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# Open Innovation as an Option for Reacting to Reform and Crisis: What Factors Influence the Adoption of Open Innovation?

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**Abstract:** In times of reform and crisis, innovation is central for adapting to change. Many companies currently adopt open innovation models in an effort to increase their innovativeness. However, not all companies practice identical modes of open innovation and the adoption of open innovation models doesn't lend itself to predictable cause-and-effect relationships. The adoption of open innovation models varies among companies and is dependent upon influencing determinants. Hence, each company has to analyze their specific external and internal influencing factors and adapt the open innovation models accordingly. Grounded in case studies of innovation management of public utilities, we aim to develop a conceptual framework regarding external and internal factors that influence the adoption of open innovation. The goal of our research is to contribute to the field of open innovation by answering questions pertaining to when, why, and how companies adapt open innovation models according to the various influencing factors.

**Keywords:** Reform; Crisis; Innovation Management; Open Innovation; Adoption; Influencing Factors; Public Utilities.

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Open innovation models originated from experiences with open source software (OSS) development [3]. The approach identifies the common intention of different developments in the innovation economy that include the lead user approach (user based innovation), toolkits for user innovation and design, and community-based innovation [4]. Open innovation also describes the overall strategy and innovation model that these methods require. This means that open innovation is not one single technique to improve some aspects of the firm's innovation process.

Scholars and practitioners in the field of innovation management stress the importance of accelerating innovation processes while simultaneously reducing costs and increasing quality [5]. This is particularly true in unstable environments. Yet, it is not just these factors that force companies to adopt open innovation models: there are additional factors that make the open innovation models a reasonable option for many industries for reacting to reform and crisis. These include:

- The increasing availability of well-trained and knowledgeable workers means that more people are able to produce useful knowledge. It also implies that this useful knowledge is widely distributed and located among suppliers, customers, partners, start-ups, consultants, universities, or research institutes [2]. Open innovation models aim to access this knowledge through collaborative innovation processes.
- Open innovation models can be defined as “the use of purposive inflows and outflows of knowledge to accelerate internal innovations, and expand the markets for external use of innovation” [6]. It is assumed that such exchange of knowledge and resources results in better innovation performance through cost reduction, shared risk, and increased value creation.
- Since technology intensity has increased in many industries, few companies are able or willing to afford technology development on their own. Thus, interdisciplinary research with - or outsourced research tasks to - research partners like suppliers are expected to play a central role in the future [5].
- Antecedents and drivers of open innovation confirm that companies in unstable markets (e.g., in markets with increased competition due to reform) are forced to use not just one but several external sources to boost their innovation success [7].

## **2 The Adoption of Open Innovation Models**

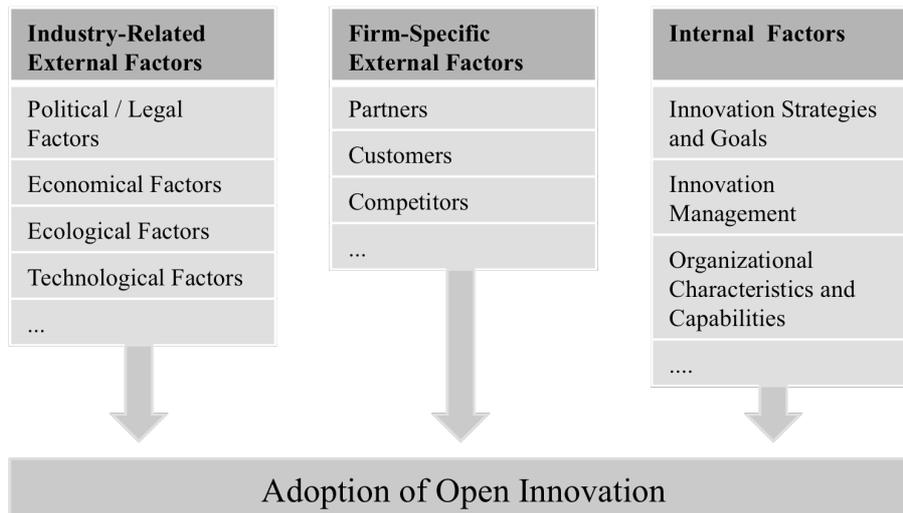
Up until now, researchers have mainly explored open innovation models with a strictly firm-oriented perspective and have referred to a very limited number of cases (such as IBM, P&G, Air Chemicals and Innocentive). Typically, these cases studies have explored whether different kinds of firms are already involved in open innovation activities and how they manage this strategic orientation [7]. Moreover, the topic has mainly been dealt with as a pure innovation issue where other aspects and consequences of organizing open innovation have not been drawn into the open innovation literature [8]. Hence, open innovation research has mainly focused on how to organize the execution of open innovation without questioning requirements an organization has to meet to implement open innovation effectively. Although the study by Laursen and Salter [9] indicates that the open innovation model should not lead to the interpretation that all companies

practice identical modes of open innovation, the input side - including the decision to implement open innovation as well as the adoption of the model according to the firm's characteristics - has generally been neglected in open innovation research. Yet, huge variations exist across as well as within industries and companies [10]. The study of Bloom, Dorgan et al. [11] points out that the same practices used in one company may lead to somewhat different results in another company. This means that the implementation of open innovation models doesn't lend itself to predictable cause-and-effect relationships. The challenges for companies that are implementing new practices like open innovation models are two-fold. First, they have to analyze the factors that influence their decisions in general and their innovation management in particular. Second, every company must develop its individual means for adopting the models according to their specific influencing factors. Therefore, it is necessary for each company's management to define the most important elements of adoption by answering the following key question: For our company, at this time, competing against our rivals, which of the many dimensions of adoption are most important [12]?

### *Factors Influencing the Adoption of Open Innovation*

Existing models on innovation management and on the adoption of open innovation models reveal the challenges that companies are facing in their decision processes concerning the adoption of open innovation models. We argue that the adoption of open innovation models is influenced by external and internal factors differing from both an industrial- and a firm-oriented perspective. Based on different models on influencing factors [13], we assume that various factors influence the adoption of open innovation models.

**Figure 2:** Factors Influencing the Adoption of Open Innovation



Over the past decades, many companies have been undergoing profound process of reform involving *political or legal factors* like institutional and regulatory drivers. These factors along with *economical factors* like diminishing profits and increased competition and *technological factors* such as the emergence of information and communication technologies affect companies in terms of revising innovation management and searching for new innovation models. Since many companies' technological dependency is rapidly growing through the widespread use of information and communication technologies, joint innovations with *partners* like technology suppliers are becoming increasingly important. Furthermore, firms can respond to the changed customer demands in cooperative innovation processes with *customers*. Even conjoint innovation processes with *competitors*, which may initially seem counterintuitive, are a possibility for companies to be able to increase their innovativeness, since such collaborations can open up new markets or suppress new competitors through collective market power [14].

The challenges for the adoption of open innovation models involve not only external but also internal factors like *strategic decisions and goals* as well as sustaining long-term commitment in order to realize benefits from implementing such models. After constituting their open innovation strategies and goals, each company has to adapt their *innovation management*. Revised internal processes, metrics, and incentives are important for the implementation of the strategic goals through the open innovation management [15]. In addition, companies have to adapt their *organizational characteristics and capabilities*, which include organizational learning, willingness to take risks, orientation towards innovation [16] or innovation culture.

Hence, we assume that the different industry-related and firm-specific external along with the internal factors influence the adoption and implementation of open innovation models. By analyzing the innovation management and the implementation of open innovation models at Swiss Post in a short case study, we identify two preliminary conclusions [17]:

- Industry-related external factors are constitutive for a company's innovation management: they determine when companies rethink their innovation management.
- Firm-specific external and internal factors determine how companies implement open innovation models.

### **3 Research Objectives and Methodology**

To be able to adopt open innovation models sustainably, it is important for all companies to analyze the influencing factors and adapt the models based on their specific characteristics. The goal of our research is to develop a conceptual framework enabling insights into the external and internal factors that influence the adoption of open innovation. Moreover, we aim to contribute to the field of open innovation by answering the questions pertaining to when, why, and how companies adapt open innovation models in light of their external and internal influencing factors. Since public utilities - undergoing profound process of reform - vary strongly by sector, level of technology used, company size, and stages of the liberalization process, it is reasonable to research these entities in terms of the factors that influence the adoption of open innovation. The

practical contribution of our research will be to better understand how open innovation models should be adapted to a company's specific characteristics and to provide recommendations for the adoption of open innovation that may be useful not only in public utilities but also in other companies.

In order to do this, we formulate the following questions:

- What are the industry-related external factors and how are they influencing the adoption of open innovation models in public utilities?
- What are the firm-specific external factors and how are they influencing the adoption of open innovation models in public utilities?
- What are the internal factors and how are they influencing the adoption of open innovation models in public utilities?

Considering the lack of experience in the relatively young field of open innovation, case study research is useful to identify and analyze the external and internal factors that influence the implementation of open innovation models. To investigate the contemporary phenomenon within its real-life context, we combine different data collection techniques such as interviews, questionnaires, and document analysis. We take an iterative case study approach that enables combining qualitative and quantitative methods according to the principle of saturation. The cases will be selected successively: first studying similar units in order to enable the emergence of a substantive theory before enlarging the collection to include units with different characteristics. The cases will also be selected in such a way as to vary the context of observation (e.g., geographically, industrial sector, etc.). The diversity of cases allows us to analyze public utilities' innovation management not only in different countries but also in various sectors.

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