

DEVELOPING THE OPEN INNOVATION MANAGER: CAPABILITIES AND SKILLS TO FOSTER PRACTICES IN OPEN INNOVATION TEAMS

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Abstract

According to OECD (2008), Innovation has become a crucial factor for economic success and a prerequisite for sustainable development. In a complex and highly networked and competitive global market, companies need to innovate and commercialize their products in a faster way. In order to face these new challenges, companies seek for new approaches to their innovation strategies and processes in more open modes of innovation such as “Open Innovation”.

To achieve the potential benefits of opening up innovation processes, managers have to take into account the need to develop organizational capabilities to successfully manage open innovation. Thus, managers need to address several determinants at different levels to facilitate the development of organizational capabilities.

While most open innovation literature neglects the human side of open innovation teams, this survey article, based firstly on a literature review and then in a near future on exploratory interviews, will try to determine the capabilities and skills that open innovation managers need in order to lead open innovation teams.

Key words: corporate culture, culture change, open innovation, e-leadership, project management

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1. Introduction

Open Innovation is starting to be recognized as an imperative rather than an option in most of the high tech organizations, despite the difficulties associated with managing those activities (Lichtenthaler, 2001). While firms often do not have any choice other than opening up, firms differ in their ability to capture value from open innovation. The existing work does not focus sufficiently on the fact that opening up the innovation processes creates a challenging situation of managing dispersed virtual R&D teams compare to internal ones.

Therefore, the present research seeks to identify the following:

- What are the skills and capabilities that an open innovation manager needs to foster open innovation teams ?
- To which extent do the open innovation manager capacities and skills differ from closed innovation manager ?
- How country culture and corporate culture impact the function of an open innovation manager ?
- Which tools and trainings could be developed in order to enhance the open innovation manager competences and skills?

A preliminary overview of the related literature is presented in the subsequent section. The research gap has been clearly identified in the conclusion of the preliminary literature review and problem statement.

2. literature review

2.1 Innovation

Innovation is about coming up with and implementing something new. It is about searching for ideas, developing and implementing them, and successfully introducing them (as products) into the marketplace. What differentiates innovations from mere inventions is the successful commercialization. (Buijs 2007)

2.1.1 definition of Open Innovation

According to Henry Chesbrough, Open innovation is a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology” or "Innovating with partners by sharing risk and sharing reward." The central idea behind open innovation is that in a world of widely distributed knowledge, companies cannot afford to rely entirely on their own research, but should instead buy or license processes or inventions (i.e. patents) from other companies. In addition, internal inventions not being used in a firm's business should be taken outside the company (e.g. through licensing, joint ventures).

table 1. Summary of Open Innovation literature

Authors	Key findings
Vanhaverbeke, 2006	The open innovation paradigm follows a series of earlier developments in innovation process models. It argues that post-war innovation models can be essentially characterized as ‘closed innovation’ paradigm, as these models emphasize firms to develop and generate ideas internally into new products or businesses
Chesbrough, 2008	In a complex and highly competitive global market, companies need to innovate and commercialize their products in a faster way. In order to face these new challenges, companies seek for new approaches to their innovation strategies and processes. Confronted with a constant increasing global competition and rising research and development (R&D) costs, companies can no longer survive on their own R&D efforts but look for new, more open, modes of innovation such as “Open Innovation”.
Rothwell, 1992	The first ‘technology push’ model developed in the 1950s viewed internal R&Das a source of innovation, whilst the second ‘need-pull’ model emphasized the role of marketing as a source of innovation.
Trott, 2002	This model also emphasized that innovations occur as the result of interaction in the marketplace, the science base and the organization’s capabilities
Chesbrough, 2006	<p>systems and networking’ model emphasized the accelerating process of innovation, facilitated by IT-based networking.</p> <p>‘Open innovation’ paradigm was essentially developed to respond to the increasingly interconnected nature of the global economy in the 2000s. the increasing costs and complexity of R&D, shortening of technology life cycles, presence of increasingly knowledgeable suppliers and customers, growth of venture capital and growing diffusion of leading-edge knowledge in worldwide universities and research laboratories laid ground for the growth of interorganizational relationships and the emergence of the open innovation mode.</p> <p>Open Innovation also known as external or networked innovation, represents a shift from the traditional model where 100% of a company's innovation originates from within, to a more open model where both internal and external ideas are combined to create a more collaborative advantage.</p>
Henry Chesbrough, 2003	In 2003, Dr. Henry Chesbrough coined the term "open innovation" as a paradigm that assumes firms should use external and internal ideas to support a firm’s innovation goals, as well as internal and external paths to market in order to advance their technology. Sometimes called "External" or "Networked" Innovation, this model has many facets that continue to evolve today.
Ritter and	Open innovation teams are formed with professional from different

Gemuenden, 2002	organisations in order to create new knowledge collaboratively, thus having professional with diverse backgrounds may foster successfully creativity and is considered a critical success factor for innovation projects
(Lichtenthaler, 2001	Open Innovation is starting to be recognized as an imperative rather than an option in most of the high tech organizations, despite the difficulties associated with managing those activities).
Vanhaverbeke, de Rochemont, 2009	Most of companies then pursued “closed innovation” strategies with few interactions with the outside world. Despite its growing importance, many firms experience severe challenges in actively managing the processes of open innovation although some pioneering companies, such as Procter & Gamble and Eli Lilly, have achieved great benefits from it.
Hudson & Sakkab, 2006; Schwartz & Huff, 2010	Successful examples of firms, such as Procter & Gamble, suggest that open innovation may be a sustainable trend and that it may provide the basis for achieving a competitive advantage.
Lichtenthaler, 2010	Open innovation is not a recent trend though, it reflects a longer evolution of many firm’s innovation activities

2.3 The human side in open innovation

2.3.1 teamwork and motivation

It has been acknowledged by several researchers that implementing open innovation is dependent on the support and preparation from management. Several claim that there is a need to be a cultural shift in the organizations to be able to handle open innovation. Such aspects of what open innovation means in the management of people are sketched out in the three tables below :

Table 2. Summary of teamwork and motivation in open innovation literature

Authors	Key findings
Chesbrough, 2003	Besides firm-level capabilities and project-level decisions, a firm's open innovation processes may be strongly influenced by the attitudes of individual employees. The role of these employee attitudes has been highlighted in the open innovation literature but not the one of the open innovation manager.
Van de Ven, 1986	Since the foundation of innovations are ideas and it is people who develop, carry, react to, and modify ideas, it is critical to study what motivates or enables individual innovative behaviour.
du Chatenier, Verstegen, Mulder and Omta, 2010	While most open innovation literature neglects the human side of open innovation teams, the authors examine the competencies that open innovation professionals need to work in such teams and to cope with the challenges they face.
du Chatenier, Verstegen, Biemans, Mulder, Omta, 2010	Further research comparing open and closed innovation teams is needed to reveal how required competencies for open innovation settings differ from closed innovation settings. However, further research is needed to determine how useful the profile is, how context dependent the competencies are, which competencies are crucial for the success of open innovation teams, and how unique these competencies are for open innovation projects .

Teamwork

Teamwork in a collocated group of people differs from teamwork in a distributed and sometimes even undefined group of people. Ancona, Bresman and Kaeufer (2002) are discussing why bad things happen to good teams and their critic is that teams are often too inwardly focused and lacking flexibility. Their research shows that successful teams which they call X-teams are externally oriented, adaptive and see positive results across a wide variety of functions and industries. These teams have extensive ties with outsiders both weak and strong ties. They operate through three distinct tiers that create differentiated types of team membership – the core tier, operational tier, and outer tier. Team members may perform duties within more than one tier. Ancona, Bresman and Kaeufer (2002) recommend Xteams

when one of the following conditions hold true; when organizational structures are flat, spread-out systems with numerous alliances; when teams are dependent on information that is complex, externally dispersed and rapidly changing; and when team tasks are interwoven with tasks undertaken outside the team. Most of these conditions probably hold true for team situations in open innovation. Future studies on motivation could focus on creating an increased understanding of how teamwork takes place in an open innovation context; e.g. what constitutes teamwork in open innovation and how does the group lifecycle look like. It would also be interesting to compare teamwork in different types of open innovation settings and compare it to more traditional contexts.

Motivation

The issue of what is motivating people to generate and contribute in an open innovation approach is discussed by some scholars studying open source software development but their paper is not based on empirical data. West and Gallagher (2004) suggest, for future research, a closer investigation of the feasibility of virtual teams as a way to organize innovation enabling collaboration between organizations as well as understanding the culture of open innovation throughout teams that spans organizations.

Apparently a lot of interesting research has been conducted on motivation and innovation although not focusing on open innovation specifically. Some of this earlier work could be utilized to understand what drives people to become innovative and how this behaviour can be supported. Scott and Bruce (1994) propose a model of *Individual Innovation Behavior* which considers individual innovative behaviour as the outcome of four interacting systems individual, leader, work group, and climate for innovation. The model is based on empirical data from a large centralized R&D facility of a major U.S. industrial corporation. One interesting finding is that the role expectations of a supervisor influenced individual innovative behaviour, providing support for the Pygmalion effect (Livingstone, 1969) within the context of innovation.

Future studies on motivation could investigate how this type of working environment can satisfy the psychological needs of people and thus be used as motivators for people to take part in open innovation. It would also be interesting to study the individual innovation behaviour of people taking part in open innovation. Also going back to the basic psychological drivers and study how these can be fulfilled in an open innovation context.

2.3.2 leadership and open innovation

Table 3 Summary of leadership in open innovation literature

Authors	Key findings
Litchenthaler, 2010	Important management mechanisms for open innovation (e.g.,incentive systems) have often been neglected in previous research. This research deficit is emphasized by the discrepancies between increasing technology transactions on one hand and many firm’s major managerial difficulties on the other.
Lichtenthaler, 2010	firms need to develop particular organizational capabilities for managing open innovation processes and besides establishing open innovation strategies, firms need particular managerial capabilities, which differ substantially from internal innovation capabilities.
Gassmann, Enkel and Chesbrough, 2010	Dispersed R&D teams are more difficult to energize, coordinate and enable in their knowledge creation. The operational functioning of open innovation depends on firm’s ability to manage decentralized innovation processes and often includes participants who are not even on the company’s payroll.
Buijs (2007)	The author points out that open innovation leadership demands a great tolerance of ambiguity and paradoxes. It calls for choosing people over rules without losing track of the innovation journey. Further the author states that the innovation leader needs to balance four processes; the innovation process, the group process, the creative process and the leadership process which makes the work with innovation very complex. These parallel processes make the leaders controlled schizophrenics, which means that they try to be in control by letting go.
Buchanan & Badham, 1999; Clarke, 1999; Frost & Egri, 1991	The authors point to the importance for project leaders to manage organisational politics for the sake of innovation.
Avolio and Kahai (2003)	This authors state in their article defining and exploring the concept of e-leadership that the critical differences may be in what is meant by ”feeling the leader's presence,” as well as the reach, speed, permanence, and perception of a leader's communication.
Fleming and Waguespack (2007)	The authors mention that very few articles actually analyze leadership in open innovation. They discuss leadership in open innovation communities. They state that consistent with the norms of an engineering culture the future leader

	of open innovation must first make strong technical contributions from a structural position that can bind the community together. This is enabled by two correlated but distinct social positions: social brokerage and boundary spanning between technological areas.
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Leadership is a vast and miscellaneous field of research. However, leadership in an open innovation context is still unexplored and it becomes clear from the present findings that a specific kind of leadership, capable of handling several stakeholders, complexity, and uncertainty is needed. Buijs (2007) puts forward that bringing in the open innovation concept make it a real challenge for leaders. He states that dealing with all the multiple aspects of innovation and at the same time harmonizing different perspectives of different team members and partner organizations calls for a very special kind of leadership. The leadership should adapt to changes in the environment. If met by a “no” from the organization the innovation leader should just continue and find ways of to circumvent that organizational “no” by for example playing with the budget or having fun with the organizational heroes (Buijs, 2007). In line with this This political perspective, although not studied in the context of open innovation, might add to our understanding of how leaders cope with complex and uncertain situations.

Leadership mediated by information technology can exhibit exactly the same content and style as traditional face-to-face leadership, especially as virtual interactions become more visual. Yet, certain fundamentals of leadership will probably always be the same, even in this new context. A successful e-leader must still build relationships and trust. Avolio and Kahai (2003) discuss how leadership behaviours need to change in order to build the type of high quality relationships that will optimize follower trust, motivation and performance.

Future studies on leadership in open innovation can add to the existing body of knowledge by examining what kind of leadership style (e.g.transformational, transactional, controlled schizophrenic, political) is needed in open innovation and how this is influencing the members of the innovation process. It would also be interesting to further explore the concept of e-leadership by studying how relationships and trust can be developed in situations where people don not meet face-to-face. Moreover studies on leadership in open innovation of more exploratory character are expected to create knowledge on how open innovation leaders should deal with notions such as control, trust, motivation, learning and mutual respect.

2.3.3 culture and corporate culture impact on open innovation

Authors	Key findings
Litchenthaler, 2010	The need for sufficient fit between open innovation processes and a firm's corporate strategy and culture is crucial to achieve substantial results.
Gassmann, Enkel and Chesbrough, 2010	The cultural perspective is indeed a crucial aspect in open innovation. In order to better understand the influence of the cultural aspect on the open innovation culture, research should draw more from the psychological field.
West and Gallagher (2004)	The authors discuss key challenges of open innovation by bringing in some lessons from open source software. Among other aspects they address motivation as something of great importance.
Witzeman et al. (2006)	point out that not only the technological systems need to change. The more external innovation is sourced by the firm, the more of systems, processes, values and culture also needs to be transformed.
Witzeman's et al. (2006)	The companies in Witzeman's et al. (2006) sample expressed resistance toward open innovation. Powerful forces inside the organization worked to harness current technology rather than search for new technologies from the outside. This is not strange, the authors argue. Company people are trained to think internally, and this tendency is strengthened by concepts such as core competences and Six Sigma.
Witzeman et al. (2006,	"Building external thinking into the firm requires change. The firm must review the new product development processes, the supply chain, the strategic planning process, the reward system, the technology roadmap, and many other systems for their ability to incorporate external innovation. /.../ Harnessing external technology for innovation requires a fundamental change in employee thinking.
Dodgson, Gann & Salter, 2006	The "Not Invented Here" syndrome is replaced with the "Invented Anywhere" approach. The authors recognize that 1) Cultural changes as well as new skills are necessary, 2) the technology does not replace existing practices and 3) it does not overcome the uncertainty of innovation ().

Implementing open innovation requires a substantial cultural change in the corporate environment to reach openness in mindsets and practices of the workforce. Thus, turning to an open innovation strategy has profound implications for the internal work organization and corporate culture and poses a complex managerial challenge to business leaders.

3 LIKELY METHODS and TECHNIQUES TO BE USED in THE INVESTIGATION

3.1 Research design and epistemological assumptions

As with all new ideas, the concept of open Innovation requires extensive empirical investigation, testing and development. The chosen paradigm will be then interpretivism. Exploratory research is conducted into an issue or problem where there are few or no earlier studies to refer to. The focus is on gaining insights and familiarity for later investigation. Because there are no existing competence profiles for open innovation managers, qualitative methods have been chosen to identify and elaborate the competencies empirically.

Most of the past research about Open Innovation has been, until now, based upon case studies on individual firms or projects in the firm (West, Wanhaverbeke, Chesbrough). More extensively Chesbrough (2002, 2003) offers a comparative study based on the history of thirty-five technology-based spin-offs from Xerox PARC

Advancing our knowledge about Open Innovation and its human aspect require more extensive data sources to illustrate and test different hypotheses derived from Open Innovation. Thus explorative as well as focus groups discussions will be conducted within Siemens in Germany and Orange in France.

Explorative interviews

Explorative interviews will be used as the main data collection method. Personal interviews as well as focus groups interviews will be conducted with key “Open Innovation executives”, but also experts, entrepreneurs and leaders from two major coporations. Additionally, selected written materials provided by the case organization will be used to provide background information. The empirical data will be analyzed by using the method of analytic induction.

This research will be conducted as a qualitative single case study. According to Eriksson & Kovalainen (2008), qualitative research is a valid research method when in-depth information and understanding are needed.

Conclusions of the preliminary literature review and problem statement

Although strategies, processes, or the role of business models have been addressed in the open innovation literature, the people side of the equation – i.e., the required capabilities and skills of an open innovation manager – has been neglected so far. Whereas the human side of open innovation has been mentioned, such as the Competence Profile for Inter-Organizational

Collaboration in Innovation Teams (du Chatenier), there is, to the best of our knowledge, no study that empirically examines the required capabilities and skills for an open innovation managers to foster practices in open innovation teams.

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