

Methods of Open Innovation Knowledge Sharing Risk Reduction: A Case Study

Akm Milu Islam

Abstract—This study takes a more practice perspective in reviewing knowledge sharing risks of open innovation. It reviews existing literature to examine a case study of an organization to explore how the organization approaches its open innovation risk concerns related to knowledge sharing. Initially, this paper reviews the terms *open innovation* and *knowledge sharing* based on scholarly research and from a practice perspective. Following this, it reviews this case study to get a better understanding of how an organization balances the risks of knowledge sharing with the benefits of an open innovation approach. There-after it develops a conceptual framework based on the review of this case study. Finally, it provides concluding remarks, research limitations, and implications for future research.

Index Terms—Open innovation, Knowledge sharing, Innovation, Risks.

I. INTRODUCTION

Despite growing concerns related to the risks of open innovation, protecting organizational knowledge while practicing open innovation has received very little attention [1]. This raises some key concerns as to the real value open innovation brings to the organization. While organizations utilize open innovation mainly to gain economic value and resource capabilities [1], this lack of interest and attention to protecting organizational knowledge can potentially make organization vulnerable to different risks related to open innovation. This can also adversely affect organization's ability to compete. Moreover, this can have a negative impact on organization's competitive advantage and its long-term sustainability. Lichtenthaler [2] argues that external knowledge sharing has the potential to expose organization's core competencies to its rival organizations. Therefore, knowledge sharing is a potential risk because the organization may lose its competitive edge over its competitors. Additionally, this knowledge exposure could provide the rival organizations with added advantages if the competitor adapts this knowledge and gain significant market share [1]. This vulnerability issue makes knowledge sharing a critical risk concern of open innovation. Moreover, some organizations may choose to not implement open innovation altogether due to the fear of losing control of their proprietary knowledge. Bogers [1] suggests that organizations face constant "tension" between their willingness to share knowledge with outside organizations and their propensity to

protect their proprietary innovation or intellectual property rights. Based on this discussion, therefore, it is critical to review how organizations protect their organizational knowledge while reaping the benefits of open innovation.

This study takes a more practice perspective in reviewing knowledge-sharing risks of open innovation. It reviews existing literature to explore a case study of an organization to explore how organization approaches its open innovation risk and balances those concerns with benefits related to knowledge-sharing. Therefore, the research question for this study is: what approaches might an organization take to protect its organizational knowledge while reducing risks related to open innovation?

Initially, this paper reviews the terms *open innovation* and *knowledge sharing* based on scholarly research and from a practice perspective. Following this, it reviews a case study of Proctor and Gamble (P &G) company to get a better understanding of how an organization handles the knowledge sharing risks to gain the most from its open innovation approach. There-after, this paper develops a conceptual framework based on the review of this case study. Finally, it provides concluding remarks, research limitations, and implications for future research.

II. OPEN INNOVATION AND KNOWLEDGE SHARING

Scholarly research, such as Chesbrough [3]; Kirschbaum [4]; Buganza & Verganti [5]; Lichtenthaler [2], provides a clear definition of open innovation and associates it with knowledge sharing. For example, Chesbrough's seminal work [3] defines open innovation as "valuable ideas" that "come from inside or outside the company". He argues that open innovation is a "new approach" that presents "a different logic about the sources and uses of ideas." This suggests that knowledge sharing is a key component of open innovation. Similarly, other researchers (e.g. Kirschbaum [4]; Buganza & Verganti [5]; Lichtenthaler [2]) provide guidelines about open innovation and knowledge sharing. Kirschbaum [4], for example, defines open innovation from opportunity identification and value creation perspective. He argues that open innovation is finding and selecting innovative knowledge that is right for the organization. Buganza, and Verganti [5], for example, argue that open innovation requires companies to develop both their "internal knowledge" and "adaptive capacity" of using external knowledge. Similarly, Lichtenthaler [2] identifies open innovation as "systematically performing knowledge exploration, retention, and exploitation inside and outside an organization's boundaries throughout the innovation process."

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III. PRACTICE PERSPECTIVE OF OPEN INNOVATION KNOWLEDGE SHARING

From a practice perspective, knowledge sharing based on open innovation is utilized in a variety of ways by different companies. Ancona, Backman, and Bresman [6] identify three approaches by different companies practicing knowledge sharing as it relates to their open innovation process. According to them, some organizations take initiative to build a more virtual environment; some take initiative in building a more stable organizational culture that focus on open innovation, while others seek out relationships with their outside vendors and partners for their innovation process. For example, Apple Inc. utilizes open innovation knowledge-sharing processes while developing their mobile applications. This practice allows Apple to take advantage of innovative knowledge from virtually anyone who willingly shares knowledge with the company for a part of the real profit generated by their ideas [7]. IBM has changed its innovation culture from 'industry-focused mindset' to 'competence-based,' which transformed their innovation process from the traditional closed innovation process to a more open innovation process [7]. Employees at P&G (Proctor & Gamble) company use a knowledge-sharing tool called InnovationNet to share knowledge with their coworkers and different external sources to explore "what's needed" and "what's possible" [8].

IV. CASE STUDY: PROCTOR AND GAMBLE (P & G) COMPANY

Proctor & Gamble (P&G) company uses InnovationNet as their knowledge-sharing mechanism to share innovation knowledge with a variety of sources [8]. Fig.1 provides a pictorial overview of P&G's complex knowledge-sharing network which consists of internal, external, and other venture sources of their innovation network. The part of the Fig.1 labeled "internal" illustrates how knowledge sharing occurs within the organizational boundary. The part labeled "External" indicates a complex network of innovation knowledge sources that are external to the company-sources that P&G makes use of to gain and share innovation knowledge. This external source is open to thousands of innovators around the world. P&G provides access to InnovationNet to all of their employees. Use of this open innovation tool enables the company to gain innovation knowledge to create new products or to enhance their existing products. Moreover, this Internet-based tool is available around the clock and is accessible to innovators and employees located in different countries and time zones [8]. This automated tool uses artificial intelligence to match similar ideas and to gather information about related posts. It also tacks users with similar interests and connects them to community boards where ideas can be collaborated upon and innovation ideas can be developed [8]. This tool uses an extranet to provide access to their external database to the external users who are also able to connect with the internal employees to share their ideas. Senior managers from P&G's research and development (R&D) team remain involved with these groups and help to ensure that innovation ideas are

exposed to new and existing product development processes. Here they also seek out expert opinions for problem solving [8]. In these ways, P&G's InnovationNet not only helps P&G to gain innovation ideas, but also provides the company with the opportunity to collaborate with its partners and suppliers and share knowledge with them related to product development and enhancement. Sakkab [8] points out that P&G views its suppliers' "R&D labs" as part of their own innovation knowledge capacity.

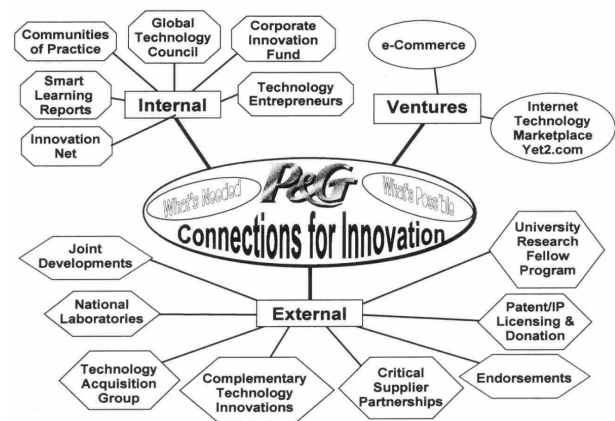


Fig. 1. P&G Innovation Model (source: Sakkab, 2002, p. 40).

There is no doubt that P&G had to deal with risk concerns related to accessing and utilizing this diverse source of innovation knowledge. Moreover, they had to address the issues related to sharing their own internal knowledge with the outsiders. However, the success of InnovationNet and the knowledge sharing value it brings to P&G's open innovation process suggests that open innovation management is critical in creating, implementing, and monitoring a company's knowledge-sharing methods.

Sakkab [8] provides examples of how P&G used this innovation management to reap the benefits of their open innovation knowledge sharing process. This management approach included: A) using "technology entrepreneurs" [8]; B) adopting a "master collaboration agreement" [8]; C) implementing a new "patent strategy" based on licensing [8]; D) implementing new methods of partnership with educational institutions ; and E) utilizing on-demand "confidential disclosure agreements" during technology expos [8].

A. Using technology Entrepreneurs

Sakkab [8] points out that from P&G's perspective, "technology entrepreneurs" are internal subject matter experts (SMEs) who have complete knowledge of their "business units' technologies and needs, and act as a modern-day Internet gatekeepers" [8]. P&G utilizes these SMEs to sort-out innovation ideas that are relevant to their internal needs and ensures that these ideas are not previously patented by others. This selection process, performed by these SMEs, ensures that the company selects ideas that are not only able to be used by the company for their own innovation process, but also that the ideas are free of prior legal obligation or patent bindings. Using these technology entrepreneurs reduces the risks related to open innovation

knowledge sharing because critical legal concerns are addressed upfront, and only those ideas that are valuable to the company are adapted for trial. This practice also reduces risks associated to cost concerns, as the company narrows their focus on only a few, select ideas that are chosen for their innovation process. Therefore, use of these technology entrepreneurs can be a valuable risk reduction mechanism for companies that are seeking out knowledge sharing as their open innovation process.

B. Adapting a Master Collaboration Agreement

P&G uses a “master collaborative agreement” established between all the parties involved in partnerships at the starting point of their collaborative venture [8]. This agreement addresses all legal and preparatory rights related concerns. This also sets the standards up front for the rules of engagement and the role each partner must play in the partnership. Sakkab [8] suggests that by adapting this master agreement, all parties involved in knowledge sharing and collaboration can focus on their collaborative endeavors rather than spending much time in dealing with different contracts and risks [8]. This master agreement acts as an overarching partnership agreement and, therefore, it reduces the risks related to open innovation knowledge sharing. Using a master collaborative agreement also has the potential to provide companies with added cost benefit because less time may be spent in contract negotiations and other legal concerns related to partnerships and proprietary rights.

C. Implementing a New Patent Strategy Based on Licensing

Recently, to accommodate open innovation knowledge sharing, P&G has changed its previous closed door approach to licensing to a more open approach. Sakkab [8] indicates that the company’s traditional approach to licensing was driven by its “cold war” mentality where the company took a more conservative approach in protecting, selling, and sharing its own invention [8]. Moreover, it did not take an open approach to the outside innovation. Chesbrough [3] identifies this closed door innovation process as the old paradigm of innovation which he defines as “closed innovation” [3]. Chesbrough’s more recent work [9] defines open innovation from a more “openness” approach perspective. From this perspective, he defines open innovation as an “outside in” and “inside out” approach of using innovative ideas [9]. The “outside in” approach enables companies to take innovative ideas from external sources and use them to create new or to enhance existing products and services [9]. Similarly, the “inside out” approach allows companies to open up their innovation ideas for the use of other companies. Therefore, Chesbrough [9] argues for a more open approach to innovation. This “openness” approach requires a mental shift from the traditional closed innovation approach to this new open innovation approach. P&G’s mental shift to this “openness” approach to licensing suggests that the company is now focusing on knowledge sharing with the outside world and easing their licensing requirements in order to encourage and to benefit from open innovation. This open approach, therefore, reduces licensing risk concerns related to open innovation and knowledge

sharing.

D. Implementing New Methods of Partnership for Education Institutions

Though P&G always maintained its knowledge sharing partnership with academic institutions, this time around its partnership is more focused on “leading-edge” technologies focusing on open innovation [8]. The new approach is to send P&G’s research staff to the university labs so they can gain valuable knowledge in developing the company’s product and services. This business and academic collaboration approach adheres to the open innovation concept since it promotes knowledge flow from both the internal and the external sources of an organization. Moreover, research findings suggest that “the greater the number of technology switches, the bigger the benefit from collaboration with universities” [3]. According to Buganza and Verganti [5], more than half of P&G’s innovation ideas are generated outside of the company. A similar partnership approach by other companies fosters other open innovation knowledge sharing relationship. Buganza and Verganti [5] provide examples of pharmaceutical company Pfizer’s “Drug Pfunder” program, which is an open innovation collaborative effort between Pfizer and different universities, suggesting that this business-university partnership adds significant value to an organization’s external knowledge sharing process. It also reduces investment risks because by using this collaborative approach, an organization can adapt ideas that are unbiased and well tested by the academic researchers.

E. Utilizing on-Demand Confidential Disclosure Agreements During Technology Expos

Sakkab [8] points out that technology shows are adding significant value in P&G’s open innovation knowledge sharing process. These expositions provide tremendous opportunity for the organization to collect diverse innovation knowledge from outsiders and share their own internal knowledge with them. However, record keeping of these ideas is not an easy task. According to Sakkab [8], P&G uses creative techniques to record these live events. They provide their employees with mobile phones to record spontaneous ideas on the spot so no ideas get lost during the process. To reduce risks related to the use of these external ideas, P&G deploys their “Technology Acquisition Group (TAG)” who works as facilitator between the company and the external talent to negotiate terms for the use of these ideas [8]. Moreover, the TAG team often prepares “confidential disclosure agreements” on demand to ensure elimination of risks related to this open innovation knowledge sharing process [8]. This is critical for the organization because these agreements ensure that there are no violations related to patent and other legal issues. This also expedites knowledge sharing from outside the organization so open innovation ideas can flow freely between the organization and the innovators.

V. CONCEPTUAL FRAMEWORK

Based on the P&G case study review, this paper developed the conceptual framework for addressing the open innovation

knowledge sharing risks. This conceptual framework, shown in Fig. 2, is based on the findings from the P&G case study and the approaches that the organization took to handle open innovation knowledge sharing risks. This conceptual framework follows the open innovation knowledge sharing risk reduction techniques suggested by Sakkab [8]. It shows three key environments that are important to an organization's innovation process, that is 1) the organization's internal environment; 2) its external environment; and 3) its collaborative or open innovation/knowledge sharing environment. Additionally, the framework shows both the inflows and the outflows of knowledge and technology from and to both the internal and external environments. Moreover, this framework shows the innovation knowledge sharing input factors that are critical to the open innovation knowledge sharing risk reduction process.

Conceptual Framework: Open Innovation Knowledge Sharing Risk Reduction

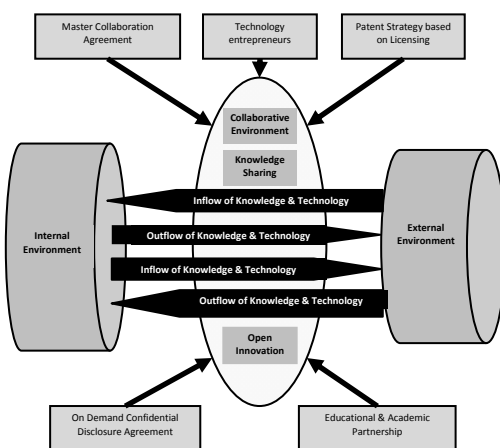


Fig. 2. Conceptual Framework: Methods of Open Innovation Knowledge Sharing Risk Reduction (Based on Sakkab, 2002).

VI. CONCLUSION

This paper uses a P&G case study to identify key risk reduction methods related to open innovation knowledge sharing. Based on the review of this case study, this paper concludes that open innovation knowledge sharing poses significant risks for the company. Management of the open innovation process is critical in addressing these risk concerns upfront. By addressing these risks up front, organizations can reduce issues related these risk concerns and can also expedite their open innovation knowledge sharing process. Therefore, open innovation knowledge sharing risk reduction methods have positive impact on the

innovation process within an organization.

The limited nature of this current study presents some challenges because detailed examination of the open innovation knowledge sharing risk reductions methods requires both time and effort. In addition, the use of only one case study poses some concerns related to the validity of the findings. Utilizing multiple case studies or performing a comparative study of risk reduction processes used by different companies can strengthen the research in this area. However, the findings from this study and the use of the P&G case study provide some initial guidance for future research in this critical area of innovation management. Future research could also include perspective from external sources in reviewing these risk reduction methods.

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