voice of the customer, analyzing sales data, and surveying sales personnel are used to get customer and user input. Mode 2 is *design with users*. Users are getting involved mainly for product or concept testing. Solutions and concepts are displayed to users so they can react to proposed design solutions. Concept testing by means of focus groups, pilot or beta users is used by companies collaborating with customers in this mode. Compared to users in the previous mode, mode 2 uers take on more active role in the development process but they are clearly isolated from the firm.

Mode 3 is *design by users*. The mode is characterized by an active integration of users in innovation (Ramirez 1999; von Hippel 2005; Reichwald & Piller 2006). The collaboration activities are often supported by various tools that are either provided by the firm or by users themselves. The manufacturer is either empowering its users to co-design a solution or is implementing methodologies to efficiently transfer an innovative solution from the user into the company domain.

All three modes could today be supported by progressing web and information technologies as shown by Prandelli et al (2006). Collecting customer information in mode 1 is augmented by numerous techniques for connecting with more customers at lower costs which become available through the Internet. Designing with customers in mode 2 is facilitated by improved multimedia capabilities engaging customers in product and concept development by means of virtual reality. Finally, design by customers has essentially become possible thanks to the progress in web and information technologies with the development of various design software and in software development with so called APIs (Application Interfaces).

The potential of the Internet for user collaboration corresponding each of these three modes has been studied by many scholars. Extensive research on design for customers where Internet capabilities are mainly used for enhancing traditional market research techniques (e.g., Hoffman and Novak, 1996; Urban and Hauser, 2004) has been followed by studies on deeper integration of customers in new product development through the web (e.g., Dahan and Srinivasan, 2000; MacCormack, Verganti, Iansiti, 2001; Dahan and Hauser, 2002; von Hippel and Katz, 2002).

Contrary to most studies focusing only on one mode of customer participation, Prandelli, Verona and Sawnhey (2005) found confirmations that an integrated use of different web-based methods such as virtual testing, design toolkits or online focus groups has a high potential in new product development and deserved more attention from scholars. Different techniques support different phases of the innovation process that is why a diverse portfolio of web-based mechanisms for user innovation appears to be an important factor in facilitating successful collaborative innovation with users.

Management of web innovation tools – a competence perspective

The launching of a technological interface such as a web innovation tool that enables the firm to collaborate with a large set of users on a global scale demands a change in the organizational ability to absorb, or assess the impressions from the outside as argued by Dodgson et al (2006). Thus, in order to benefit from web innovation activities a company needs to develop or acquire certain managerial competences. Piller and Ihl (2009) have proposed the need for three types of managerial

competences in order to successfully manage open innovation practices. Following a problem solving process they argue for the need of a 1) disclosure competence, to competently disclose the company's problems and establish an interaction with users, 2) appropriation competence, to competently capture and protect user generated knowledge, and 3) assimilation competence, to competently assimilate and integrate user generated knowledge into the company's innovation process and organization.

As most companies, especially large companies, usually have a history of more or less closed innovation practices, i.e., relied on internal generation and development of new products, services and processes these three competences may be under developed in many companies. Moreover the relatively recent advent of web innovation tools makes many managers unaware and skeptical of these tools and corresponding competences. There are a number of managerial challenges to overcome before being able to benefit from user generated innovation through web innovation tools. To disclose problem information to the general public or to certain groups of people outside the company may be seen as a very threatening activity by some managers preferring to handle company innovation issues in secrecy. While most managers probably do not have anything against capitalizing on users' ideas for new services and products they probably do not want to do this at the expense of receiving a reputation for "stealing ideas and knowledge" from users. To assimilate and integrate an innovative idea or a new product from a user, to the development unit of the company and further on to other operative units of the company has always been a managerial challenge.

The case study of InnovationWorld

InnovationWorld was launched in September 2008. It is the web innovation site for a major European telecom operator with operations in some ten European countries and turning over approximately 10 billion Euros (2008). InnovationWorld was an initiative from the central R & D-unit aiming to get closer to users and customers and to accelerate innovation in mobile services.

InnovationWorld has three zones corresponding to three modes of user collaboration mentioned above (design for users, with users and by users). The firs zone is for user ideas, comments and dialogues. The second zone is a trial zone where the company itself or independent service developers may test launch beta versions of services such as new games or other new services and let users try these for free. In this zone users are expected to write reviews and suggest changes and improvements of the services. A third zone is for independent developers of software were developers can get information about APIs and other relevant information for developers.

The framework

The analysis of the case study together with concepts and models suggested by previous research has resulted in a framework of managerial competences for web innovation tools. The managers of InnovationWorld have over the last year meet several types of challenges and developed different types of routines and practices to deal with these challenges.

In our framework we differentiate between three different types of user web innovation tools on the web site:

Mode 1) Design for users, i.e., users freely generating new service ideas,

Mode 2) Design with users, i.e., users testing beta-versions of new mobile services,

Mode 3) Design by users, i.e., users developing their own mobile service software.

Our framework also differentiates between three different types of competences that have been developed by the managers of the web site,

1) disclosure competences; a competence to disclose information and user tools to the users in order to enable the user to interact and create ideas, reviews, comments, or software etc,
2) appropriation competence; a competence to capture value co-produced with users and also protect it from being copied by someone else,
3) integration competence, a competence to integrate diverse inputs from different users into a single solution and as well as integrating the knowledge into the company's innovation processes.

	Disclosure Competence	Appropriation competence	Integration Competence
Mode 1 - design for users: new service ideas	Challenges: -Internal fear of badwill -Finding and motivating users	Challenges: -External fear of being used -Feedback to idea providers -Compensation to idea providers	Challenges: -how to develop user ideas further -how to transfer ideas to other units
Mode 2 – design with users : test of new services	Challenges: -Connecting to independent developer firms -Motivating users to test	Challenges: -Compensation and handling of independent developer firms software	Challenges: -motivating other internal units to adopt in service portfolio
Mode 3 – design by users: development of new services	Challenges: -Giving right information to developers -Motivating developers	Challenges: -Further development fo software -Compensation and handling of independent developer software	Challenges: -motivating other internal units to adopt in service portfolio

Table 1. Managerial challenges related to web innovation tools.

The managerial challenges related to the web innovation tools are summarized above in table 1. One type of disclosure challenge was internal fears (from top managers and others) of creating badwill by allowing any person to comment on the company's services on the web site and possibly receive a lot of complaints and false accusations on the web site. Another type of disclosure challenge was how to find and motivate users to contribute with ideas on the web site. Appropriation challenges consisted of meeting fears from users of being used by the company without any compensation. Another appropriation challenge was how to compensate users for valuable ideas. Integration challenges consisted of how to motivate other internal units to further develop and integrate new mobile services from users or independent developers into to their service portfolios.

The development of the three competences was very different and the managers could to a varying degree draw on previously developed competences in the company. In the case of testing beta-services the disclosure, appropriation and integration competences could all partly be copied from previously developed competences as the company had previous experience of testing their own developed mobile services on users (though not through an open web site). Moreover, the internal routines and contracts when transferring a new service from the R&D-unit to the different business units in the company could also be used when transferring and licensing a third-party developed service. The case of user ideas in the idea zone proved much more tricky for the managers to handle as they had had very limited experience from this before. For instance to get a flow of ideas they have started concept competitions which run every year. Moreover compensating users for their ideas and giving timely feedback to users on ideas and suggestions have also proved to be difficult for the managers to handle. However, they have developed transparent compensation schemes for valuable ideas and a feedback system to ensure timely feedback to user comments. The framework of managerial practices is summarized below in table 2.

	Disclosure Competence	**Appropriation competence**	**Integration Competence**
Mode 1 - design for users: new service ideas	Practices: -Internet advertising -Restricted access -Idea contests	Practices: -Transparent compensation schemes -Recognition of idea providers -Feedback system	Practices: -meetings with marketing and sales units
Mode 2 – design with users : test of new services	Practices: -Meetings with small developer firms -Free trials, recognition of reviewers	Practices: -Standard contracts for compensation and conditions	Practices: -meetings with marketing and sales units -standard routines for transfer
Mode 3 – design by users: development of new services	Practices: -Disclose APIs -Software development contests	Practices: -Transparent rewards in contest -Standard contracts	Practices: -meetings with marketing and sales units

Table 2. Managerial practices in relation to the web innovation tools.

The paper contributes to the open innovation research in general and to the web innovation tool research in particular by high-lighting and specifying the managerial challenges and managerial practices in order to successfully implement such innovation strategies. In particular it extends Pradelli et als (2006) explorative research on the diffusion of web innovation tools by providing a complementary management and competence perspective on web innovation tools.

References

Chesbrough, Henry (2003). Open Innovation: The New Imperative for Creating and Profiting from Technology. Boston: Harvard Business School Press.

Chesbrough, Henry and Adrienne Kardon Crowther (2006). Beyond high tech: early adopters of open innovation in other industries, *R&D Management*, 36, 3 (June): 229-236.

Chesbrough, Henry, Wim Vanhaverbeke, and Joel West, eds. (2006). *Open Innovation: Researching a New Paradigm.* Oxford: Oxford University Press.

Dahan E. and Srinivasan V. (2000). The Predictive Power of Internet-Based Product Concept Testing Using Visual Depiction and Animation. *Product Innovation Management.*

Dahan, E. and Hauser, J.R. (2002) The virtual customer. *Journal of Product Innovation Management*, 19, 5, 332–353.

Dodgson, M., Gann D. and Salter, A. (2006). The role of technology in the shift towards open innovation: the case of Procter & Gamble*. R&D Management*, 36(3), 333-346.

26. Enkel E. and Gassmann O. (2007). Driving Open Innovation in the Front End: the IBM Case*. The EURAM Conference*, May 16-19, Paris.

Gassmann (2006). Opening up the innovation process: towards an agenda. *R&D Management*

Hoffman and Novak (1996). Marketing in Hypermedia Computer-Mediated Environments: Conceptual Foundations. *Journal of Marketing.*

Huston, L. and Sakkab, N. (2007). Implementing open innovation*. Research- Technology Management*, 50(2): 21-25.

Huston, Larry, and Sakkab, Nabil (2006). Connect and Develop: Inside P&Gs new model for innovation, *Harvard Business Review*, March, 58-67

Laursen K. and Salter, S. (2006). Open for innovation: The role of openness in explaining innovation performance among UK manufacturing firms. *Strategic Management Journal*, 27, 131-150.

MacCormack, Verganti, Iansiti (2001). Developing products on "Internet time": The anatomy of a flexible development process. *Management Science.*

Piller, F. T. and Walcher, D. (2006). Toolkits for idea competitions: a novel method to integrate users in new product development*. R & D Management*, 36(3): 307-318

Piller, F.T. and Ihl C. (2009). Open innovation with customers. *Technology and Innovation Management Group. RWTH Aachen University.*

Prandelli, Verona, and Raccagni (2006). Diffusion of Web-Based Product Innovation. *California Management Review*, *vol 48*, *no 4*, *pp. 109-135.*.

Sawhney, Verona, Prandelli (2005). Collaborating to create the internet as a platform for customer engagement in product innovation. *Journal of Interactive marketing.*

Urban and Hauser (2004). "Listening In" to Find and Explore New Combinations of Customer Needs. *Journal of Marketing.*

Von Hippel, E. and Katz, R. (2002) Shifting innovation to users via toolkits. *Management Science*, 48, 7, 821–833.

Von Hippel, Eric (2005). *Democratizing Innovation* Cambridge, Massachusetts: MIT Press.